

**The Interaction between Carbon Taxes and Carbon Offset
Programs**
**Final Paper by the UN Committee of Experts on International
Cooperation in Tax Matters**
(Advance unedited version)

At its Twenty-third Session in October 2021, the UN Tax Committee established the Subcommittee on Environmental Taxation. The Subcommittee is mandated to:

- Produce practical guidelines on targeted, additional, and emerging issues in the area of carbon taxation, which are not covered or fully developed in the Handbook on Carbon Taxation for Developing Countries. These guidelines could initially be released as stand-alone materials, and later be assembled in a publishable format. Relevant issues might include: (i) the interactions of a carbon tax with other environmental and environmentally-related taxes, (ii) the role of a carbon tax in a broader fiscal reform, including the consideration of distributional effects; and (iii) in collaboration with the Extractive Taxation Subcommittee (if one is created), work on practical tax policies/measures/incentives with the potential to accompany countries' efforts in transitioning from fossil fuel energy to renewable sources.
- Pay particular attention to the needs and priorities of, and the barriers faced by, developing countries, and report on relevant cases of current country practices, policy considerations and administrative issues.
- Work on any additional relevant environmental taxation issues as requested by the Committee.

During its mandate, the Subcommittee engaged in five workstreams, as follows: Workstream 1: The interaction of carbon taxation with other national measures; Workstream 2: The role of carbon taxes and other measures in supporting energy transition; Workstream 3: The interaction between carbon taxes and carbon offset programs; Workstream 4: Border carbon adjustment measures and how developing countries can avoid undesired spillover effects from their implementation by other jurisdictions; and Workstream 5: Environmental tax measures other than carbon taxes that are relevant for developing countries.

This Workstream 3 Paper was approved by the Committee at its Twenty-eighth Session in March 2024. Advance unedited versions of the other papers are available on the Committee's [webpage](#).

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Within its current mandate, the Subcommittee on Environmental Taxation has not explored the income tax implications of carbon offset credits, including their tax deductibility. Given the evolving nature of these mechanisms, the Subcommittee suggests that the future membership of the Tax Committee focuses on examining various direct taxation issues such as the income tax qualifications of these assets and the allocation of taxing rights under existing tax treaties. This scrutiny is vital because these qualifications significantly influence the effective distribution of the carbon price.

1. Introduction

Carbon offset credits play an increasingly important role in national and international strategies to reduce greenhouse gas emissions. These credits not only serve as mechanisms to incentivize reduction efforts but also offer flexible options for compliance with environmental tax obligations. This draft paper delves into the intricacies of carbon offset credits in the context of carbon taxes. It aims to explore their implications, especially in developing countries, and discuss how they intersect with other carbon pricing instruments (CPIs) and regulatory frameworks. In offering a detailed analysis, this paper seeks to inform and guide policymakers and stakeholders in understanding the complexities and opportunities that carbon offset credits present in the journey toward a more sustainable future.

In addition to dealing with the carbon offset credits related to carbon taxes and their connection with other CPIs, the paper also considers the connection of such credits with other environmental taxes, and with energy transition.

When a country has introduced a carbon pricing mechanism, such as a carbon tax, the national carbon tax legislation may allow a taxable person to offset his/her CO₂ emissions within its territory with a carbon offset credit that s/he has bought voluntarily, and thus use it to pay (part of) the amount due of that carbon tax. As a best practice, this country would need to lay down rules to precisely determine which carbon offset credits are accepted, to what extent, and how the emission reductions are verified, among other considerations.

While establishing rules for carbon offset credits is a crucial step for any carbon pricing mechanism, the complexity increases when considering the intersections of these credits with existing frameworks like Emission Trading Systems (ETS) and national carbon taxes. Both ETS and carbon taxes may include an additional mechanism that allows covered entities to use carbon credits to offset their obligations. In this case, an eligible carbon credit may replace an allowance under an ETS or the obligation to pay for one tonne of emissions under a carbon tax. As a result, the use of offsetting credits, in whatever system, can have the effect of reducing a country's overall carbon price.

To lay the foundation for considering the potential role for carbon offset credits in the context of carbon taxation, the paper offers an overview of what carbon offset credits are and what is happening in the emerging voluntary and compliance markets for carbon offset credits (Section 2). It also explores the role of the Paris Agreement on Climate Change, in particular Article 6 which sets the context for exchanges of credits among countries seeking to comply with this Agreement (Section 3). This background will inform consideration of how carbon offset credits that operate within carbon taxes relate to the broader and emerging markets for carbon offset credits, which may be national or international.

The paper then turns to the implications for developing countries (Section 4). It looks to examples of different jurisdictions that have used carbon offset credits in their carbon taxes, allowing taxpayers to surrender carbon offset credits in lieu of direct payments for their carbon tax (Section 5).

The paper draws on these experiences and lessons from the emerging carbon markets to highlight issues that developing countries should consider and hurdles they might encounter when

considering implementing carbon offsets as part of their national carbon taxation system. These include the core issues to address to ensure a coherent approach in qualification and valuation of those credits. Both policy considerations and implementation costs are assessed. (Section 6). The paper concludes with a summary of key considerations (Section 7).

Given its focus on the use of carbon offset credits and their interaction with carbon taxation, this paper does not address other tax issues involving carbon offset credits (such as their classification/characterization, or their treatment in the framework of income taxation). For select transfer pricing considerations for carbon offset credits see Annex C to the paper contained in document [E/C.18/2023/CRP26](#).¹

2. An introduction to carbon offset credits and carbon markets

2.1 What are carbon offset credits?

Carbon offset credits are transferable rights that represent a reduction in greenhouse gas (GHG) emissions (such as avoiding them by creating a renewable energy facility) or the removal and sequestration of GHG emissions from the atmosphere (such as protecting forests that sequester carbon). One carbon offset credit usually represents one metric tonne of carbon dioxide (CO₂) emissions reduction, removal or sequestration. If the carbon offset credit applies only to CO₂ emissions, the credit is stated in terms of one tonne of CO₂. If the credit applies to GHG emissions more broadly, it is stated in terms of the tonne CO₂-equivalent (CO₂-e) based on the GHG emissions' global warming potential relative to CO₂.

The emissions that are avoided or sequestered are measured against a counterfactual baseline that reflects the emissions that would have occurred in the absence of these measures. An enterprise that engages in activities that qualify for credits can have credits certified by the government or an independent organization. Those credits can then be transferred (it is not necessarily the same company that is doing the selling to third parties as there might be intermediaries). In the case of a carbon tax that allows taxpayers to submit carbon offset credits to pay their carbon tax bill in whole or part, the taxpayer would transfer credits (that would be retired) to the relevant government.

Box 1: What is a carbon offset credit?

A carbon offset credit is a transferable instrument certified by governments or independent certification bodies to represent an emission reduction or removal of one metric tonne of CO₂, or an equivalent amount of other GHGs, measured against a counterfactual baseline.

2.2. Definitions of carbon offset credit and related terms

The vocabulary of carbon offset credits is sometimes confusing. The terms carbon offset and carbon offset credit (or simply "offset credit" or "carbon credit") occasionally are used interchangeably, though they can mean slightly different things. Breaking "carbon offset credit" into its component words may help clarify both the concept and the terminology.

¹ This paper was approved by the Tax Committee at its Twenty-seventh Session in October 2023.

Carbon credits are commonly used to offset emissions². Carbon "offset", from an environmental perspective, is shorthand for GHG emission reductions or removals that compensate for CO₂ emissions³ – hence the “offset”. It can also refer to an increase in carbon storage or “sequestration”, which is the process of capturing carbon emissions (e.g., through land restoration or the planting of trees), that is used to compensate for emissions that occur elsewhere. The purchaser of an offset credit must “retire” the carbon credit offset (terminate it to cease its use) to claim the underlying emissions reductions toward their own GHG reduction goals or obligations (or can transfer it to allow someone else to retire it). Depending on the program, offsets may satisfy a regulatory compliance obligation or a voluntary pledge (see Section 2.4 below). They may be generated by activities within a jurisdiction or outside a jurisdiction. Carbon offsets can have an impact on climate mitigation strategies and can, to a certain extent, be characterized as a deferral instrument to grant countries (and the multinational entities within them) greater time to comply with their emissions reduction targets as set under the Nationally Determined Contributions (NDCs)⁴.

As previously stated, carbon offset credits are transferable instruments certified by governments or independent certification bodies. These certificates represent quantities of GHGs that have been prevented from entering the atmosphere or removed from it. The certificates enable organizations to offset or neutralize their own residual emissions by financing various projects. Such projects can either reduce or prevent emissions from other sources, or actively remove GHG from the atmosphere⁵.

The term “carbon markets” is often used to refer to the private sector marketplaces in which carbon (offset) credits are traded among parties.

Currently, there are several initiatives to provide coherent guidance on claims made based on the use of carbon credits (to ensure that the use of the voluntary market is done with integrity and that actions taken by all involved parties are credible), and to facilitate disclosures by companies⁶ (see Sections 2.4 and 3).

2.3 Why does the private sector use carbon offset credits?

To achieve an emissions-reduction pathway to a 1.5-degree warming target, significant emissions mitigation efforts will be needed. The Intergovernmental Panel on Climate Change (IPCC) has underscored the need for drastic reductions in emissions by 45% by 2030, compared to 2019

² Note that the word "offset" can be used in different contexts. It can be understood as what one gets from employing a carbon credit towards reducing its overall carbon price (by offsetting its carbon footprint -or increasing its pollution capacity, or by offsetting the carbon tax). Sometimes carbon credits or voluntary permits are only called offsets if they are used to be compensated against a national carbon price. Credits that are never compensated against a price could be just used by a company for ESG purposes.

