Carbon markets 101

THE ULTIMATE GUIDE TO GLOBAL OFFSETTING MECHANISMS

Version 2.0 July 2020

Contents

Introduction

This briefing gives an overview of the current discussions under Article 6 of the Paris Agreement which establishes the foundation for market-based climate measures after 2020. It lays out key lessons from the Kyoto Protocol markets, highlights essential issues within the Article 6 negotiations, and provides recommendations on how to solve them. It concludes with an overview of non-Article 6 carbon markets, which have ties to the Article 6 discussions, such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), a carbon market specifically designed for airlines.

Trading greenhouse gas emissions

Carbon markets are one of the tools to tackle the climate change problem, i.e. the *accumulation* of greenhouse gases in the atmosphere. Since we only have one atmosphere, it does not matter where the emissions are released, because they will soon spread around the earth, creating a greenhouse effect. Following this logic, if a group of people, countries or companies agrees to limit their emissions to a certain amount (aka adopt a "carbon budget"), it does not matter how much each person emits, or where they do so, as long as the whole group does not emit more than what they committed to. Since it doesn't matter where we reduce emissions, the argument behind carbon trading is that the best way to take climate action is to reduce emissions where it is easiest (i.e. least costly) to do so.

To this end, governments around the world have established carbon markets, where emissions (or emissions reductions) can be exchanged from one entity to another. In theory, as long as we control the total amount of emissions traded in the market, it does not matter for the climate who buys or sells. Of course, in practice, establishing a global, or even national, carbon market is a challenging task. There are significant risks that the systems contain loopholes which can result in this policy having little to no impact on reducing emissions.

Distinguishing between two forms of carbon markets

In order to understand how different carbon markets function, one needs to ask the following question: *how are emission reductions exchanged from one person/country/company to another*?

There are two different types of carbon markets: cap and trade schemes *(or emissions trading systems, ETS)* and baseline-and-credit mechanisms, which we will call offsetting mechanisms (although this is a simplifying characterisation[1]).

These two forms of markets do not work in the same way, and do not have the same objective. The fundamental distinction between the two is in what is being bought and sold on the market. In both cases, it's a tonne of CO_2e. However, in an ETS, companies trade pollution permits (often called "allowances"), which allow them to emit one tonne of CO_2e. When a company releases $1tCO_2e$, it must give one permit back to the government ("surrender an allowance to the regulator"). In an offsetting mechanism, on the other hand, countries/companies trade offsets, i.e. emission reduction units, which must represent a tonne of CO_2e which has been reduced already[2].

The timing is therefore crucial to distinguish between ETSs and offset mechanisms: in an ETS, companies trade permits to pollute in the future, while in an offsetting mechanism, the traded emission reductions have already happened (hence are from the past). From this follows a host of other differences.

Offsets can only lead to a zero-sum game, because one tonne of CO_2e is emitted somewhere, and one tonne is reduced somewhere else. Hence, they cannot be used to reduce emissions in the long term and are not compatible with the idea of going towards net-zero emissions at a global level. Offsets should only be used to compensate for emissions that cannot be avoided or reduced.

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1 Throughout this guide, we make simplifying assumptions, characterizations, and statements. These simplifications help focus on what matters and should not be controversial in any way. For example, we will assume throughout the briefing that the unit of measure traded in carbon markets is always $1tCO_2e$. This is not a fixed international rule, but it is the unit used in an overwhelming majority of the systems.

2 Sometimes, offsets can be used in emissions trading systems, which has important repercussions on the effectiveness of the ETS, but we will not focus on this issue here.

The choice of one system over the other leads to significantly different targets when it comes to climate ambition. Under an ETS, the government has full control over the amount of CO2e which can be emitted, because companies taken together cannot emit more than the total number of allowances distributed. Under an offsetting mechanism, the government might set a theoretical emission limit, but companies will be free to emit as much as they want, as long as they buy offsets. This means that companies are paying others to reduce emissions instead of doing the job themselves.

Global carbon markets to date have been nearly exclusively offsetting mechanisms, rather than emissions trading systems. This is why, in this guide, we will focus largely on offsetting mechanisms which are implemented at the UN level. Below, we describe some of the main offsetting mechanisms in the world, explaining what they are and how they work (or don't work!).

