

TCAF discussion note: Corresponding Adjustments

This discussion note is a deliverable of the TCAF knowledge management work program FY 2020. It builds on ongoing discussion in the TCAF community on corresponding adjustments and responds to the request of TCAF contributors at the annual meeting in June 2019 to elaborate in more detail on corresponding adjustments for carbon crediting transactions in the context of single year targets. The note also incorporates lessons learnt from the DNA crediting workshop held in June 2019.¹

The note begins with a mapping and comparison of key elements of both the Kyoto Protocol and the Paris Agreement relevant for the implementation of carbon market mechanisms. This is followed by some general considerations on the nature and economics of corresponding adjustments (CA). It then discusses the pros and cons of different options to undertake CA for carbon crediting transactions under single-year targets. It outlines elements of a no-regret strategy to corresponding adjustment for carbon crediting transactions. Finally, the note provides an example on how CAs could be operationalized for a concrete carbon crediting program.

The note is updated for the UNFCCC draft guidance on Article 6.2 as provided through the COP26 President proposal from December 2019.² Earlier draft versions of the Article 6.2 guidance document were considered where appropriate.

Note, however, that this note is not meant to present in detail the negotiation process on corresponding adjustments or to suggest any elements of UNFCCC guidance, but to analyze some key conceptual dimensions of CAs from a perspective of piloting carbon crediting of mitigation programs.

The note introduces some specific concepts to discuss how CAs could be operationalized for carbon crediting programs including the notion of opportunity costs for NDC achievement. Such concepts are not regulatory in nature and for good reason do not form part of draft UNFCCC guidance documents. They are however important – as this note argues - to operationalize and participate in carbon market transactions without regret in the new context of the Paris Agreement.³

¹ For the workshop agenda and material see: <https://cdm.unfccc.int/stakeholder/index.html>

² https://unfccc.int/sites/default/files/resource/DT.CMA2_i11a.v3_0.pdf

³ Another example of a key operational parameter in carbon crediting is pricing. Pricing clearly is the prerogative of parties/entities involved in concrete carbon market transactions and is a commercial matter, not a regulatory one.

Market mechanism under the Kyoto Protocol and the Paris Agreement – a comparison

The Kyoto Protocol and the Paris Agreement differ on the interrelated modalities on mitigation targets and market mechanisms (see following table).

Table 1: Targets and market mechanisms under Kyoto Protocol and Paris Agreement

	Kyoto Protocol (Annex B countries)	Paris Agreement
Target and compliance		
Targets	Binding absolute economy wide caps	Heterogeneous
Target periods	Uniform multi-year-periods	Heterogeneous (until 2030)
Compliance verification	Post-target true-up period of budgets	Post-target UNFCCC review
Compliance enforcement	Material penalties	UNFCCC review
Compliance period roll-overs	Rolling-over surplus/deficit/penalty	Unlikely, ambition increase
Market mechanisms		
Market mechanisms types	JF, IET, JI/CDM (both project-based) ⁴	6.2 undefined, 6.4 scope? ⁵
Units	AAUs, ERUs, CERs, RMUs	ITMO (undefined), Art. 6.4 ER
Participation requirements	Inventories, registries, annual reporting	Likely similar
Safeguards	90% commitment reserve	Unclear
Liability	Seller	Unclear
Tradability	Yes	Unclear
Accounting procedure	Budget/unit based	Corresponding adjustments
Accounting verification	International Transaction Log (UNFCCC)	Likely UNFCCC expert review
Crediting requirements	Additionality (and SD for CDM)	Avoidance DC, EI, SD ⁶

The table first shows the high degree of uniformity of targets under the KP (same metric, same periodicity) and the obligatory nature of those targets relying on strong compliance procedures and material penalties. The KP also clearly defined the nature and scope of eligible market mechanisms spanning the full range of possible market mechanisms outlined below, while including scope limitations on baseline-and-crediting mechanisms (JI and CDM). The carbon budget approach of the KP introduced budget units (AAUs), the backbone of the KP architecture which were used as the key compliance unit and to backstop JI transactions. Safeguards, annually verified participation requirements and international verification of each individual transaction further substantially reduced risks of non-compliance with respective KP rules and requirements in transactions among the economies that had established an emissions cap (Annex B countries).⁷ Compliance penalties and roll-over of compliance deficits to the next commitment period backstopped these rules and procedures.