³ Grau Ruiz, M.A., "Taxing carbon offset credits", Kluwer Tax Blog, 20 September 2022, <https://kluwertaxblog.com/2022/09/20/taxing-carbon-offset-credits/>. Grau Ruiz, M.A., “Los créditos por compensaciones de emisiones de CO₂ a la hora de ‘descarbonizarse’: el complejo debate mundial sobre el régimen tributario aplicable a los *carbon offset credits*“, *Revista Técnica Tributaria*, No. 138, 2022. <https://revistatecnicatributaria.com/index.php/rtt/article/view/2308/4777>

⁴ T. Falcão, Paying the Piper: On the Legal Qualification of Carbon Prices, January 2023, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4336765

⁵ Blaufelder, C.; Levy, C.; Mannion, P.; Pinner, D., A blueprint for scaling voluntary carbon markets to meet the climate challenge, McKinsey Report 29 January 2021, p. 3. Available at: <https://www.mckinsey.com/business-functions/sustainability/our-insights/a-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge>.

⁶ For example, the Voluntary Carbon Markets Integrity initiative, the Science Based Targets initiative and Climate Impact X. See respectively <https://vcmintegrity.org> <https://sciencebasedtargets.org> <https://www.climateimpactx.com>

levels⁷. This means doubling down on mitigation measures, while seeking innovative ways to further incentivize actions.

Many companies struggle to fully eliminate their emissions due to various factors. This includes limited availability of carbon-neutral products or services to meet global demand, challenges in changing business processes in the short term, and the high costs or lack of well-developed or adequate technologies needed for rapid shifts in business activities/corporate practices. Until then, they can use carbon credits to offset their emissions. An appropriate mix of direct emissions reductions and indirect neutralization measures (through the acquisition of carbon credits or financing of activities leading to their generation) may serve to reach climate goals. Companies can use these carbon offset credits –which convey a net climate benefit from one entity to another, to supplement their abatement efforts.

These carbon credits may be purchased for compliance purposes or voluntarily. The latter are a way to channel private financing to climate-action projects. Projects can range in scale from very small to very large ones. Sometimes large-scale programs of activities aggregate together many similar small projects or coordinated efforts across entire jurisdictions.

Data indicate that the push for decarbonization of the economy is driving increased demand for voluntary carbon credits. In 2020, buyers retired carbon credits for some 95 million tons of CO₂ equivalent. Although the market is growing, it still faces challenges such as "low liquidity, scarce financing, inadequate risk-management services and limited data availability"⁸. In the absence of uniformity and a daily market price, most trades occur over the counter, and the market is difficult to track. Although there are some trading exchanges that facilitate offset credit transactions, most transactions occur "off-exchange", making price discovery difficult as there is no clear price to look at as a reference that could be accepted in case of audit. The price of an offset credit can range from under US\$1 to well over US\$35. In 2021, the voluntary carbon market grew at a record pace, reaching an estimated US\$2 billion – four times its value in 2020 – and the pace of purchases accelerated in 2022. By 2030, the market is expected to reach between US\$10 billion and US\$40 billion⁹.

Today, the emphasis in credit trading is shifting from reducing emissions to removing them altogether¹⁰. In this regard, it is noted that companies seeking to offset their GHG emissions can purchase credits in the voluntary market to fulfill this objective. These credits include avoidance credits for external projects that avoid or reduce emissions production, such as building a wind farm, and removal credits for projects that lower existing emissions. Removal projects deploy either nature-based solutions such as afforestation (introducing trees to a previously unforested area) or technology-based solutions such as renewable energy generation. The use of emissions reduction credits is expected to decline significantly – and some argue may even cease – by 2050 if not earlier because of the current commitments and green contributions to be made. Thus, a

⁷ Climate Plans Remain Insufficient: More Ambitious Action Needed Now, UN Climate Press Release, 26 October 2022 <https://unfccc.int/news/climate-plans-remain-insufficient-more-ambitious-action-needed-now#:~:text=The%20UN%27s%20Intergovernmental%20Panel%20on,be%20cut%2043%25%20by%202030.>

⁸ Blaufelder, C. et al., cit., p. 4.

⁹ Porsborg-Smith, A., Nielsen, J., Owolabi, B., Clayton, C., The Voluntary Carbon Market Is Thriving, Boston Consulting Group, 19 January 2023, p. 1. <https://www.bcg.com/publications/2023/why-the-voluntary-carbon-market-is-thriving>

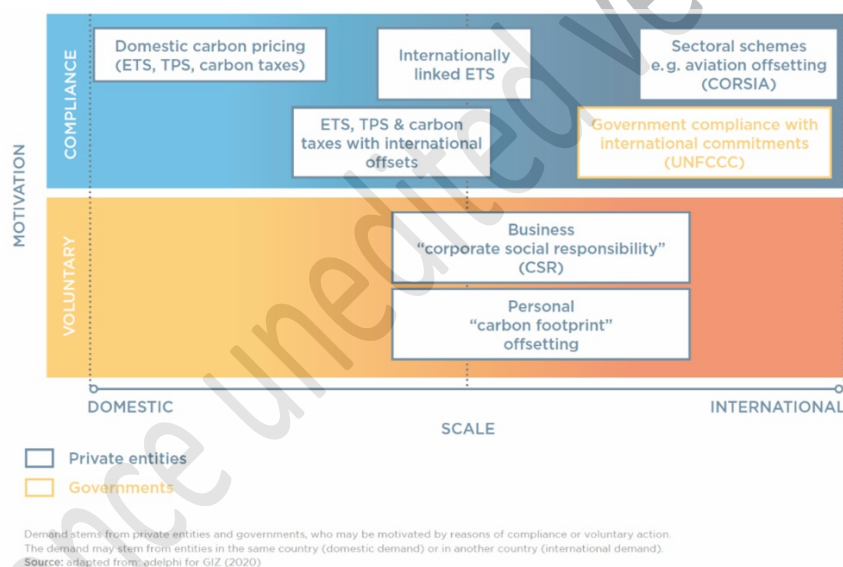
¹⁰ Over time, the use of emission "reduction" credits could decrease and be replaced by "removal" credits to increase the capacity of sequestered residual emissions. Many argue that we need both. For example, the fossil fuel industry would need to shut down plants to remove emissions, and not just sequester (which theoretically means they could go on in perpetuity).

combination of verifiable emissions avoidance and removal projects will become increasingly important¹¹.

2.4 Compliance programs and voluntary programs for carbon offset credits

Various policy contexts exist for the use of carbon offset credits. They may involve regulations designed to reduce emissions, including a role for carbon offset credits, such as carbon taxes that allow carbon credits to offset a carbon tax, or emissions trading systems that place a cap on emissions and recognize carbon offset credits as one way to satisfy the compliance obligation¹². In the voluntary arena, businesses and individuals may choose to acquire carbon offset credits to reduce their carbon footprints. Figure 1 portrays this landscape.

Figure 1: A typology of carbon market demand



Source: ICAP-IETA-IDB, 2021¹³

The private entities and the governments meet in the domestic or international carbon markets, motivated for voluntary or compliance reasons. There is a growing demand for certified carbon offset credits and different institutions run their own programs. These carbon offset programs range from international or governmental regulatory bodies to independent non-governmental organizations (NGOs). Historically, governmental bodies certified offset credits for regulatory purposes ("compliance programs"), while NGOs primarily served voluntary buyers ("voluntary programs"); more recently, both types of programs have begun to serve both types of markets. Each carbon offset program issues its own labelled "brand" of credit. The programs and markets in place offer a range of units that reflect a metric tonne of reduced CO₂ e emissions, for example Assigned Amount Units (AAUs), Emission Reduction Units (ERUs), Certificates of Emission Reduction (CERs), and Removal Units (RMs), to name a few. If the saying that clean air is clean

¹¹ Porsborg-Smith, A., et al., cit., p. 1.

¹² For a complete description, see the UN Handbook on Carbon Taxation for Developing Countries, United Nations, NY, 2021. <https://www.un.org/development/desa/financing/document/un-handbook-carbon-taxation-developing-countries-2021>

¹³ Netto, M., cit., p. 12. Tradable Performance Standards (TPS) are also referred to as baseline-and-credit systems. They are a less common variant of emissions trading and operate without a fixed cap on emissions. TPSs are typically used to meet sectoral targets measured in energy intensity or emissions intensity. They can spur mitigation activities, but do not provide certainty on emissions outcomes. Netto, M., cit., p. 10.

air holds true, to optimize emission reduction the respective trading schemes and emission reduction units should ideally be fungible, but today, they are not¹⁴. The table below highlights some of the existing programs and markets.

Table 1: Examples of major carbon offset programs

“Compliance” carbon offset programs (run by governmental bodies)	Geographic Coverage	Label used for offset credits
Clean Development Mechanism (CDM) ⁶	Low & middle income countries	Certified Emission Reduction (CER)
California Compliance Offset Program	United States	Air Resources Board Offset Credit (ARB OC)
Joint Implementation (JI) ⁷	High income countries	Emission Reduction Unit (ERU)
Regional Greenhouse Gas Initiative (RGGI)	Northeast United States	RGGI CO ₂ Offset Allowance (ROA)
Alberta Emission Offset Program (AEOP)	Alberta, Canada	Alberta Emissions Offset Credit (AEOC)
“Voluntary” carbon offset programs (run by NGOs)	Geographic Coverage	Label used for offset credits
American Carbon Registry	United States, some international	Emission Reduction Tonne (ERT)
Climate Action Reserve (CAR)	United States, Mexico	Climate Reserve Tonne (CRT)
The Gold Standard	International	Verified Emission Reduction (VER)
Plan Vivo	International	Plan Vivo Certificate (PVC)
The Verified Carbon Standard	International	Verified Carbon Unit (VCU)

Source: Mikaelowa et al., 2019

Although carbon offset programs provide some quality assurance, purchasing high quality offset credits is not simple, because they are not a typical commodity. Whether they are of a compliance or voluntary character, offset programs perform three basic functions: (1) they develop and approve standards that set criteria for the quality of carbon offset credits; (2) they review offset projects against these standards (generally with the help of third-party verifiers); and (3) they operate registry systems that issue, transfer, and retire offset credits. The programs approve verification reports and issue a number of carbon offset credits equal to the quantity of verified CO₂-equivalent GHG reductions. The credits are usually included in the project developer’s account. These credits can be used, held or transferred to other accounts (selling them before they are taken out of circulation). Carbon taxes that allow carbon offset credits to satisfy carbon tax may rely on these standards and systems. Some commentators raise certain concerns in this respect¹⁵. The principles of ‘real (demonstrable and quantifiable), additional and permanent’ are pivotal to ensuring the credibility of all carbon offset projects credits.