UN carbon markets

Under the United Nations' climate body (the United Nations Framework Convention on Climate Change, UNFCCC), countries have set up different offsetting mechanisms. Theoretically, this allows countries to set more ambitious climate targets, since climate action is cheaper. However, in practice it is very difficult to establish a clear relationship between the ability to buy cheap carbon credits and a country's willingness to commit to more climate action. In certain cases, the opposite can happen, as countries prefer to sell their emission reductions instead of using them to meet their own targets (more details about this further down).

Lessons from the Kyoto Protocol for the Article 6 markets

Under the Kyoto Protocol, three carbon markets were established. The main commonly understood objective was to make it as cheap as possible for rich countries to meet their emission reduction objectives (developing countries did not have reduction targets under the Kyoto Protocol).

The Clean Development Mechanism

The main market is called the Clean Development Mechanism[3] (CDM), which allowed rich countries to buy emission reductions from developing ones through carbon credits, called Certified Emission Reductions (CERs). In theory, this should have allowed countries to adopt more ambitious climate targets. In practice, it even failed at the task of compensating existing emissions. This is because a large majority of the emission reductions under the CDM would have happened anyway. For example, some projects which sold emission reductions were mandated by law, and some were profitable even without selling credits. Countries relied on these credits to *replace* other emission reduction efforts which meant that the CDM led to an *increase* in emissions, compared to a situation where countries would have met their targets without relying on the CDM. It is estimated that 85% of CDM projects would have operated even without the CDM revenues[4].

In addition, some projects registered under the CDM have had significant negative impacts at local level, because the system lacks essential safeguards[5]. For example, its rules on local stakeholder consultations are insufficient and it has no mechanism in place to address grievances raised by local communities.

These elements demonstrate why the CDM has failed at its task of contributing to the global effort to reduce greenhouse gas emissions and delivering sustainable development benefits. It provides valuable lessons for the Article 6 mechanisms, but countries should not be allowed to use the credits it generated towards their Nationally Determined Contributions (NDCs) under the Paris Agreement (see below).

3 Carbon Market Watch has extensively worked on the CDM. After being revised several times, it has become clear that the CDM has major shortcomings, and must end. You can read more about this in our publication "CDM: Local Impacts of a Global System". As of 2020, the survival of the CDM is subject to tense negotiations between countries, see the "Paris Agreement" - Article 6.4 section below.

4 Öko-Institut (2016), "How additional is the Clean Development Mechanism?", 2016

5 You can find concrete case studies of projects which had harmful local impacts here and here. You can also find our guide on how to conduct effective local stakeholder consultations here.

International Emissions Trading and Joint Implementation

The other two carbon markets established under the Kyoto Protocol are slightly different, and interact with one another.

International Emissions Trading (IET) is like an emissions trading system for rich countries, which received units (AAUs - for *Assigned Amount Units*) that could be sold to other rich countries (e.g. Australia, Germany, France, UK ...). However, IET was not effective because too many units were distributed under it, i.e. national targets under the Kyoto Protocol were very weak[6].

Joint Implementation is similar to the CDM, but the trade of emission reductions happened between rich countries, rather than from developing to developed countries. The units were called Emission Reduction Units (ERUs).

IET and JI - a poisonous mix for the climate

Since Kyoto targets were very weak, they were over-achieved by several countries, without significant climate action being undertaken. This was the case for example when the Soviet Union collapsed, leading to a significant economic downturn. As a result, emissions in the countries of the bloc plummeted. This meant that, compared to the baseline that was fixed at 1990 levels, it appeared as if the ex-Soviet countries had carried out significant climate action. Some countries ended up with a lot of unused[7] credits from IET (AAUs) which they were able to sell to others.

Many countries sold this extra abatement to private companies which were allowed to use that instead of complying with more ambitious regulations[8]. Technically, companies could not use these credits, because they were meant *for countries*. So countries sold credits from the JI to companies, and cancelled their AAUs to account for this sale. In theory, this ensured that for every tonne emitted by a company, a country had to reduce one more tonne, because it had one less "pollution permit" (AAU). But in practice, since countries had too many AAUs in the first place, having to cancel such units did not make any difference for them, and ended up allowing companies to pollute more without forcing countries to do any extra effort. This issue is often referred to as the "hot air problem" under the Kyoto markets, and it is a major lesson to be learned when designing the Paris Agreement markets.