For these reasons Kyoto market mechanism units achieved immediate recognition as compliance units and tradability, i.e., before the compliance positions of the sellers at the end of the true-up period (2015

⁴ JF: Joint fulfillment (Art. 4 KP), International Emissions Trading (IET), JI and CDM are established by KP Articles 17, 6, 12. JF allows to pool targets in which case individual target are deemed fulfilled if pooled target is fulfilled.

⁵ The Paris Agreement also includes a similar provision to Joint Fulfillment under the Kyoto Protocol (see below).

⁶ Besides avoidance of double counting (DC), promotion of sustainable development (SD) and ensuring environmental integrity (EI) Art 6.4 shall contribute to overall mitigation and decision 1/CP.21 recommends additionality requirement for Art 6.4.

⁷ Leaving aside a discussion of the CDM as the interest here is how market mechanisms worked under the KP for countries that accepted an emissions cap (annex I countries).

for the first KP commitment period) were actually known. In fact, the system worked under (implicit) seller liability.

The major limitations of the KP, i.e., its lack of inclusiveness on target setting and its lack of flexibility to adopt to external changes are today broadly recognized. Also, the KP could not generate broad experience on how to implement baseline-and-crediting mechanisms under constraining targets. Countries with constraining targets, i.e., without AAU surplus, such as countries in Western Europe, just did not host JI projects (besides niche cases outside EU-ETS coverage). JI could therefore not be systematically tested for crediting under constraining targets and rather followed CDM rules including on additionality (narrowly defined as improvements relative to BAU).

The Paris Agreement achieved a high degree of inclusiveness on target setting and flexibility on adjusting targets. It also clearly provided substantial space for country-driven and decentralized types of international cooperation, including market mechanisms. It misses however the needed provisions to enable market mechanisms to self-unfold which the KP provided. Most important in this context is the seller liability under the KP (see above). It is challenging to maintain seller liability without backstopping rules on compliance - assuming that acquiring countries want to minimize the risk of acquiring assets from countries out of their NDC compliance or even cause non-compliance because of engaging in Art. 6 transactions with them. On the other hand, it is unlikely that acquiring countries would want to assume the compliance risks of host countries. Without any further arrangements between countries beyond Paris Agreement requirements it is therefore much more challenging to undertake pre-target period transactions in compliance assets under the Paris Agreement as compared with the Kyoto Protocol. This results purely from the weaker (absent) compliance regime under the Paris Agreement irrespective of any further barriers to pre-target period transactions due to the nature and economics of corresponding adjustments as discussed next.

Corresponding adjustments – nature and economics

Article 6.2 of the Paris Agreement requires countries to apply “robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the CMA”. Paragraph 36 of decision 1/CP.21 specifies that the guidance under Article 6.2 should ensure that double counting is avoided “on the basis of a corresponding adjustment by Parties for both anthropogenic emissions by sources and removals by sinks covered by the NDC (Nationally Determined Contributions).” Further, Article 6.5 clarifies that emission reductions shall only be used by one Party to demonstrate achievement of its NDC. These provisions aim to address double claiming. Proper or robust accounting following the principle of double bookkeeping, is thus required to safeguard the environmental integrity of cooperative approaches for NDC compliance under the Paris Agreement. Such accounting can be done in different ways and different types of cooperative approaches might prefer different accounting approaches.

Cooperative approaches generally

There are three generic types of cooperative approaches: joint compliance; cap-and-trade; and baseline-and-crediting. Joint compliance⁸ means that two countries, one with mitigation achievements beyond its target and one with deficit mitigation simply agree that the overachievement of the one is used to

⁸ This term is not used in the Kyoto Protocol or Paris Agreement but introduced in this note to enable categorization of different types of cooperative approaches.

compensate for the deficit of the other. No units need to be created for joint compliance and no transfers need to take place. An example of joint compliance is the EU Burden Sharing Directive: sovereign to sovereign, with no private sector involvement, and no market dimension. Another example is “joint fulfilment” according to Art. 4 Kyoto Protocol (see above) and similar “acting jointly” under Art. 4.16-4.18 of the Paris Agreement. The motivation for joint compliance can be limited to providing a safety net for compliance at the end of a compliance period without necessarily aiming to use this type of cooperative approach to minimize compliance costs or to transfer resources. Proper accounting can simply be done through correct balance sheet entries or even simply through just considering a joint target, i.e., the sum of the individual targets of those countries participating in joint compliance.