2.5 Why use carbon offset credits in conjunction with a carbon tax?

A traditional carbon tax requires entities subject to the carbon tax to pay cash to the government based on the tonnes of GHG emissions for which the entities are responsible. The carbon tax rate

¹⁴ Michaelowa, A., Shishlov, I., Hoch, S., Bofill, P., Espelage, A., Overview and comparison of existing carbon crediting schemes, Perspectives Climate Group, NEFCO & Nordic Initiative for Cooperative Approaches, 2019. <https://www.researchgate.net/publication/336599849>. Van Herksen, M.; Jie-A-Joen, C.; Schenk, J.; Levey, M., "Transfer Pricing and Environmental Taxation: Carbon Credits", *Tax Management International Journal*, 12 July 2023. Subcommittee on Transfer Pricing, ANNEX C to E/C.18/2023/CRP.7 at p. 34.

¹⁵ Some argue that policymakers should avoid that certifications from leading standard setters are associated with regulatory benefits, as this further displaces the reputational mechanisms that should limit rating inflation. Battocletti, V., Enriques, L., Romano, A., Can Voluntary Carbon Markets Be Fixed? Oxford Business Law Blog, Posted 14 March 2023 <https://blogs.law.ox.ac.uk/oblb/blog-post/2023/03/can-voluntary-carbon-markets-be-fixed>

will determine the cost per tonne. Allowing covered entities to instead submit carbon credit offsets to offset some or all of those tonnes of GHG emissions means that the government will receive “retired” credits instead of cash revenue. Despite this revenue loss, governments may choose this policy approach for other reasons (e.g., environmental or saving public expenditure). It can encourage investments in climate-friendly projects that qualify for offsets either within the country or, if allowed, in a third country. It may help develop carbon markets. It may be more cost-effective for covered entities.

This approach turns a carbon tax into a hybrid instrument¹⁶. It is a tax, but by including the offset option with carbon credits, it draws on the market-based principles typically seen operating in emissions trading systems, where pollution rights (or in this case carbon offset credits) are traded on the market. Hybrid systems can not only help to prevent price volatility and ensure effective emission reductions, but they can also help to mitigate potential challenges of one of the two ‘pure’ instruments (tax or ETS)¹⁷. Section 4 provides additional discussion of the reasons to consider integrating carbon offset credits into a carbon tax.

3. The role of the Paris Agreement

3.1 The Paris Agreement context

Negotiations stemming from the Paris Agreement are set to shape international carbon markets. Consequently, decisions under Article 6 of the Agreement about program design could influence or inform the approaches that developing countries take when designing carbon taxes that permit the use of carbon offset credits to offset carbon tax.

There is growing appreciation for the potential that international cooperation on voluntary carbon markets can have to drive mitigation. The Paris Agreement sets global goals for reducing the increase in temperature rise, but it leaves to each country the choices about the means it will use to achieve its emissions-reduction goals. Each signatory country must state its Nationally Determined Contribution (NDC) to meet emissions reductions, in line with its national circumstances. As a result, countries vary in the extent to which they rely on carbon taxes or emissions trading systems, either with or without a role for carbon offset credits, or other policies. However, an increase in ambition, and therefore demand is set to be a significant driver of the carbon market. At a global level, Article 6 of the Paris Agreement contemplates the opportunity for countries to voluntarily agree to engage in transferring carbon offset credits from one country to another to help meet the recipient country’s NDC.

3.2 Article 6 of the Paris Agreement

¹⁶ See the Annex for a diagram in Spanish.

¹⁷ Some of the challenges include, in the case of a particular tax, lack of certainty in the mitigation, lack of flexibility in the emissions reduction mechanism, difficulties in linking to other systems, political unwillingness of companies to pay more taxes, or difficulties to progress towards more sophisticated systems. Similarly, an ETS may entail complexity of implementation, may require more sophisticated MRV and a higher level of safety for the registry of permits, transactions and reductions, new institutional framework may be needed, conflict may appear in the allocation of permits and lack certainty in the price. Ultimately, an ETS with no auctioning and without a secondary market, where permits are surrendered at a minimum price is a tax, whereas a tax where permits can be credited or offset with emission reduction allowances completely, is an ETS (Goulder and Schein, 2013). Pizarro, R., “Sistemas de instrumentos de fijación de precios del carbono en América Latina y jurisdicciones de las Américas relevantes”, *Documentos de Proyectos* (LC/TS.2021/41), Santiago, Comisión Económica para América Latina y el Caribe (CEPAL), 2021, p. 19.

Article 6 of the Paris Agreement¹⁸ describes the tools that could be used for voluntary cooperation between countries in order to increase ambition in mitigation and adaptation either through bilateral cooperation (Article 6.2)¹⁹ or through a project-based mechanism (Article 6.4). Although the words “carbon markets” are not used in the Article 6, it essentially recognizes the possibility for international cooperation through the transfer of emission reductions credits (such as carbon offset credits). The cooperation is voluntary but the carbon credits resulting from such a relationship may be part of the Paris Agreement’s NDC compliance program (see Figure 1 in section 2.4 above).

Box 2: An example of establishing bilateral cooperation

Article 6 of the Paris Agreement allows for countries to voluntarily cooperate to reach their respective mitigation targets. By working together, countries can achieve larger emission reductions than what they otherwise would have been able to do with their own resources. The emission reductions can then be distributed between the cooperating participants and transferred between countries.

According to the reporting requirements to the United Nations Framework Convention on Climate Change (UNFCCC) secretariat, countries that wish to transfer emission reductions internationally (Internationally Transferred Mitigation Outcomes, ITMOs) must report on and adjust for these. Such adjustment is called corresponding adjustment and is crucial to prevent double counting of emission reductions between countries.

There are three forms of cooperation within Article 6. The one described in Article 6.2 states that countries can cooperate and transfer mitigation outcomes between each other to achieve the objectives of their climate plans (NDCs).

The next step in the cooperation is to agree on bilateral framework agreements establishing the conditions and rules for both the cooperation between the countries and identify activities that will result in the transfer of mitigation outcomes. Such an agreement thereby confirms the host country's willingness to make a so-called corresponding adjustment when the mitigation outcomes are transferred. Sweden is an example of a country showing progress in cooperation under Article 6.2 with three other countries, namely the Dominican Republic, Ghana and Nepal, although there is no planned link to Swedish carbon tax obligations.

Source: Swedish Energy Agency, [Partnerships under the Paris Agreement \(energimyndigheten.se\)](https://energimyndigheten.se)

While the bilateral cooperative measures will function at a government-to-government level, project-based credits can more logically play into the markets from which entities responsible for carbon taxes might acquire carbon offset credits. Note that the rules under Article 6 will apply to credits trading internationally, not domestically, but some countries may design carbon taxes that allow for credits acquired in international carbon markets (see Section 5). Thus, these rules derived from the Paris Agreement may also help inform the development of national rules for carbon credit offsets linked to carbon taxes.

The explicit operationalization of these rules for the cooperation relationship are being negotiated at the UNFCCC Conference of the Parties (COP) annually. Countries internationally are trying to

¹⁸ See Section 3 below for more details on article 6 of Paris Agreement.

¹⁹ Article 6.2 of the Paris Agreement enables the international trading of mitigation outcomes between countries, and by countries to public or private buyers in third countries. Such transfers need to be authorized by governments. The purpose is to provide a tool for countries predominantly buy such ITMOs from the selling country under Article 6.2 in order to meet their NDC under the Paris Agreement in a more economical, efficient manner. Paragraph 1(f) of the Article 6.2 Paris Rulebook also envisages ITMOs being used for “international mitigation purposes other than the achievement of an NDC” and for “other purposes”. Puleston Jones, S., An introduction to carbon markets, Climate Solutions-Simons & Simons, February 2023, pp. 11 & 36. Under Art. 6.2 in the absence of agreed rules –still being negotiated, early mover countries and international institutions are already developing pilots and frameworks to test how such arrangements could work in practice, reducing the cost of reaching mitigation goals and channeling necessary financing. The ongoing cooperation between Switzerland and Peru is one example in this regard (Federal Office for the Environment, 2021). Netto, M., cit., p. 14.

develop a common set of rules that would make it easier and safer to achieve climate goals through (profitable) markets. A key element of the cooperation involves the use of carbon credits generated from mitigation activities outside a jurisdiction, or company supply chain for which emissions are measured and accounted, toward the compliance obligation or voluntary pledge of a jurisdiction or company²⁰. The 2021 Glasgow Pact under the Paris Agreement determined that negotiations concerning the regulation of Article 6 will occur until 2030.

Therefore, there is currently a regulatory hiatus, in the sense that there is as of yet no international mechanism to regulate such markets, even if there is an expectation that there will be in the future. As a result, countries with an interest drawing on the trading of voluntary markets—for example, to facilitate carbon offset credits within carbon taxes—are also free to determine the rules applicable at domestic level (even if there is some level of risk associated with the trading of international voluntary permits prior to achieving international consensus). The decentralized regulation of voluntary markets as well as the absence of an international authority to oversee the negotiation of these credits means that most carbon offset credit markets only exist within a national jurisdiction so far.