Carbon markets under the Paris Agreement

Under the Paris Agreement, (nearly) all countries around the world have adopted climate targets, not just rich countries, and two new carbon markets have been established to replace the three Kyoto markets. These markets are covered in large part by Article 6 of the agreement, and negotiators have been discussing the detailed rules of these mechanisms since 2016. As of 2020, no agreement has been found[9].

The Article 6 is split into two different market mechanisms: Article 6.2 and Article 6.4 (the latter is sometimes called the Sustainable Development Mechanism, or SDM).

Article 6.2

Article 6.2 sets up a carbon market which allows countries to sell any extra emission reductions they have achieved compared to their target[10]. For example, if a country has committed to reducing its emissions by 100 tCO2e, but actually reduces 110tCO2e, it would be

6 You can find more information about this in our briefing "Empty targets? Preventing the trading of hot air under the Paris Agreement"

7 See for example this report "carry over of AAUs from CP1 to CP2"

8 Many companies relied on CDM and JI credits to meet their obligations under the EU Emissions Trading System, which played a major role in crashing the system for a decade.

9 Because of this, the section below should be taken with a grain of salt. The description made of the two Paris markets is what CMW perceives as being a possible outcome for these markets (which is not the same as the best outcome!). When, if at all, an agreement is found, we will update this guide to reflect it.

10 Targets are self-defined, and called Nationally Determined Contributions. Taken collectively, the NDCs of all countries do not set the world

able to sell the extra 1otCO2e reduced to another country, which has not managed to meet its own target. These credits would be called Internationally Transferred Mitigation Outcomes (ITMOs).

Under this system, countries could be allowed to enter into bilateral agreements and self-define how "environmental integrity" is ensured. This means that there would not be any specific body to control the market, and the quality of the emission reductions transferred would not necessarily be measurable. Of course, other scenarios are possible, where countries are bound by strict rules which regulate the quality of the transferred credits. This would logically be beneficial for the climate, and would be a preferable outcome to a do-what-you-like system[11].

One major risk in this market is that it could repeat the failures of the JI and IET systems, by trading "hot air". If national emission reduction targets are too weak, which is the case for several countries which adopted emission reduction objectives that do not require them to take any climate action, then the transferred credits will have no value for the climate. Relying on such credits instead of reducing emissions domestically would be equal to reducing emissions on paper but not doing anything in practice. The solution is for buyer countries to only buy credits from countries which have ambitious climate targets, in line with a 1.5°C compatible trajectory, recognising the principle of common but differentiated responsibilities, and to place a limit on the total quantity of credits which can be used by a given country.

Article 6.4

A different system, Article 6.4 resembles much more the Clean Development Mechanism, except that it will not be restricted to projects implemented in developing countries. Under this market, it is expected that project developers will reduce emissions through specific actions in a country, and sell these emission reductions to another country/company/person. This process requires more "governance", i.e. more control from a body tasked with establishing detailed rules and verifying that projects and credits comply with certain criteria.

Main challenges

While many of the shortcomings of the Kyoto Protocol's markets are clearly identified, the solutions, and the political willingness to implement them, are not as straightforward. Below we cover five main challenges in the Article 6 negotiations at the UNFCCC.

Too many credits available

Since projects started reducing emissions under the Kyoto Protocol's market, demand has been much lower than supply. As a result, many projects which have been registered under the CDM, and have reduced emissions, are not producing credits. Producing (called "issuing") credits costs money, because the project developers must pay an external auditor to verify the quality of their project. If nobody is interested in buying the credits, and prices are hence very low, it does not make sense for the project developer to pay the cost of producing a credit.

This means that, in many cases, projects have reduced emissions but have not yet issued credits. However, the credits could still be released in the future, if the project developers decided to pay the external verifier. This means that the number of credits available today is much lower than the number of credits which *could be available if credit prices increased*. The key point here is that many credits could be issued for emission reductions which have already taken place, which raises questions about the true climate benefit of relying on these credits to "compensate" present or future emissions.

By 2020, the number of credits which the CDM will potentially have made available is 4.6 billion. Of this, it is expected that around 600 million credits will be used towards existing targets and commitments, or have already been used in the past. This means that around four billion credits could be available for use after 2020, without actually leading to direct reduction of one single tonne of CO2e after 2020. This number of credits is much bigger than the expected demand at least until 2035.

on track to meet the temperature target of the Paris Agreement.