Cap-and-trade is based on carbon budgets⁹ either allocated to sovereigns (international emissions trading, IET) or to firms/installations (emissions trading systems, ETS). Cap-and-trade creates markets and tradeable units. It is motivated by reducing compliance costs (enabling higher ambition) and international transfer of resources. Proper accounting is done through sovereign control of the overall volume of units (allowances), tracking of transfers, and holding of units in authorized registries.¹⁰ Examples are IET under the Kyoto Protocol or the EU-ETS.

Baseline-and-crediting creates emission reduction units and it is motivated by similar economic rationale as cap-and-trade. Proper accounting is done in regulating issuance, tracking transfers, and holding units in authorized registries. If host countries do not have mitigation targets nothing more is required. The CDM is an example for how that works.

Accounting for baseline-and-crediting approaches under host country targets

In the case where host countries have targets, for baseline-and crediting approaches one of the following additional measures (additional to what was said above using the example of the CDM) is needed: (i) mirroring transfers of emission reductions by a corresponding transfer of budget units (this was done under Joint Implementation (JI)); (ii) balance sheet bookings following the approach for joint compliance; or (iii) fully reflecting the targets in the baselines used for crediting. In the latter case CAs become redundant as baseline setting already ensures that only emission reductions beyond targets are credited.

Under the Paris Agreement alternative (i) is not available per se as the Paris Agreement does not introduce carbon budgets as did the Kyoto Protocol¹¹, and alternative (iii) is unlikely to succeed in current Article 6 negotiations as most Parties understand CAs as a requirement of the Paris Agreement and indispensable to safeguard environmental integrity. Indeed, with baseline setting always subject to uncertainties and unexpected changes in key parameters or simple failure to meet NDC targets in non-credited sectors of the economy jeopardizing environmental integrity, option (iii) has its detractors. Also, option (iii) might in practice limit the scope for crediting: While sectoral and policy-based crediting can reflect NDC targets in crediting baselines this is in general not the case for project-by-project crediting, at least not outside country and sector specific crediting frameworks.¹² An example is a country with a renewable power NDC

⁹ For simplicity this note exclusively refers to a carbon metric.

¹⁰ Similar, the way a currency works in textbook economics with exogenous money supply.

¹¹ Individual countries can still introduce such budgets and use them to define their type of collaborative action under the Agreement.

¹² There can be exceptions if, e.g., NDC targets were formulated in terms of technology benchmarks or if one individual firm owned the whole industry.

target trajectory. Such a target trajectory can be directly used as a crediting baseline for sectoral crediting but obviously not for an individual renewable power project.

This leads to alternative (ii), i.e., balance sheet bookings or CAs in the terminology of the Paris Agreement. CA has the advantage to be a generalized accounting approach that can cover all three types of cooperative approaches as outlined above. As a generalized accounting approach CA can work through transfers of units or just rely on adjustments of accounts.

Distinct nature of unit transfers and CA for carbon crediting

Independently of using or not using units for CAs, transfer of carbon credits and CA are two different transactions. Firstly, because crediting periods and NDC target periods can (and under current NDCs typically will) differ (see next section below). This will lead to differences in credit volumes and volumes of CAs. Secondly, because carbon credit transfers and CA are subject to different economic rationales. The latter aspect is exemplified in respect of project-by-project crediting by private project owners: These project owners can accept a purchase price for their emission reductions that covers their marginal abatement costs. Transfers of such emission reductions, however, need to be reflected through CAs and consequently need to be compensated by further mitigation somewhere else in the economy. The marginal abatement cost of these further mitigation actions elsewhere (country NDC compliance cost) will typically be higher than those of the transferring entity (private sector mitigation cost) as the carbon market mechanisms – by design and purpose – attract the least cost option.¹³

The difference in country NDC compliance cost and private sector mitigation cost creates an opportunity cost of the transfer occurring on the level of the country/sovereign. This opportunity cost is the cost of the CA.¹⁴ This leads to the notion that transfer of carbon credits and CA are two entirely different economic activities (not just two different procedures performed by different entities).