Although negotiations will continue, the Glasgow Climate Change Pact reached at COP26 in 2021 approved some actions to operationalize Article 6. As such, Article 6 mechanisms will replace the mechanisms utilized in the Kyoto Protocol²¹, namely, the Clean Development Mechanism (CDM) and Joint Implementation. Considering the timeline between the operationalization of Article 6 rules and the foreseen end of the CDM (2023), the specific end date remains unclear. However, it was agreed in Glasgow, that CDM credits approved pre 31 December 2020 can still be issued but not any credits approved later than that date. These details are important to countries that have already recognized CDM credits as instruments that can offset carbon tax (see Section 5) – and serve as a note of caution to countries that might consider the use of CDM credits.

In addition, COP26 marked the adoption of an Article 6 rulebook that sets out the rules related to accounting methods, options to determine baselines, reporting requirements and institutional arrangements for carbon offset credits. It also marked the beginning of the implementation period for Parties' first NDCs. Both these are the main drivers for changes in many jurisdictions. Responses, however, will depend on jurisdictions' legal and regulatory regimes and approaches adopted by governments. In some cases, change – and any period of uncertainty – may prove disruptive and costly to private sector investment. In other cases, it may be supportive.

The reactions of governments to carbon markets can either facilitate or hinder initiatives through various means such as regulation and taxation (e.g., the inclusion of offsets in a carbon tax, or the allowance of costs deductions in a corporate income tax system, etc.). If governments introduce tax incentives in general to enable and incentivize carbon market activity, they lower the input cost to generate and purchase carbon credits, which may make carbon credits from that

²⁰ "Compliance covered markets [CCMs] are driven almost entirely by regulatory actions. This has been happening for over 20 years [...] about a market value of about \$100 billion worldwide [...] voluntary carbon markets, these are still nascent and small. The total value of these markets is about \$300 million today [...] But they've been growing rapidly—at least 20 percent a year for the last two years. And we do expect that voluntary carbon markets will continue to grow and will become as important as CCMs". Insights of the joint report by GIC, EDB, and McKinsey, Putting carbon markets to work on the path to net zero, 2022. <https://www.mckinsey.com/featured-insights/future-of-asia/the-path-to-net-zero-investing-in-carbon-markets>

²¹ Under Kyoto, offsetting was used to assist countries in achieving their climate targets by using "spare polluting capacity" from countries that were not party to the agreement. That is because the Kyoto Protocol only applied binding targets to a few (annex I) countries. As a result, industrialized countries could fund offset projects in developing countries, providing them with needed investment and promoting sustainable development. In exchange, they could more cheaply meet their obligations, by claiming the reductions achieved. Now, the situation has changed as many developing countries are bound by the Paris Agreement (see Section 4).

jurisdiction more internationally competitive, therefore increasing demand²². The predictability of any tax measure adopted by the government is important for the companies once projects are put in place –not having to stop them due to unexpected changes.

3.3 Nationally Determined Contributions (NDCs) and the double-counting issue

Article 6 of the Paris Agreement requires that emissions reductions from offsetting measures cannot be credited for NDC purposes to both the host country where the credits are generated and the country to which the credits are transferred. Under the Kyoto Protocol regime, reduction benefits were counted only towards the buying countries. The Paris Agreement requires that the selling country account for this selling of emission reduction outcomes by adding back the tons sold to its GHG “balance sheet” (the corresponding adjustment prevents double counting of emissions, as these reductions will show up in the selling country’s inventory). Therefore, if a country allows an emission reduction outcome to be claimed by another party (another country or some other entity), it should no longer be able to count the reduction towards its own GHG target in its pledged contribution (while a country receiving the transfer can apply the reduction to its own GHG balance sheet for its NDC).

“Double counting”²³ among countries is prohibited and should be avoided using “robust” accounting methods that are yet to be fully operationalized. In principle, the same methods could be applied to backstop claims for carbon offset credits purchased by private voluntary buyers. The detailed rules for implementing corresponding adjustments or “double-entry bookkeeping” are still being negotiated²⁴ by governments. In the meantime, outside the UN process, other intergovernmental organizations, such as the World Bank or non-profit business organizations like the International Emissions Trading Association (IETA) with the climate warehouse initiative seek to connect disparate systems and different registries, to enhance the transparency and credibility of the carbon market and address double counting. It is not clear how this links back to the compliance market, given that countries will develop or modify existing institutional arrangements to participate in accordance with the Article 6²⁵.

As long as compliance and voluntary markets co-exist, governments should be careful about how any action may impact on their NDCs. Not every project is related to them. There might be companies that need credits to offset their own voluntary targets and seek them in the voluntary market. Where the targets on companies derive from a compulsory regulation, there might be

²² Appropriate use of tax incentives can enable investment funds to be channeled towards project types that are prioritised by the government or could attract investment from specific entities, such as locally based project developers. Salway, H. et al., Carbon credit rights under the Paris Agreement. How Article 6 and the implementation of NDCs may shape government approaches to the carbon market, and what this mean for rights related to carbon credits, EY-Goldstandard, November 2022, p. 34.

²³ In Colombia, Peru and Indonesia some analysts find “divergence between carbon accounting parameters used at the national and project scale”, and claim “as part of the Paris Agreement, [that] countries should improve their accounting practices to eliminate double counting across accounting scales”. Atmadja, Stibniati S., et al. “How do REDD+ projects contribute to the goals of the Paris Agreement?” Environmental Research Letters 17.4 (2022); <https://iopscience.iop.org/article/10.1088/1748-9326/ac5669/pdf>

²⁴ Corresponding adjustments could impact companies that wish to source credits internationally. Porsborg-Smith, A. et al., cit., p. 1. There is an ongoing debate on whether a double claim may be appropriate, however, once against a host country’s Nationally Determined Contribution (NDC) and once by a company in the private sector using a voluntary credit to compensate their GHG emissions, not to slow down the deployment of carbon projects.

²⁵ It is not clear how and whether voluntary markets as they exist now will coexist with Article 6 procedures, since the latter requires government authorization for companies to be able to use offset credits for its carbon mitigation purposes, whether the former allows companies the ability to trade in voluntary permits without a central government oversight.

some gray areas between this counting towards the NDCs (whether this is voluntary market or Article 6, except where there is an agreement contractually). Countries often take their country target and devolve it to companies. Then, if companies are meeting those targets to a carbon market, they must get authorization by the government. However, if a company wants to get involved in a carbon credit project but not to count the credits towards their target, it can actually just take the credit for reporting purposes in the context of their corporate social responsibility strategy (as shown in Figure 1 in section 2.4 above). A controlled environmental output would justify its consideration in the carbon tax.

In principle, countries that allow offsets generated within their jurisdiction to satisfy carbon tax, should be able to count those emissions reductions toward their NDCs. Similarly, countries that allow offsets generated in a third country and transferred to the carbon tax country should recognize those emissions reductions, but the host country would need to ensure that its emissions are adjusted to reflect that transfer, because they can no longer be counted in the context of NDCs to avoid double counting.

4. Relevance of carbon credits for developing countries

The rapid evolution of the compliance and the voluntary market shows the importance of clarifying the interactions between the carbon offset market and taxes. Tax policymakers should cautiously follow the progress in this area, as it can notably affect their design of carbon taxes and hybrid carbon pricing instruments, their revenues and redistributive strategies.

Offsets may help to muster political support for carbon taxes because they offer additional flexibility and potentially lower compliance costs for covered sectors. They might, however, also reduce social welfare due to rent seeking (lobbying) behavior.

In case offsets stem exclusively from specific domestic activities where additionally can be ensured more easily, offsets in conjunction with carbon taxation can be used to guide investments towards particular policy objectives and sectors. This may prove to be relevant in case specific infrastructure needs might require addressing in order to be able to reduce carbon emissions or to foster energy transition in a cost-effective way to society.

Where business opportunities are not yet readily apparent or if they are risky because they require a large number of participants in order to be profitable, markets may react slowly to price incentives. In such situations, providing both a stick (carbon tax) and carrot (offset opportunities) can help to initiate change by reducing the costs of investments.

Offsets are granted if specific criteria are met. Those need to be closely linked to the fulfillment of the environmental goal of the carbon tax instrument. Like any subsidy or tax break, offsets should be used carefully and regularly reviewed to ensure that tax revenues are raised effectively and fairly and that public choice problems are avoided. Politically, it is often difficult to phase out support schemes once they have been introduced.

The relevance of carbon credits for many developing countries is clear, as most potential for emissions-reduction projects is concentrated in a small number of countries, mostly developing ones in the South as shown in Section 5 below. Basically, they may try to avoid nature loss (as deforestation), nature-based sequestration (as reforestation), to avoid or reduce emissions (from landfills²⁶), reduce emissions related to fossil fuel use, and through technology-based removal²⁷.

²⁶ The collection and combustion of landfill gas is an effective method for reducing the GHG emissions that would have otherwise been vented to the atmosphere. For instance, the American Carbon Registry methodology provides the quantification and accounting frameworks, including eligibility and monitoring requirements for the creation of carbon offset credits from the reductions in GHG emissions resulting from the destruction or utilization of landfill gas at eligible U.S. landfills. Details available at <https://americancarbonregistry.org/carbon-accounting/standards-methodologies/landfill-gas-destruction-and-beneficial-use-projects>

²⁷ Demand for some classes of credit, such as nature-based credits, could soon outstrip supply. Although removal credits are expensive, they have gained a following because of their quality—it's easier to verify

Countries (also developed economies) could explore their potential in this respect when considering carbon taxation. Carbon taxes that recognize carbon offset credits can encourage these types of emissions-reduction projects.