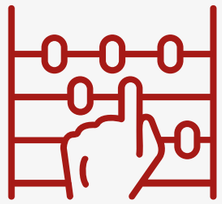
11 The ongoing negotiations around Article 6.2 are highly technical, and the system is of course much more complex than what is described here.

GLOBAL CARBON MARKETS: 5 MAIN CHALLENGES AND 5 WAYS TO ADDRESS THEM

Too many credits available

The use of old CDM credits should not be allowed after 2020

The risk of double counting



Robust accounting rules are needed, including the application of corresponding adjustments for every credit

Protecting local stakeholders and the environment, and delivering on the sustainable development goals

Markets must involve local communities in projects and have safeguards in place, such as a grievance mechanism

Delivering overall mitigation in global emissions

All credits should be partially cancelled to go beyond zero-sum offsetting

Avoiding perverse incentives that hamper ambition

Countries should adopt ambitious climate targets instead of selling emission reductions

In addition, a large majority of the projects which would generate these credits would continue to reduce emissions regardless of whether they can sell emission reductions or not[12].

This is why it is crucial that units issued under the Kyoto Protocol are not used after 2020, and in particular are not accepted towards the achievement of mandatory emission reduction objectives such as the nationally determined contributions under the Paris Agreement, or the airlines' obligations under the future aviation offsetting scheme (see section below).

A likely political compromise will be to limit the eligibility of credits based on how old they are. For example, under the aviation carbon market CORSIA (described below), credits can be used only from projects which started generating them from 2016.

The risk of double counting

Another major threat for carbon markets after 2020 is the fact that emission reductions could be counted multiple times.

All countries under the Paris Agreement have adopted an emissions reduction target. When one country sells a reduction to another country, it is important to ensure that this reduction is not counted by both countries. Tracking countries' progress towards their national objectives (i.e. checking whether they are reducing their emissions by as much as they said they would), is often done based on countries' *emission inventories*. These inventories are essentially a physical measure of the amount of CO2e which is released into the atmosphere. If emissions are reduced, this will be seen in the country's inventory. If this emission reduction is sold to another country, it will also be used by this other country towards meeting its objective. This is double counting.

In order to avoid this, it is of paramount importance that countries make corrections to their reported emissions[13], to show that some of their achieved emission reductions have been used by another entity. This is called a "*corresponding adjustment*". If a country reduced its emissions by 100tCO2e, but sells 10 credits to another entity, then it should report a reduction of 90tCO2e. In this case, the corresponding adjustment applied is 10tCO2e.

Protecting local stakeholders and the environment, and delivering on the sustainable development goals

In addition to questions related to the true impacts of carbon markets on the climate, concerns have been raised regarding the local impacts of such markets. By recognising specific projects as eligible, programmes such as the CDM provide certain legitimacy to the projects. A "UN certification" is for most observers a guarantee of quality.

Yet, in reality, mechanisms such as the CDM have lacked the most essential safeguards to avoid harmful local impacts (see previous section on the CDM). This must be corrected in the new set of markets under the Paris Agreement. Specifically, this means adopting detailed rules for consulting local stakeholders before emission reduction projects are implemented - and making such consultations mandatory -, establishing a grievance mechanism, governed by an independent body, and specifying criteria which could be used to measure a project's contribution to sustainable development.

Delivering an overall mitigation in global emissions (OMGE)

Unlike the Kyoto markets, Article 6 sets an objective to go beyond "zero-sum" compensation, and use carbon credits to *reduce* emissions. This means that more emissions must be reduced than what is being emitted as a result of using a carbon credit. In order to deliver on this objective, a partial cancellation rate should be adopted, i.e. every time a credit is transferred, a portion of it is cancelled. In this way, a country which purchases ten credits might only be able to use five, and hence a reduction of 5tCO2e will not be counted by anyone.

While the Paris Agreement only mentions this objective in the context of Article 6.4, it should be implemented as broadly as possible, including within Article 6.2.

12 Warnecke et al. (2019): "Robust eligibility criteria essential for new global scheme to offset aviation emissions", Nature Climate Change, 9, 218-221

13 Technically, inventories cannot be changed. The corrections must be applied to an account based on the country's inventory, i.e. you take the final number of a country's inventory, you copy paste it to another table which you call "account" and you make corrections to that. The inventory is always the physical measure of emissions in a country, it cannot be changed with accounting procedures.