Need for enhanced capacity to assess the implications and cost of compliance

A binding target and consequently the need to undertake CA drives a wedge between the private sector rationale/interest and the country rationale/interest. In theory this problem can be resolved through domestic policy measures, e.g., through imposing a floor price according to opportunity cost of compliance, however in practice this is difficult to do. First, knowing the opportunity cost of compliance requires knowing the marginal abatement costs for the economy and having a compliance strategy. Second, a floor price will generate unjustified windfall profits. Again, there are solutions to deal with these windfalls, e.g., to tax them. All this adds up to substantial requirements in domestic capacity and policy sophistication. It is reasonable to assume that countries, including many developed countries, are not fully

¹³ This was even the case if the compensating mitigation happened in the same sector and in the same technology. Like sectoral and technological mitigation options can be ranked by cost, so can individual projects within sectors and technologies.

¹⁴ In the example of a private sector project owner the opportunity cost for the CA will typically be the cost of the further mitigation activity that becomes necessary because the project's emission reductions cannot be accounted any more against the host country NDC. If the sovereign was able to collect the carbon revenues from the private project owner, the opportunity cost for the CA would become the cost difference between the two mitigation activities.

prepared for that, and that reaching the required level of sophistication could require several years at a minimum for most countries.¹⁵

Concluding this section, it can be noted: (i) emission reduction generation/transfers and CA are entirely different operations/procedures that come at different costs and therefore price;¹⁶ (ii) no-regret CA requires capacity, knowledge and policy sophistication that currently do not exist, particularly in developing countries.

Corresponding adjustments for carbon crediting programs under single-year targets¹⁷

Crediting periods are generally spread over several years, and therefore, rules are required on how to account for emission reductions achieved outside NDC target years within the target year, i.e., how to periodize CA.

Former draft UNFCCC guidance¹⁸ included five methods for periodization of CA in relation to internationally transferred mitigation outcomes (ITMOs) under the most common case of single-year NDC targets: (i) annual CA based on a calculated multi-year emissions trajectory consistent with the NDC; (ii) annual CA for each year of NDC implementation; (iii) CA at the end of the NDC period for the total amount of ITMOs transferred and acquired; (iv) CA in target year in the amount of the average annual ITMO transfer over the period of NDC implementation; (v) limitation of ITMO transfer to same vintage year of NDC target and CA in that year. Parties can select one of these methods, but then must apply it consistently throughout the NDC implementation period.¹⁹

Environmental integrity and CA

These methods will lead to very different CA to be made in the NDC target year. Still, all of them are eligible, suggesting they are all suitable to safeguard environmental integrity. Also, there is no

¹⁵ It is achievable though. The Chinese CDM floor price plus taxation policy is an example, although introduced for different reasons and not yet dealing with opportunity cost of compliance.

¹⁶ The next section will show that typically also quantities differ (see above): The CA for, say 10 t emission reductions, will in general not be 10 t, but lower, depending on type of NDC targets.

¹⁷ Single-year targets are the most common target type under the Paris Agreement: 106 NDCs have chosen a 2030 single-year target covering 70% of global emissions. See UBA/DEHSt (2016), Categorization of INDCs in the light of Art. 6 of the Paris Agreement - Discussion Paper, https://www.dehst.de/SharedDocs/downloads/EN/project-mechanisms/Categorization_of_INDCs_Paris_agreement_discussion_paper.html

¹⁸ SBSTA 50 draft guidance on Article 6.2, June 26, 2019, <https://unfccc.int/documents/197875>. These options did not materially change from the Katowice draft, but further options got included such as moving to carbon budgets. The following discussion is based on this SBSTA draft guidance despite availability of a new draft explicitly including only two CA methods. However even under the most recent draft, parties can suggest their own CA methods and a consideration of a broader range of methods therefore remain relevant. The last section of this note will provide a deep dive in how the two CA methods introduced in the COP26 draft version of the Article 6.2 guidance could be applied to a carbon crediting program with international ITMO transfer.