Box 3: An example of discovered regional potential

Southeast Asia has the potential to become a significant source of credible and high-quality carbon credits. The region boasts nearly 15% of the world's tropical forests, serving as vital carbon sinks. It also contains the world's highest concentration of "blue carbon" stocks (carbon captured by ocean and coastal habitation, such as sea grass). Countries such as Cambodia, Malaysia, Thailand, and others in the region also offer additional value through key biodiversity co-benefits, further enhancing the region's potential for high-quality carbon credits²⁸.

Carbon credits may represent some revenue expectations (governments can directly sell offsets for projects on their own territory or can apply different taxes to them to increase their revenue), but there are also several additional justifications for government action

The nature of carbon credits is heterogeneous, and there is a lot of inconsistency among different credits. To ensure the quality of carbon offset credits, major carbon offset programs are amending quantification methodologies to prevent over-estimation of GHG reductions, as well as reconsidering the eligibility of certain project types. In case the carbon offset credit can serve as payment method or deduction against the carbon tax (although doing so may lead to governments receiving less cash carbon tax revenues, at least they could count on the GHG emissions reduction), it could provide the impulse needed to support environmental action. They would transmit a signal to the market showing that the carbon credit is considered legitimate, and perhaps also indirectly help avoid climate and financial fraud. Bogus carbon credits may jeopardize a country's ability to meet its climate goal²⁹. Carbon taxation may allow for focus on the commercial (market) price for carbon credits. Lack of price transparency could even lead to money laundering. The addition of an eventual second layer of tax control, in cooperation with environmental authorities³⁰, regarding the quality, quantity and price of carbon offset credits could reinforce any previous validation made by a carbon offset program.

Some carbon offset programs actively require that projects demonstrate social and environmental co-benefits (and not just avoid harms), as well as monitor and report on these co-benefits. If carbon offset projects that promote co-benefits are treated more favorably by a carbon tax, that can serve as an incentive for taxpayers to engage in that type of projects with additional benefits like innovation, improved energy access, biodiversity and habitat protection, job creation, education or public-health improvement for the community economic development. The definition of these credit's co-benefits is very important for a proper implementation.³¹. Tools

a project's impact than with avoidance credits. Technology-based removals are expected to gain market share as the technology matures and becomes more affordable. Porsborg-Smith, A. et al, cit., p. 1.

²⁸ See further, Adeline Aw, Vice president of environmental sustainability at Singapore's Economic Development Board in McKinsey.com/futureofasia.

²⁹ An analysis of large-scale forest protection schemes in the Colombian Amazon by Carbon Market Watch claims that they may be dramatically overstating their impact on preventing deforestation. Dufrasne, G., Two Shades of Green: How hot air forest credits are being used to avoid carbon taxes in Colombia, Carbon Market Watch, 30 June 2021 <https://carbonmarketwatch.org/publications/two-shades-of-green-how-hot-air-forest-credits-are-being-used-to-avoid-carbon-taxes-in-colombia/>

³⁰ See Section 6.

³¹ The types of projects that make for higher-quality carbon offsets tend to be those with the fewest co-benefits – and vice versa. There are a number of “add-on” certification schemes focused on the social and environmental impacts of carbon offset projects. Climate, Community & Biodiversity Alliance and

being developed for the market, such as the carbon credit quality initiative (CCQI) and principles being developed by bodies such as the Integrity Council for the Voluntary Carbon Market (ICVCM³²) show that the related social and environmental benefits are integral to the success of any carbon pricing regime. Anyhow, a project should demonstrate its compliance with all legal requirements in the jurisdiction where it is located.

5. The interactions between the offset market and carbon taxation: A global perspective based on current experiences in diverse regions

The lifecycle of carbon offset credits and their effects on revenue resulting from carbon taxes, including their possible cross-border application has recently received an increased interest among governments across the globe. In theory, carbon offset credits can be generated in one jurisdiction, traded and applied in another jurisdiction. In practice, the applicable laws may vary in each jurisdiction³³. In this context, and to the extent available, sharing some rulings on carbon credits already provided by tax administrations might assist with building more coherent legislation in the future.

Currently, while many jurisdictions are still establishing a territorial eligibility requirement for projects, companies are already initiating projects globally. It is necessary to pay attention to the combination of both the international and national voluntary and compliance markets, and the public and private approaches happening at the same time. There could be competition around the application of the credits. All this is evolving very quickly. Many developing countries may have an advantaged position because they can generate credits. They should carefully consider how to navigate these various pathways to effectively optimize their long-term prospects. Explicit carbon pricing mechanisms cannot be substituted for (even just domestic) voluntary carbon markets (that might have a country take long climate targets because of the compensation mechanisms). A national carbon mitigation approach will usually rely either on a tax or on an ETS as a regulated market. Voluntary carbon markets may help financing the green transition process (obtaining resources from other countries, without necessarily meaning a mitigation measure).

Article 6 of the Paris Agreement is still subject to regulation and negotiations are undergoing. Any type of negotiation occurring now between countries would be done on a voluntary basis on the rules that have not been negotiated internationally and therefore they are highly susceptible to fraud. At present it might not be advisable for developing countries to allow other countries to offset their voluntary carbon emissions against a national price, because it impacts the nationally determined contribution, and it also impacts the domestic carbon price. For developed countries putting the accent on the purchase of offsets means that a lot of the additional benefits in transitioning (preparing the economy for the future) may not happen in their jurisdiction but abroad. It is a two-edged sword, with profits in the short term but not being prepared in the long-term considering the goal of a full transition.

5.1 Quality criteria for carbon offset credits in a carbon tax

To take carbon offset credits into account in a carbon tax, policymakers can take advantage of different carbon offset programs, as mentioned in section 2.4 above. The standard-setting

SOCIALCARBON, for example. Broekhoff, D., Gillenwater, M., Colbert-Sangree, T., and Cage, P., *Securing Climate Benefit: A Guide to Using Carbon Offsets*, Stockholm Environment Institute & Greenhouse Gas Management Institute, 2019, p. 9. Available at: https://www.offsetguide.org/wp-content/uploads/2020/03/Carbon-Offset-Guide_3122020.pdf.

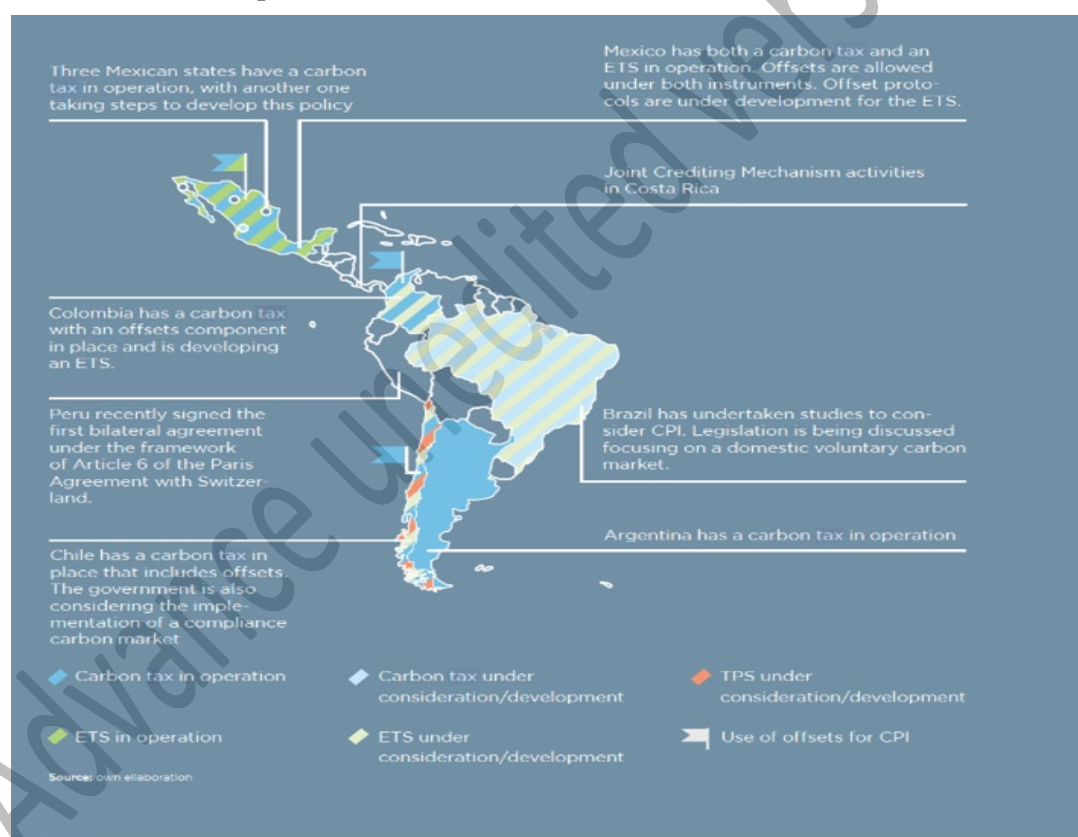
³² "A 'good number' of carbon credit projects will fail to attain the ICVCM's Core Carbon Principles (CCP) integrity label, but some market experts judge there to be still too much wriggle room and ambiguity in the cross-stakeholder body's newly-released assessment framework". Gourlay, P., Voluntary carbon market braces for 'ICVCM impact' after framework release, 27 July 2023. <https://carbon-pulse.com/214257/>

organizations provide quality assurance for carbon offsets, and it has two main components. First and foremost, a quality offset credit must represent at least one metric tonne of additional, permanent, and otherwise unclaimed CO₂ emission reductions or removals. Second, a quality offset credit should come from activities that do not significantly contribute to social or environmental harms.