Avoiding perverse incentives that hamper ambition

Finally, without proper safeguards, there is a risk that using the Article 6 mechanisms leads to the adoption of *lower* emission reduction targets. This is because the ability to sell credits will push seller countries to adopt lower domestic targets and sell the emission reductions instead of using them towards their own objectives.

This is particularly true if countries are allowed to sell emission reductions from sectors (or gases) which are not covered by their nationally determined contributions. For example, a country might have excluded its waste sector from its NDC target. If it is allowed to sell emission reductions from this sector, it would have an incentive not to set an emission reduction target for it, because doing so would force it to use the emission reductions towards its own target, or to make corresponding adjustments to avoid double counting.

Another solution could be to require corresponding adjustments to be applied *inside* an NDC, even if credits are issued *outside* of it.

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

In parallel to the UNFCCC's carbon markets, another UN agency is in the process of developing its own mechanism: in 2016, member countries of the International Civil Aviation Organisation (ICAO), the UN body responsible for civil aviation, agreed to establish the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), a carbon market specifically designed for airlines.

The objective of this market is to compensate the growth in emissions from international flights above 2020 levels. Between 2021 and 2023, if CO2 emissions from international flights exceed their 2019 levels, then the excess will need to be offset. Between 2024 and 2035, emissions will need to be offset if they are above the average of 2019 and 2020 levels.[14]

The shortcomings of CORSIA

It is important to keep in mind two things when discussing the future aviation offsetting scheme and its effectiveness. First of all, this scheme covers only *international* flights, not domestic, which represents a significant share of global aviation emissions. From the flights that it does cover, only the growth in emissions will be compensated. In total, CORSIA will therefore only cover about 10% of global aviation CO2 emissions.

Second, we are no longer referring to CO2e, but only to CO2. This is because CORSIA only covers CO2 emissions, without taking into account other impacts which air travel has on climate. These so-called "non-CO2 impacts" can be massive, and act as a multiplier to the impact from CO2 emissions. It is very hard to calculate the exact value of this multiplier, but it is sometimes estimated between two and four times the impact of CO2-only.

In order to compensate for their emissions, airlines will therefore have to buy carbon credits, and the big question is: where will these credits come from? With an estimated demand slightly below two billion credits, airlines will be a significant source of demand for carbon credits after 2020, which means that what they can or cannot buy will have a major impact on the future carbon markets.

Based on recommendations from an expert group, ICAO member states have decided which offset credits will be eligible for CORSIA. A list of eligible programmes is maintained on the ICAO website, and some specific criteria have been adopted. For example, during the pilot phase, only credits coming from projects which started issuing credits from 2016 can be used. The list of restrictions, and eligible programs, is likely to evolve for future phases. Currently, there is still an oversupply of credits for CORSIA, in particular given that airlines

14 The original agreement was to compensate CO2 emissions from international flights above the average of 2019-2020 levels. In June 2020, as a result of the covid-19 crisis and intensive lobbying by the airline industry, the "baseline" for the first three years was amended to 2019-only. This is likely to result in no offsetting obligations for this period given that emissions from international flights have plunged as a result of travel bans and are therefore below the 2019 level. ICAO will further consider, by 2022, possible changes to the baseline for future phases.

will likely have no offsetting requirements during the first three years of the scheme, as their emissions remain below the 2019 baseline.

In addition to this, the double counting rules to be adopted under the Article 6 of the Paris Agreement will have to also cover carbon credits used by airlines, in order to avoid both a country and an airline claiming the same emission reduction towards their respective targets.

Other international carbon markets

REDD+

While REDD+ is not technically a carbon market, it has been used by some standards to generate carbon offsets from forestry projects. REDD+ is a system for ecosystem services payments, whereby countries or other financiers will pay for emission reductions for avoided deforestation and land degradation.

Issuing carbon offsets from forestry projects, and REDD+ in particular, has been strongly criticised for its lack of environmental integrity, as well as the lack of adequate safeguards to prevent adverse impacts on the environment and local communities. Issuing credits for avoided deforestation raises three major problems with regard to environmental integrity.

First, it is extremely difficult to accurately establish what would have happened in the absence of the project. Perhaps the trees would not have been cut down anyway? Establishing a scenario to which one can compare the observed reality requires making major assumptions, which are sometimes unrealistic.