¹⁹ There is a growing body of literature discussing the implications on environmental integrity in using such different CA methods under target heterogeneity including: OECD/IEA (2017), Accounting for mitigation targets in Nationally Determined Contributions under the Paris Agreement; UBA/DEHSt (2017), Robust Accounting of International Transfers under Article 6 of the Paris Agreement – Discussion paper; OECD/IEA (2019), Markets negotiations under the Paris Agreement: a technical analysis of two unresolved issues - Climate Change Expert Group Paper No. 2019(3).

differentiation by type of collaborative mitigation action, sector where the mitigation occurs, or technology involved suggesting that this does not matter for CA safeguarding environmental integrity.

By definition, the latter is correct: The CA is essential for generating the compliance asset and in the end all that matters is to account the mitigation achieved beyond the NDC target (however generated) in one country correctly against the deficit mitigation in the acquiring country. As long as targets are fully synchronized it does not matter how well (if at all) this accounting reflects the real periodization in generation and transfer of emission reductions.²⁰ This leads to the conclusion (iii): For environmental integrity it does not matter how a concrete mitigation action is reflected through CA as long as targets are fully synchronized.

Importance of synchronized NDC targets for environmental integrity

What matters, however, is the NDC target constellation of the countries engaged in the collaborative mitigation action. If the acquiring country has an earlier single-year NDC target year than the transferring country, then the larger the CA volume the more global mitigation get postponed in time and vice versa. In such a situation, applying method (iii) coming with the largest CA is the least effective in safeguarding environmental integrity. The same effect of postponing mitigation would happen if the acquiring country had a budget target starting earlier than the host country NDC single-year target although to a lesser extent.

Besides these possible adverse effects on timing of mitigation depending on the CA method used there can be negative incentive effects on mitigation action outside the NDC target period. If, for example, the transferring country had a 2020-2030 budget target and the acquiring country a 2030 single-year target, methods (i), (ii) and (iii) would each allow the host country to transfer the full amount of emission reductions achieved over the 10-year NDC implementation period to the acquiring country for compliance purposes in a single-target year. This would provide the latter with an opportunity to undertake less domestic mitigation efforts outside the target year than in case of pure domestic compliance under which mitigation must start earlier (outside target period) to implement and ramp-up the mitigation activities so that they can deliver the needed emission reductions in the target year.

These examples illustrate the point made above: risks to environmental integrity in the context of CA emerge from differing NDC target periods. Fortunately, countries have agreed in Katowice to use common NDC target periods from 2031 onwards, and fortunately most of the current NDCs are using the same target period, i.e. 2030.²¹ In the following the assumption is made that carbon crediting operations will happen in a constellation of single-year 2030 NDC targets on both sides.

In line with what was argued above, in such a constellation each of the optional CA methods – and an infinite number of further potential alternatives – are equally good to safeguard environmental integrity. As long as fully synchronized targets set binding carbon constraints and as long as countries achieve their

²⁰ Assume, e.g., application of method (v): As long as the host country stays within its target it can correspondingly adjust and transfer any volume without jeopardizing environmental integrity. It does not matter if this CA is then “pinned” on an individual mitigation activity (generating way less emission reductions) or not.

²¹ For several reasons budget targets are however preferable to single-year targets even in the absence of international transfers of mitigation outcomes.

targets, all that matters is that the mitigation credit booked against the target in the acquiring country equals (does not exceed) the mitigation debit booked against the target in the transferring country.

Comparing CA methods vis-à-vis aligning CA and mitigation impact in the NDC target year

Independently from safeguarding environmental integrity, countries might still wish to reflect as well as possible the mitigation impact a credited mitigation activity has in the target year when the CA is undertaken, e.g., as a safeguard measure against overselling. Method (v) above (i.e., limitation of ITMO transfer to same vintage year of NDC target and CA in that year) would be best suited for that purpose.