5.2 Comparative overview of carbon tax and offset systems in selected countries

In Latin America, Mexico, Colombia and Chile have developed systems that allow tax credit through offset schemes tied to emission reduction projects³³.

Figure 2: Carbon market and pricing initiatives in LATAM implemented or under consideration/development



Source: ICAP-IETA-IDB, 2021³⁴

Similarly, countries like Indonesia, Singapore and South Africa are taking offset credits into account in their carbon tax systems. The following sections provide a brief overview of the approaches these countries have taken to integrate offsets with carbon taxation. Collaboration between Ministries of Finance and Environment have often been essential in creating the necessary institutional infrastructure, including registries, to implement carbon taxes and offset mechanisms.

³³ Pizarro, R., cit., p.70.

³⁴ Netto, M., cit, p. 17. For updated information, see WS1 paper.

5.2.1 Colombia

Colombia envisages an emissions compensation mechanism³⁵. In June 2017, Decree 926 was approved, establishing the rules and conditions that allow certain entities to offset their tax obligation. The regulated entities can be certified as carbon neutral, and consequently, be exempt from carbon tax. This Decree specifies that the GHG emission reductions valid for the purpose of the so-called "carbon neutrality non charge" application must come from initiatives implemented in the national territory using certification programs or carbon standards that have public registries and implement Clean Development Mechanism (CDM) methodologies or the ones issued by the National Standardization Body, or comply with the methodological steps set out in the REDD+ Registry.

To qualify for neutrality, entities must submit a request for exemption before the tax compliance deadline, accompanied by a Voluntary Cancellation Certificate (VCC) and a Verification Statement of eligible offsets equal to their emissions. According to the legislation, the VCC must be issued by certification programs or carbon standards and must include a report of emission reductions in accordance with the National Emissions Registry (NER). These emissions or removals must be cancelled in the GHG source certification program prior to issuance in the NER (Decree 926 and Resolution 1447 of 2018). The existence of a National GHG Emissions Reduction Registry is fundamental for non-taxation through offsets and it should be established to link the tax to any other climate mechanism accounting, and especially to an ETS. The Decree 926 establishes that both entities that register emissions and reductions must be verified by the National Accreditation Organization of Colombia (ONAC), or, following the modification made by Decree 446 of 2020, organizations that are members of the International Accreditation Forum until a Mutual Recognition Agreement is in place³⁶. The accreditation or verification program must follow the requirements of ISO 14065

Colombia allows entities to offset up to 100% of their carbon tax through carbon offsets. This has encouraged the development of projects registered, verified and certified to neutralize carbon emissions. In the first half of 2017, approximately 2 million tonnes of CO₂ emissions were offset, representing estimated 5% of expected tax revenue. The carbon tax enhanced national carbon markets through carbon neutrality certification. Colombia is now turning its attention to innovative voluntary carbon offsets using forestry and marine protected areas. The new voluntary carbon market will be backed by the country's green taxonomy defining which investments in Colombia are aligned with the country's Paris Agreement goals. Only domestic carbon credits with vintages not older than five years are eligible. In addition, priority is granted to the forestry sector.

In 2021, Colombia introduced its voluntary program on carbon neutrality, which recognizes and promotes the efforts of public and private sector organizations in reducing GHG emissions by promoting organizational carbon neutrality commitments by 2050. In exchange for calculating footprints and establishing targets, the country provides tax reduction incentives based on "levels of effort" to reduce emissions while generating fiscal revenues³⁷. The criteria of a comparable effort would introduce fairness, as not every taxpayer can benefit from reductions at the same pace.

5.2.2 Mexico

In Mexico the Special Tax Upon Production and Services (*Impuesto Especial sobre Producción y Servicios*) in the modality of carbon tax³⁸ sets GHG prices for different types of fuel. The law

³⁵ Pizarro, R., cit., pp. 64 and 65.

³⁶ Resolution 1447 2018, Resolution 831 of 2020, Decree 926 of 2017, Decree 446 2020.

³⁷ Netto, M., cit., p.58.

³⁸ Mexico has three carbon taxes as pricing mechanisms. Two fall under the umbrella of Special Taxes Upon Services and Production [IEPS]. IEPS "oil" taxes fossil fuel imports; ISAN covers new car purchases.

establishing this special tax allows entities subject to the tax to pay it through the surrender of carbon offset credits from Certified Emission Reductions (CERs) from Mexican projects approved by the UNFCCC. This is the only tax that can be paid through CDM offset credits. Since 2018, the Mexican government has accepted them to cover 20% of the carbon tax payment, under certain conditions: they must be developed in Mexico and not emitted before 2014, they should be tradeable on the European Union ETS, and they need to address post-Kyoto goals.

The Mexican General Law on Climate Change also establishes a mandatory GHG reporting system, the National Emissions Registry (RENE). As of 2015, the RENE obliges companies or facilities that emit more than 25,000 tCO₂e/year to report their GHG emissions for the previous year, which includes about 3,000 companies in various sectors³⁹.

A voluntary carbon market, MexiCO₂, was established in 2013 to facilitate trading of credits, including CERs. In practice, CERs create a hybrid carbon pricing regime that would combine elements of pricing and quantitative rationing, which would allow for greater compliance flexibility.

Besides the federal program described above, Mexico is also known to host a number of subnational carbon tax programs that interact both with the federal carbon tax and the emissions trading scheme⁴⁰. Currently only Querétaro allows for compensation of the carbon tax.

5.2.3 Chile

When the carbon tax was established in Chile in 2017, it focused on estimating the emissions at source level – where the emissions actually occur, in order to be able to collect it. The design of the downstream carbon tax legislation has allowed the policy maker to introduce complementary systems such as the offsets. The following table chronologically shows the regulatory steps cautiously taken in the direction to integrate offsets in the carbon tax in place:

Box 4: An example of a chronological path towards legally including offsets in a carbon tax

Year 2020
The tax reform opens the door to a carbon pricing instrument system with offsets and the development of emission reduction projects: <i>"taxpayers subject to the [carbon] tax... may offset all or part of their taxable emissions, for the purpose of determining the amount of tax to be paid, by implementing projects to reduce emissions of the same pollutant"</i>⁴¹.

Most interesting is IEPS "carbon". Lucatello, S., Towards an emissions trading system in Mexico: Rationale, design and connections with the global climate agenda, GIZ, Springer, Cham, 2022 <https://link.springer.com/content/pdf/10.1007/978-3-030-82759-5.pdf>. This model resembles that of South Africa, where 5 to 8 per cent of carbon taxes can be covered by offset programs (Mehling and Dimanchev 2017: 24).

³⁹ The RENE will be expanded in the future to include the voluntary registration of offsets projects based in Mexico and would subsequently include the certification of such projects by SEMARNAT. Pizarro, R., cit., p. 70.

⁴⁰ Mexico has an ETS that is in force since 2019, a federal carbon tax in force since 2014, and a series of different subnational carbon taxes levied at state level in Zacatecas, Tamaulipas, Baja California, Querétaro, Yucatán, State of Mexico and Guanajuato. When subnational taxes are not aligned with the public policies supported at national level can lead to double taxation and pricing. The federal carbon tax is applied directly to the production, import and sale of fossil fuels. Subnational carbon taxes have opted for a direct tax on emissions. This differentiation is not only influenced by the capacities of governments, since according to Mexican legislation, only the federal government has the necessary attributions to impose a direct carbon price on fossil fuels.

⁴¹ Pizarro, R., cit., p.13 and p.68.

Year 2022

The Framework Law on Climate Change (Act 21455, published 13 June 2022) contemplates explicitly GHG Standards and Emission Reduction Certificates in its Title III.

Article 14.- Emission standards & Article 15.- GHG emission reduction or absorption certificates.

The Agreement No.17/2022 for a Regulation of projects for the reduction of pollutant emissions to offset taxed emissions in accordance with the provisions of article 8 of Act 20780 is published.

The Title II contains the general restrictions and prohibitions in a very detailed manner⁴².

Year 2023

The Regulation that establishes the obligations and procedures related to the identification of the taxpayers affected, and that establishes the administrative procedures necessary for the application of the tax levied on emissions into the air of particulate matter, nitrogen oxides, sulfur dioxide and carbon dioxide is published.

The Regulation clarifies relevant emissions related concepts.

Source: Drafters' own elaboration

The Agreement No.17/2022 allows taxpayers subject to the tax to offset s their taxable emissions by means of emission reduction certificates for the purpose of *determining the amount of tax payable*. Some limits in the scope of offsetting are envisaged as follows:

- Quantitatively: *all or part* of their taxable emissions. Note that partial also implies that the offset cannot exceed the total tax amount to be paid, even if the taxpayer has more carbon credits for previously compensated tonnes of CO₂ emissions, derived from the same or other projects, so s/he cannot claim more refund from the State – irrespective of their higher acquisition or generation cost/price depending on the case.
- Territorially: emissions taxed under the Act may only be offset through the implementation of emission reduction *projects carried out in the national territory*
- Objectively: for the *same pollutant* (e.g. for the purposes of CO₂, the emission reduction must correspond to CO₂ or CO₂ equivalent).
- Temporarily: there may not be a difference of more than *a number of years* between the year of emission reductions used for offsetting and the year in which the taxed emissions are generated.
- Formal requirement: the owners of the eligible projects, when submitting applications for approval of emission reduction projects, shall *describe how they relate to the criteria or conditions that the Nationally Determined Contribution*, if that is the case.

Some projects can be declared inadmissible for the purpose of offsetting emissions, like those that generate an increase in the emissions of any other pollutant subject to the tax, unless it is demonstrated that in order to minimize this impact, the best available technology has been used to control the emissions generated, as determined by the Ministry.