Second, it is also very difficult to ensure that by reducing deforestation somewhere, the project is not increasing deforestation somewhere else. This indirect impact of a conservation project is hard to estimate and to prevent, and can substantially reduce the benefits of a forest protection measure.

Finally, issuing credits for avoided deforestation requires that the deforestation is avoided over a long period of time. If the credits are used to justify emissions in another part of the world, then the avoided emissions should be avoided for at least the lifetime of the emissions it is justifying[15]. An often-used reference is a 100-year time horizon. Yet, thinking that it is possible for a project developer or an offset provider to protect trees for an entire century is a very strong, probably unrealistic, assumption to make.

The voluntary carbon market

The UN's carbon markets are the main "compliance" markets, meaning that they are established in order for their participants to meet binding targets set by governments. In addition, some private companies also choose to buy carbon credits on a voluntary basis, most often as a tool for corporate social responsibility and to improve their public image.

These credits are bought and sold in the so-called "voluntary" market[16], which is not backed by any government standard or mandatory goals, but rather based on specific organisations certifying that emission reductions have environmental integrity (called "greenhouse gas (GHG) programmes"). The entire market, therefore, rests on the relationship of trust between buyers and the GHG programmes, and the claim that the credits sold on the market truly contribute to reducing emissions.

Similar to the compliance market, this market has shortcomings, including in relation to the environmental integrity of the credits transacted. While fewer studies have been conducted on the quality of the voluntary market, in part because it is much smaller than the main UN markets, some of the criticisms of compliance markets are valid also here. For example, several types of projects which have been found to be non-additional, such as large renewable energy projects, have been used in the voluntary market to issue credits.

A major challenge for the voluntary carbon market post-2020 is to prevent double counting of emission reductions, and prevent that efforts claimed as "extra reductions" are actually substituting efforts from a national government. For example, if a company helps to reduce emissions in a country, which contributes to that country meeting its national climate target, then the company has not actually "increased" overall reductions in emissions. Rather, it has financed reductions which the host country had committed to deliver already. While it can be a positive action to support host country climate efforts, especially in least developed countries, it is not accurate for a company to claim that the reductions it financed are "extra" compared to what would have happened anyway. Therefore, these reductions should not be used to compensate for emissions elsewhere. To solve this challenge, the voluntary market should either stop making claims of "carbon neutrality", or apply corresponding adjustments to ensure that the host country where emissions are reduced will still deliver all the reductions it was planning to deliver.

In the latter case, where host countries cannot count the emission reduction towards their own target, this can create an equity problem, because it means that private companies can make some emission reductions inaccessible to host countries. This is why it is important that 1) host countries always have the freedom to agree or disagree to companies purchasing emission reduction, and 2) reductions sold on the voluntary market target "high hanging fruits", i.e. reductions which would be expensive for the host government to finance. In the medium term, private companies should move away from a model based on offsetting and instead support host country climate action while acknowledging their full responsibility for the emissions that the company's activities create.

Looking ahead: going beyond offsetting

As described in the introduction to this briefing, we have focused on offsetting mechanisms. Yet these mechanisms are based on a logic which does not hold in the long term. In order to be able to offset one's emissions, someone else needs to have "extra" emission reductions available to sell.

Yet, the Paris Agreement requires all countries to reduce emissions as much as they can. This means that there is no room to offset, because there are no "extra emission reductions" available when countries are already doing their maximum.

At a global level, we should strive to reach a balance of zero net emissions, as negative emissions through various sinks will compensate for small amounts of residual positive emissions. But as each country or region aims to achieve net zero emissions, there will be little to no "extra" reductions which can be bought by other countries. Hence, while positive and negative emissions will balance each other out in national accounting, there will be no space for large scale offsetting initiatives.

This means that the carbon market system must evolve towards something better than offsetting. It should aim to accelerate the transition, rather than offering a cheap way out and replacing somebody's efforts with that of someone else.

The world should move away from offsetting mechanisms and towards financing climate projects that truly drive the zero-carbon transition. One way of achieving this is to use existing carbon markets to disburse climate finance by buying carbon credits and cancelling them, without claiming the actual emission reductions. This and other alternatives to foster finance flows will need to be further elaborated in the coming years to transition beyond offsetting.