However, the question arises on what to do if the crediting period ends before the NDC target year.²² The best approach would be to continue monitoring the emission reductions the activity generates and then to correspondingly adjust for the emission reductions generated in the target year, i.e., continue to use method (v). Instead of an ex-post approach (MRV) an ex-ante approach could be used, i.e., estimation based on modelling and past performance.

Averaging over the NDC implementation period (method (iv)) can be a proxy for expected impact in the NDC target year. It would in fact estimate that impact based on extrapolating past performance in the future. In that sense method (iv) can be understood as second best to method (v). How well averaging will reflect mitigation impact in the NDC target year depends on the nature of the underlying mitigation activity, i.e., the temporal profile of the generated emission reductions.

There is one extreme case where the lifetime of the mitigation activity does not reach the NDC target year, e.g. in a cook stove program that gets discontinued after the crediting period ends. In such a case averaging leads to a positive CA in the NDC target year whereas the mitigation impact from the program in that year is zero.²³ In most cases however the lifetime of mitigation activities will extend beyond the NDC target year.

Depending on the temporal profile of the emission reductions generated by the mitigation activity averaging will over- or under-estimate the mitigation impact in the NDC target year. For obvious reasons it is also this temporal profile on which it will depend if averaging over the NDC implementation period, or over the (shorter) crediting period, will deliver a more accurate proxy for the mitigation impact in the NDC target year. If, e.g., the crediting period coincided with a period of “normal activity” expected to continue in the target year whereas the NDC implementation period included years of ramping-up the mitigation activity, then averaging over the crediting period would deliver the more accurate estimate of emission reductions achieved in the target year.

In general, it would be preferable to use a method that can best estimate (or even MRV) the mitigation impact in the NDC target year that is specific to the nature of the underlining mitigation activity than a standardized averaging approach to align CA and mitigation impact in the NDC target year. As argued above such alignment is however of no relevance for safeguarding environmental integrity under fully synchronized binding targets.

²² To simplify the assumption is that the crediting period is identical to the purchase period of the emission reductions.

²³ Again, this is not undermining environmental integrity (see above) just leading to a disconnect between mitigation impact and CA.

Elements of a no-regret strategy to corresponding adjustment for carbon crediting transactions

From the three generic types of cooperative approaches introduced above: joint compliance, cap-and-trade and baseline-and-crediting (carbon crediting) the latter is by far the most difficult to undertake under binding targets requiring CAs. The simple reason is that cooperative approaches under binding targets cannot follow a pure project-by-project (activity-by-activity) logic as was the case with CDM under the Kyoto Protocol. Each transaction impacts on the compliance position of the host country and must be consistent with compliance and reflect compliance costs.

One can argue that the same applies to joint compliance and to cap-and-trade. However, there are important differences. Joint compliance can happen ex-post, when relative compliance positions are known. Joint compliance therefore does not require ex-ante modelling and strategizing. Cap-and-trade does, but once linkages between ETS are established individual transactions can happen within these interconnected systems simply responding to respective price signals.

The complexity of linking ETSs is widely acknowledged and experienced in practice. Similar efforts are required to enable carbon crediting under binding targets. Where those analytical and policy efforts are not made, host country authorities lack the basis to approve crediting transactions for compliance purposes.²⁴ This is one of the reasons why even if international guidance and rules were available it is unlikely that a market for crediting transactions could unfold through market drivers alone as experienced in the past with the CDM.

To enable no-regret crediting transactions the host country needs to analyze and strategize its NDC compliance and take into consideration its long-term low carbon planning. In a first step it needs to establish the marginal abatement cost curve for its economy and determine the marginal cost of compliance with its NDC target. From there different options are available including (i) earmarking; (ii) domestic crediting frameworks; (iii) sectoral/policy/jurisdictional crediting.