The Chilean Regulation that establishes the obligations and procedures related to the identification of the taxpayers affected, and that establishes the administrative procedures necessary for the application of the tax levied on emissions was adopted by the Ministry of Environment and published on the 31 January 2023⁴³. Offset of emissions is defined as the act by which *emissions reductions that are included in an emissions reduction certificate issued by the Ministry of the Environment*, in accordance with the respective regulation, *are discounted from*

⁴² The text in Spanish can be found here: https://mma.gob.cl/wp-content/uploads/2022/12/ReglamentoComp_291122.pdf.

⁴³ The text in Spanish is available at <https://www.diariooficial.interior.gob.cl/publicaciones/2023/01/31/43465/01/2262813.pdf>

the emissions taxed with the tax established in Article 8 of the law. That leads to the calculation of net emissions.

5.2.4 South Africa

In South Africa when the Carbon Tax Act was promulgated in 2019⁴⁴, it allowed companies to use carbon offsets to reduce their carbon tax by up to 5-10% of their actual emissions. The Carbon Offsets Regulations No. 42873 under the Carbon Tax Act were gazetted on 29 November 2019 and amendments to them vide Government Notice No. 44818 were gazetted on 8 July 2021⁴⁵.

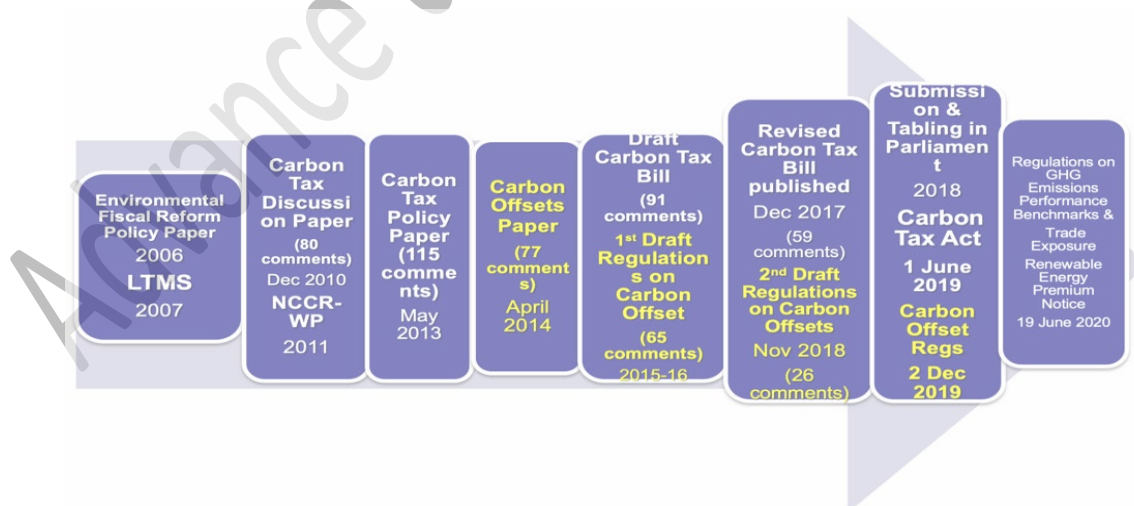
Box 5: South Africa's regulations structure

- Part I: Definitions
- Part II: Eligibility
- Part III: Non-eligibility
- Part IV: Administrator
- Part V: Offset registry
- Part VI: Claiming of allowance
- Part VII: Requirements for documents
- Part VIII: Miscellaneous

Source: National Treasury of South Africa, 2023

Stakeholder engagement played a crucial role in the South African carbon tax process. The steps involved in the consultation process for robust implementation are set out in Figure 3 below. This careful approach was designed to facilitate social acceptability in the implementation of the new rules⁴⁶.

Figure 3: An example of time line



Source: National Treasury of South Africa, 2023

South Africa's carbon offset component of the carbon tax has a dual purpose:

⁴⁴ Modise, D., Mineral Resources and Energy Department, South Africa, not dated, available at <http://www.energy.gov.za/files/COAS/2020/South-African-Carbon-Offsets-Programme.pdf>

⁴⁵ Available at www.gpwonline.co.za

⁴⁶ See Chapter 3 of the UN Handbook on carbon taxation for developing countries.

- To serve as a flexibility mechanism that will enable industry to invest in mitigation projects at a lower cost to what would be achieved in their own operations, and thereby lower their tax (i.e. seek out delivery least cost mitigation).

- To incentivise mitigation in sectors or activities that are not directly covered by the tax and/or benefiting from other government incentives, especially, transport, agriculture, forestry and other land use (AFOLU), and waste.

In South Africa, carbon offset projects developed under one of three specific standards – CDM, Verra's Verified Carbon Standard (VCS), or Gold Standard (GS) – are eligible for inclusion in the first phase of the carbon offsets program. A potential domestic standard primarily to cover the types of projects that are not well catered for under international standards is being considered.

Certain eligibility requirements apply, and only offsets originating in South Africa and from projects that don't receive benefits from other government incentives (such as the Renewable Energy Independent Power Producer Procurement Programme or the energy efficiency tax incentive) are eligible. Therefore, some specific eligibility criteria for carbon offset projects for effective implementation of the offset mechanism in South Africa are established:

- Only South African based credits will be eligible for use within the carbon offset scheme. This is currently a domestic market only, intended to keep revenues within the country to encourage in-country emission reductions and sustainable development benefits.

- Project activities must occur outside the scope of activities subject to the carbon tax. In principle, projects outside the carbon tax net are eligible. However, certain renewable energy and energy efficiency projects that do not benefit from existing government support under the Renewable Energy Independent Power Producers Programme and the Energy efficiency tax incentive, may qualify as eligible projects for purposes of the offsets under the carbon tax.

Table 2: An example of eligible projects by sector

Sector	Eligible projects
Energy	
<i>Energy Efficiency (except projects claiming the energy efficiency tax incentive / 12L)</i>	• Energy efficiency in the residential and commercial sector • Energy efficiency in buildings • Community-based and municipal energy efficiency and renewable energy • Fuel-switching projects • Electricity transmission and distribution efficiency • Small-scale renewable energy projects
Transport	• Public transport • Transport energy efficiency
Agriculture, forestry and other land use (AFOLU)	• Restoration of sub-tropical thicket, forests and woodlands • Restoration and management of grassland • Small-scale afforestation • Biomass energy • Anaerobic biogas digesters • Reduced tillage
Waste	• Municipal waste projects

Source: National Treasury of South Africa, 2023

To be eligible, projects must not be on any negative list of disallowed activities. Furthermore, carbon offset projects that were registered and/or implemented before the introduction of the carbon tax regime will be accepted subject to specified conditions.

The following negative list is indicative and is not included in the offset regulations. The categories of ineligible projects could include 1) projects receiving concurrent (double) benefits for the same reductions from other government incentive programmes, 2) projects not recognised as offset projects under the three international standards and 3) projects generating impermanent credits.

Box 6: An example of list for ineligible projects

- Projects that receive benefits from other government incentives;
- Energy efficiency for projects that benefit from the Energy Efficiency Savings Tax Incentive (Section 12L of the Income Tax Act);
- Cogeneration of renewable energy and fuel switch projects for operations controlled or owned by companies that are covered by the carbon tax;
- Renewable energy projects developed under the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) before May 2013 (Bid 1 and Bid 2 windows);
- Destruction of industrial gases from adipic acid production (HFC-23 & N₂O)
- Nuclear energy;
- Geological carbon dioxide capture and sequestration;
- Temporary CDM CERs.

Source: National Treasury of South Africa, 2023

In practice, there is a pre-screening of approved project ideas under the different standards to ensure they comply with the carbon offset criteria for the South African carbon tax. A fully functional Carbon Offset Administration System (COAS) was developed by the Department of Mineral Resources and Energy (DMRE). The system, hosted in the dedicated server in this Department was launched on the 23 July 2020. Credits are issued to the project owner in the registry of the approved standard. The project owner applies for an Extended Letter of Approval from Carbon Offset Administrator (COA), i.e., the DMRE and subsequently cancels credits from the registry of the approved standard to enable offsets to be listed in South Africa registry. The approved standard when credits are being cancelled on their registries issue an Attestation of Voluntary Cancellation or Certificate of Verified Carbon Unit Retirement.

The South Africa Revenue Services requires taxpayers to submit carbon offsets retirement (cancellation) certificate for carbon tax purposes. These certificates can only be issued for carbon offsets listed in and retired following a taxpayer's request through the COAS. Only carbon offsets to be utilised in a specific tax year should be retired because any excess retired offsets cannot be listed again in the system. Only carbon offsets from projects or activities that are taxable and were issued prior to the introduction of carbon tax expire (31 December 2022).

Box 7: An example of administration system

1. Pre-screening of approved project ideas from different standards to ensure they comply with the carbon offset criteria for the South African carbon tax;
2. Issuance of an Extended Letter of Approval (ELOA) to the project owner if they meet all the South African requirements;
3. Credit owner requests attestation or certificate of voluntary cancellation from the international market and request listing into local registry;

4. Administrator lists credits in South African Ownership Repository and issue listing confirmation to credit owner;
5. Credit owner can issue a transfer instruction request for credit ownership transfer to facilitate change in ownership details;
6. Taxpayer issues a retirement instruction to the carbon offsets administrator when ready to utilise the carbon offsets to reduce carbon tax;
7. The administrator retires through deactivating the credits in the South African Ownership Repository and issues the taxpayer with a carbon offset certificate;
8. Taxpayer surrenders carbon offset certificate to SARS to mitigate carbon tax liabilities.

Source: National Treasury of South Africa, 2023

The carbon offsets used to offset part of the tax are only those from the domestic market for economic reasons (to keep the revenue and environmental or other co-benefits within the country). Given the nascent stage of the carbon tax, the aim is to keep the offset market uncomplicated and simple for now within the country. At some stage, once the revenue and the benefit flows within the country, then an option could be to look at expanding it to the international market (as the credits may be fungible).