15 CO_2 emitted into the atmosphere progressively disappears over time. It takes hundreds of years for it to fully disappear. If you justify the emission of 1tCO_2 by avoiding an equivalent emissions somewhere else, then the minimum permanence requirement often supported is that emissions should be saved for at least 100 years. This has to be true in order for the project to have environmental integrity, but it is not enough on its own (i.e. it is a necessary but insufficient condition to ensure environmental integrity). Some companies also purchase credits from the CDM on a voluntary basis. But while companies can purchase credits from compliance markets, it is not possible for countries to buy credits from the voluntary market and claim the emission reductions towards official targets.

16 Some companies also purchase credits from the CDM on a voluntary basis. But while companies can purchase credits from compliance markets, it is not possible for countries to buy credits from the voluntary market and claim the emission reductions towards official targets.

MAKING SENSE OF THE CARBON MARKET JUNGLE:

HOW DO DIFFERENT SYSTEMS RELATE TO EACH OTHER?

*ALL COMMENTS RELATED TO ARTICLE 6 INDICATE ONE POSSIBLE OUTCOME WHICH CMW BELIEVES IS POSSIBLE/-LIKELY (WHICH DOES NOT MEAN IT IS NECESSARILY ONE WHICH CMW SUPPORTS). ALL COMMENTS RELATED TO ARTICLE 6 HENCE DEPEND ON THE FINAL AGREEMENT.

** THIS TABLE CLARIFIES HOW DIFFERENT SYSTEMS ARE LINKED. IT DOES NOT IMPLY THAT CMW SUPPORTS ALL THE COMBINATIONS PRESENTED. FOR EXAMPLE, CMW DOES NOT BELIEVE THAT ISSUING REDD+ CREDITS FOR USE AS OFFSETS IS APPROPRIATE.