Under (i) earmarking the country opens selected (or all) mitigation activities beyond the compliance needs for crediting and determine their marginal cost establishing its minimum price to accept in crediting transactions. Such earmarking could set priorities informed by long-term low carbon planning. Domestic crediting frameworks (ii) can open other activities for crediting coming at lower than NDC marginal compliance cost. These frameworks would need to introduce mechanisms like floor prices reflecting opportunity costs of NDC compliance and taxation of windfalls to ensure non-regret from a compliance perspective. Domestic crediting frameworks become relevant if market opportunities for carbon credits are segmented, i.e., if there are strong buyer preferences for emission reductions depending on type of underlying mitigation activity, and/or if consideration of transaction costs favor certain mitigation activities over others for crediting purposes. Domestic crediting frameworks might also be required to enable private sector driven project-by-project crediting.²⁵ Finally (iii), sectoral/policy/jurisdictional crediting, can in principal reflect NDC targets in crediting baselines ensuring (similar to earmarking) that crediting happens exclusively for emission reductions achieved beyond targets. Such approaches can

²⁴ The difficulty of undertaking Joint Implementation transactions between countries that had constraining targets under the Kyoto Protocol, such as between Western European countries, sets an example. Basically, no such transactions happened.

²⁵ An example for a domestic crediting framework is the standardized crediting framework (SCF) under the Carbon Initiative for Development (Ci-Dev), <https://www.ci-dev.org/SCF>.

catalyze transformative change and prepare whole segments of the economy for broader policy coverage, including through preparing for emissions trading or other forms of carbon pricing.

All these options require however that host countries have undertaken the required modeling and planning work to know the marginal abatement cost curve of their economy, their NDC implementation strategy and their preferred long-term low carbon trajectory. The first step in enabling crediting transactions under NDC targets is therefore to build the necessary capacity to undertake this analytical work.

In addition – and purely on an operational level – crediting transactions could explicitly distinguish quantification and pricing of verified emission reductions (VER) and of corresponding adjustments and include flexibility elements to deal with uncertainty related to compliance and compliance costs. Such flexibility elements could consist of sequencing VER purchases and payments for corresponding adjustments and special contract clauses such as opt-out provisions.

Operationalization of corresponding adjustments – a stylized example

The COP26 draft guidance on Article 6.2 reduces the explicitly eligible methods to undertake corresponding adjustments for single-year NDC targets to two – keeping in mind that parties still can suggest other methods according to the draft guidance.²⁶

Averaging: “Calculating the average annual amount of ITMOs first transferred and used over the NDC implementation period, by taking the cumulative amount of ITMOs and dividing by the number of elapsed years in the NDC implementation period and annually applying indicative corresponding adjustments equal to this average amount for each year in the NDC implementation period and applying corresponding adjustments equal to this average amount in the NDC year.”

Or

Trajectory: “Providing a multi-year emissions trajectory, trajectories or budget for the NDC implementation period that is consistent with implementation and achievement of the NDC, and annually applying corresponding adjustments for the total amount of ITMOs first transferred and used for each year in the NDC implementation period.”

In addition, the draft guidance foresees an initial report inter alia indicating the method chosen for CAs, annual reporting of (indicative) corresponding adjustments to a UNFCCC Secretariat maintained Article 6 database and biennial reporting of (indicative) corresponding adjustments within the Biennial Transparency Reports (BTRs).²⁷

The following illustrates how these two methods and reporting requirements might be applied to a concrete crediting program using the TCAF crediting approach and starting with the averaging method to CA. In the example TCAF credits a mitigation policy implemented in 2018 which generates the first

²⁶ https://unfccc.int/sites/default/files/resource/DT.CMA2_i11a.v3_0.pdf

²⁷ The term “indicative corresponding adjustment” (ICA) is not explicitly defined in the draft guidance but it is helpful to distinguish ICAs happening before the NDC target year from CAs happening with the NDC target year/period as the first is a statement of intent whereas the latter is the real adjustment.

emission reductions in 2020. Table 1 below shows the purely hypothetical evolution of generated emission reductions from 2020 (200 kt) to 2033 (2,800 kt) in the first row. The TCAF crediting period stretches in this example from 2021 to 2026. Emission reductions outside that period will not be monitored, verified and reported. Those are highlighted in grey in the table. They will remain unknown to TCAF and they do not play a role in applying corresponding adjustment procedures. The emission reductions generated during the 6-years crediting period amount to 8,000 kt. From those the share acquired by and transferred to TCAF will need to go through CAs. The assumption is that half of these emission reductions will be attributed to and acquired by TCAF (second row). They amount to 4,000 kt in total over the entire crediting period.