PROGRAME (CREDITS)	CDM	JI	IET	ART 6.4	ART 6.2	VCS	GS	OTHER VCM	REDD+	CORSIA	CLIMATE FINANCE
CDM (CER)		CDM AND JI ARE INDEPENDENT FROM EACH OTHER. CERS AND ERUS CAN BOTH BE USED BY COUNTRIES TO REACH KP TARGETS.									
JI (ERU)	TO MEET ITS KP TARGET, A COUNTRY CAN USE A CER INSTEAD OF AN AAU		TO ISSUE AN ERU, A COUNTRY HAS TO CANCEL AN AAU. THE ERU CAN THEN BE USED TO MEET A KP TARGET.								
IET (AAU)	SOME CDM CREDITS /PROJECTS/METHODOLOGIES MIGHT BE TRANSITIONNED INTO ART. 6.4	SOME JI CREDITS/PROJECTS/ METHODOLOGIES MIGHT BE RANSITIONNED INTO ART. 6.4	NO CLEAR CONNECTION								
ART 6.4 (A6.4ER*)	SOME CDM CREDITS /PROJECTS/ METHODOLOGIES MIGHT BE TRANSITIONNED INTO ART. 6.4	ITMOS MIGHT INCLUDE REDUCTIONS FROM JI PROJECTS	IF A COUTRY WAS TO USE ITS AAUS TO MEET ITS NDC, AND SELLS ITMOS UNDER 6.2, THIS WOULD BE EQUIVALENT TO SELLING AAUS AS ITMOS	ITMOS COULD INCLUDE A6.4ERS, AND SEVERAL ASPECTS OF ARTICLE 6 COVER BOTH 6.2 AND 6.4							
ART. 6.2 (ITMO*)	VCS CERTIFIES SOME CDM PROJECTS, WHICH THEN ISSUE VCUS INSTEAD OF CERS	NO CLEAR CONNECTION	NO CLEAR CONNECTION	VCS COULD CERTIFY 6.4 PROJECTS	VCS COULD CERTIFY ITMO TRANSACTIONS						
VCS (VCU)	GS CERTIFIES SOME CDM PROJECTS, WHICH THEN ISSUE VERS INSTEAD OF CERS	NO CLEAR CONNECTION	NO CLEAR CONNECTION	GS COULD CERTIFY 6.4 PROJECTS	GS COULD CERTIFY ITMO TRANSACTIONS	GS AND VCS ARE COMPETITORS					
GS (VER)	VOLUNTARY STANDARDS COULD REGISTER CDM PROJECTS (AS VCS AND GS HAVE DONE)	VOLUNTARY STANDARDS /LABELS COULD CERTIFY JI PROJECTS	NO CLEAR CONNECTION	COULD CERTIFY 6.4 PROJECTS	COULD CERTIFY ITMO TRANSACTIONS		COMPETITORS				
OTHER VOLUNTARY STANDARDS	TWO SEPARATE UN MECHANISMS	TWO SEPARATE UN MECHANISMS	TWO SEPARATE UN MECHANISMS	SOME REDD+ PROJECTS MIGHT TRANSITION INTO ART. 6.4	SOME REDD+ CREDITS MIGHT BE SOLD AS ITMOS	VCS HAS CERTIFIED REDD+ PROJECTS TO SELL CREDITS AS OFFSETS	GS DOES NOT CERTIFY REDD+ PROJECTS	SOME VOLUNTARY STANDARDS CERTIFY REDD+ PROJECTS AND ISSUE CREDITS FOR USE AS OFFSETS			
REDD+	CERS ARE ELIGIBLE FOR USE IN CORSIA (WITH RESTRICTIONS)	NO CLEAR CONNECTION	NO CLEAR CONNECTION	A6.4ERS COULD BECOME ELIGIBLE UNDER CORSIA IN THE FUTURE	IMPORTANCE TO AVOID DOUBLE COUNTING OF REDUCTIONS BETWEEN CORSIA AND ART. 6.2.	VCUS ARE ELIGIBLE FOR USE IN CORSIA (WITH RESTRICTIONS)	VERS ARE ELIGIBLE FOR USE IN CORSIA (WITH RESTRICTIONS)	CREDITS FROM SOME VOLUNTARY STANDARDS ARE ELIGIBLE FOR USE IN CORSIA (WITH RESTRICTIONS)	SOME REDD+ CREDITS COULD BE USED IN CORSIA THROUGH ELIGIBLE STANDARDS.		
CORSIA	WHEN CERS ARE CREATED, MONEY IS CHANNELLED TOWARDS THE ADAPTATION FUND	NO CLEAR CONNECTION	NO CLEAR CONNECTION	A6.4ERS COULD BE BOUGHT AND CANCELLED AS A WAY OF DISBURSING CLIMATE FINANCE. WHEN A6.4ERS ARE CREATED, MONEY COULD BE CHANNELLED TO THE ADAPTATION FUND.	IMPORTANCE TO AVOID DOUBLE COUNTING OF REDUCTIONS BETWEEN CORSIA AND ART. 6.2.	NO CLEAR CONNECTION	GS IS DEVELOPING ALTERNATIVES TO OFFSETING, INCLUDING CLIMATE FINANCE CONTRIBUTION CLAIMS	THE VOLUNTARY MARKET COULD EVOLVE TOWARDS "CLIMATE CONTRIBUTION" CLAIMS, INSTEAD OF COMPENSATION	REDD+ IS A MECHANISM TO DISBURSE CLIMATE FINANCE. IT WAS NOT ESTABLISHED AS AN OFFSET SCHEME	NO CLEAR CONNECTION	
CLIMATE FINANCE											

LIST OF ACRONYMS:

CDM	CLEAN DEVELOPMENT MECHANSIM
CER	CERTIFIED EMISSION REDUCTION
JI	JOINT IMPLEMENTATION
ERU	EMISSION REDUCTION UNIT
IET	INTERNATIONAL EMISSIONS TRADING
AAU	ASSIGNED AMOUNT UNIT
A6.4ER	ARTICLE 6.4 EMISSION REDUCTION
ITMO	INTERNATIONNALLY TRANSFERRED MITIGATION OUTCOME
VCS	VOLUNTARY CARBON STANDARD
VCU	VERIFIED CARBON UNIT
GS	GOLD STANDARD
VER	VERIFIED EMISSION REDUCTION
REDD+	REDUCING EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION, PLUS THE SUSTAINABLE MANAGEMENT OF FORESTS, AND THE CONSERVATION AND ENHANCEMENT OF FOREST CARBON STOCKS
CORSIA	CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION
UN	UNITED NATIONS

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This project action has received funding from the European Commission through a LIFE grant. The content of this section reflects only the author's view. The Commission is not responsible for any use that may be made of the information it contains.