Assuming the host country that implemented the mitigation policy has a 2030 single-year NDC target and assuming a 10-years NDC implementation period starting in 2021 then averaging will lead to a corresponding adjustment to be undertaken in the target year 2030 of 400 kt, i.e., 10% of the emission reductions transferred to TCAF (row 4)

Row 3 provides the indicative corresponding adjustments (ICAs) to be reported annually to the Article 6 database and biennially through the BTRs. According to the current draft Article 6.2 guidance these ICAs are calculated in each year as a rolling average of the previous years (elapsed years).²⁸ Depending on the time profile of the emission reductions these rolling averages will fluctuate around the CAs to be undertaken in 2030, i.e., 400 kt, but by definition always result in this volume of CAs in the target year.

Table 1: Averaging method

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
TCAF program ER in kt	200	600	900	1,500	1,200	1,800	2,000	2,200	2,600	2,300	2,500	2,600	2,700	2,800	8,000
TCAF VER ERPA (incl. attribution)		300	450	750	600	900	1,000								4,000
Indicative CA (ICA)		300	375	500	525	750	667	571	500	444.4	400				400
CA in 2030 target year											400				400
Simple annual average (ICA)		30	45	75	60	90	100				400				
Mitigation beyond NDC (MbN)															MbN MbN

For operational purposes it is useful to keep in mind that in alternative to applying this type of a rolling averaging one can simply calculate the annual average of transferred emission reductions which – by definition – will add up to the same volume of CA in the target year (row 5).

Finally, in 2033 the compliance position of the host country will be known through UNFCCC stocktaking and verification. Only by then will there be certainty if the host country reached its NDC target and stays within the target after CA. The later will be the case if the mitigation beyond NDC target (MbN) is at least as high as the CA undertaken in the target year. Also, the CA in the target year will typically not correspond to the (unknown) emission reductions delivered by the credited program. In the example the program achieves 2,500 kt in 2030 but the CAs will be substantially lower with just 400 kt.

Table 2 uses the same example but applies the trajectory method to CAs. The first two rows are identical to table 1 reflecting the program’s emission reduction profile and the volume of emission reductions transferred to TCAF. CAs are then simply applied annually in the exact amount of emission reductions transferred (row 3). The total CA volume is 10 times higher than under the averaging method, but it is also

²⁸ For example 500 kt in 2023 is the 3-year average ICA over the period 2021-2023: $500 = (300 + 450 + 750) / 3$.

calculated for a ten times longer period, i.e., under the trajectory approach the single year target is implicitly converted to a NDC implementation period long multi-year target.²⁹

Table 2: Trajectory method

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
TCAF program ER in kt	200	600	900	1,500	1,200	1,800	2,000	2,200	2,600	2,300	2,500	2,600	2,700	2,800	8,000
TCAF VER ERPA (incl. attribution)		300	450	750	600	900	1,000								4,000
Annual CA		300	450	750	600	900	1,000								4,000
cumulative CA in BRT					2,100		4,000								4,000
CA in 2030 target year															0
Mitigation beyond NDC (MbN)															MbN

A consequence of this method is that there is no CA undertaken in the actual NDC target year (row 5). Row 4 shows how reporting of cumulative CAs would look like in the 2024 and 2026 BTRs.

To summarize: In order to comply with Article 6.2 draft guidance on corresponding adjustments of December 2019 a host country of a crediting program transferring ITMOs under a single-year target need to do the following:

- Choose one of the eligible methods (averaging or trajectory method)³⁰ and indicate that choice in its **initial report**. The initial report is due before authorizing the first ITMO transfer and need to demonstrate that the country fulfills all Art. 6.2 participation requirements listed in the Art. 6.2 guidance.
- Annually report ICAs (in case of averaging method) or CAs (in case of the trajectory method) to the UNFCCC secretariat-maintained **Article 6 database**.
- Biennially report ICAs (averaging method) or CAs (trajectory method) in the BTRs.
- In case of averaging method undertake the CA in NDC target year. In case of trajectory method CAs are undertaken annually.

²⁹ This implicit revision of the NDC target makes the trajectory method a less convenient approach for countries with single-year targets than the averaging method. Likely most such countries will therefore prefer averaging.

³⁰ Or suggest another method.