Allowance is made under the carbon offsets regulations for development of carbon offsets projects under a domestic carbon standard. South Africa has developed a Framework to guide the development of local standards to cater for: concerns regarding the high costs and bureaucratic processes associated with international standards; small-scale and micro-community projects and unlock mitigation potential in the agriculture, forestry and other land use sectors which are not well covered by international standards; and creation of jobs and develop capacity within local institutions, and reduce reliance on international standards beyond the first phase of the carbon tax. For developing economies, local standards would be crucial for development of a local carbon market and would be aligned with international standards to ensure fungibility of credits/offsets generated.

5.2.5 Singapore

In Singapore, the Carbon Pricing (Amendment) Act 2022 will allow carbon tax-liable companies to use eligible international carbon credits to offset up to 5% of their taxable emissions from 1 Jan 2024. All international carbon credits used under the carbon tax regime will need to adhere to a set of eligibility criteria, to ensure that they are of high environmental integrity and compliant with Article 6 of the Paris Agreement. Such policies may lead to greater demand for carbon credits in the future, as well as clearer regulatory treatment. With varying criteria for the eligibility of carbon credits. Governments can determine and shape the use of carbon credits, and therefore their market value⁴⁷.

As part of their response to the public consultation on the Draft Carbon Pricing (Amendment) Bill, which was passed in Parliament in November 2022, the Singapore Ministry of Sustainability and the Environment expressly stated that “The [Singapore] Government will ensure that eligible [international carbon credits] are derived from real emissions reductions or removal, aligned with global climate ambition, and in line with Article 6 of the Paris Agreement, including the requirement for corresponding adjustment by host countries”⁴⁸. The Government of Singapore

⁴⁷ Salway, H. et al., cit., p. 34.

⁴⁸ Ministry of Sustainability and the Environment, Response to Feedback on Draft Carbon Pricing (Amendment) Bill (22 September 2022) at para 12, online: [https://www.reach.gov.sg/Participate/Public-Consultation/Ministry-of-Sustainability-and-the-Environment/public-consultation-on-the--draft-carbon-pricing-\(amendment\)-bill](https://www.reach.gov.sg/Participate/Public-Consultation/Ministry-of-Sustainability-and-the-Environment/public-consultation-on-the--draft-carbon-pricing-(amendment)-bill). Straits Times, “COUs used to offset carbon tax bill in Singapore must meet certain criteria: NEA” (30 August 2022), online:

has signed memoranda of understanding with Verra, the Gold Standard, American Carbon Registry, Architecture for REDD+ Transactions and the Global Carbon Council for the potential recognition of carbon offset units (COUs) generated using their methodologies as compliance units under its carbon tax scheme.

5.2.6 Indonesia

In Indonesia Presidential Regulation No.98 of 2021 (PR 98) imposes a requirement that carbon project proponents obtain prior approval from the Minister of Environment and Forestry (MOEF) before trading Carbon Offset Units (COUs). The legislation establishes a framework for a domestic carbon trading mechanism and to regulate international transfers of COUs.

A carbon tax was also enacted through Law No. 7 / 2021, concurrently with PR 98, though its implementation was suspended. Regulation No. 21 of 2022 (Reg 21) sets out detailed rules for the National Framework and Authorisation Framework (including for the authorisation of Projects). It also makes provision for carbon taxes. Reg 21 establishes a framework for a domestic emissions reduction trading mechanism and to regulate international transfers of ITMOs and/or COUs. Indonesia is reported to be adopting new regulations that would require a portion of carbon credits from local projects to be withheld, so these can if required be used towards the country's NDC⁴⁹. This shows how, for fulfilling NDCs, a country may directly reserve/retain some carbon offset credits. Indirectly a country might obtain them through admitting their lowering effect on a carbon tax due.

According to the elucidation of the harmonization law, from 2025 onwards, the carbon tax will be expanded to cover all other relevant carbon producing sectors. The Carbon Law⁵⁰ states that the Indonesian Government will establish a carbon trading bourse and issue further regulations to facilitate carbon trading in Indonesia⁵¹. A fully operational carbon trading market is expected to be in place by 2025, coinciding with the next stage of the carbon tax. In practice, this mechanism may allow relevant businesses to convert emissions reduction statements into carbon credits that can be traded on the carbon trading bourse or be linked to results-based incentive payments.

Taxpayers who participate in emissions trading, the offset of their carbon emissions, and/or other mechanisms according to the laws and regulations can be given: carbon tax reductions, or other treatment(s) for the fulfilment of carbon tax obligations⁵².

<https://www.straitstimes.com/singapore/environment/carbon-credits-used-to-offset-carbon-tax-bill-in-singapore-must-meet-certain-criteria-nea>.

⁴⁹ <https://carbon-pulse.com/177053/>

⁵⁰ Presidential Regulation No. 98 of 2021 on the Implementation of Carbon Economic Value to Achieve Nationally Determined Contribution Targets and Control over Greenhouse Gas Emissions in Relation to National Development (Regulation 98/2021), which, combined with Law No. 7 of 2021 on the Harmonisation of Taxation Regulations (Law 7/2021), sets out Indonesia's carbon reduction road map (Carbon Road Map) towards net zero emissions (collectively, the Carbon Law). See the Subcommittee on Environmental Taxation paper on "The Role of Carbon Taxes and other Measures to Support the Energy Transition" (forthcoming) – presented as ANNEX C to E/C.18/2023/CRP35 at the Tax Committees Twenty-seventh Session in October 2023.

⁵¹ A Carbon Exchange (Indonesia's carbon trading market) was introduced in September 2023. The Financial Services Authority (OJK) appointed the Indonesia Stock Exchange (IDX) as the operator of the Exchange. Companies engaged in renewable energy or decarbonization activities will be able to sell carbon credits, while emitters such as coal power plant operators can buy those credits to compensate for their carbon emissions. Participants must register with the Ministry of Environment and Forestry to engage in carbon trading at the IDX. Damayanti, I., Indonesia launches carbon exchange to speed emission cuts, September 26, 2023 <https://asia.nikkei.com/Spotlight/Environment/Climate-Change/Indonesia-launches-carbon-exchange-to-speed-emission-cuts>

⁵² ICC, Critical Design Features for Effective Carbon Pricing. A Business Perspective, International Chamber of Commerce, Paris, 2022, p.46.

6. Addressing key concerns for successful implementation

Other governments could be exploring similar plans to those outlined in Section 5. The key challenges facing governments intending to introduce new taxes or levies related to the use of Article 6 and to carbon credits will be balancing the potential revenue that could be generated with the potential impact on the attractiveness and competitiveness of the jurisdiction for carbon market investment.

6.1 Administrative issues to manage offsets in a carbon tax regime

Irrespective of the advantages from an economic perspective⁵³, hybrid systems (whose features are explained in section 2.5) necessarily imply a greater administrative effort, which means a more sophisticated institutional infrastructure, higher implementation costs, and a more complex Monitoring, Reporting and Verification (MRV) system than one already in place for a carbon tax⁵⁴. However, a solid MRV system is important to prevent fraud and loss of revenues without proper environmental benefits. This, which usually happens in a domestic environment, may have additional cross-border important effects. There can be learning gleaned from the previous compliance market (using CDM) and from the current rules agreed for Article 6, which did in fact draw from lessons learned in the CDM.

Offsetting systems allow the emissions of a regulated agent to be offset, ensuring an equivalent reduction from another company, which may be in another sector, area or even jurisdiction⁵⁵. Allowing this means greater complexity in the implementation of the carbon pricing instrument as the relevant sources, offsetting and abatement have to be recorded in order to recognize who is actually responsible for the abatement.

6.2 Considerations on project eligibility

6.2.1 Prospective analysis of evolving legal requirements

Attention should be paid to the expected progress of the regulation in force, consulting with environmental authorities. Offsetting programs may differ in the extent to which they examine prospective legal requirements to consider additionality. A project which is not legally required at a certain moment, may be undertaken in anticipation of future legal requirements (to avoid triggering such requirements in the future). Project owners may seek to implement a project and claim that the project is additional today to reduce the carbon tax debt, even though it would be implemented anyway in the near future (if they anticipate being mandated to do so). As additionality is variable, if legislation changes, the project may no longer be additional; so investors may be assuming the risk that the future carbon credit will not count for tax purposes or

⁵³ Pizarro, R., cit., p.19. "In comparison to an ETS, carbon taxes do not establish a carbon market for exchange/purchase of permits. Nevertheless, as with an ETS, governments could consider using mechanisms such as offsets, which should be additional and allow economic actors to pay for an equivalent amount of emissions to be reduced or absorbed elsewhere. This option could provide tax-liable entities the option to take advantage of the potential for lower abatement costs across or between economic sectors". ICC, Critical Design Features for Effective Carbon Pricing. A Business Perspective, International Chamber of Commerce, Paris, 2022, p.10.

⁵⁴ For a detailed description of MRV systems in a carbon tax, see the UN Handbook on Carbon Taxation for Developing Countries, United Nations, NY, 2021, at p. 95 <https://www.un.org/development/desa/financing/document/un-handbook-carbon-taxation-developing-countries-2021>

⁵⁵ Because the marginal damage of one unit of GHG emissions is the same everywhere, reducing CO₂ emissions at a location distant from where a regulated agent is located generates the same mitigation benefit. It is this characteristic of GHGs, and the nature of the global damage of global warming, which allows for lower abatement costs through the exchange of equivalent emission reduction commitments. Id., p. 45.

for corporate social responsibility purposes, if the activity carried through the project becomes mandatory.

6.2.2. Assessing options for digital tracking

To identify trustworthy sources of carbon credits, meta-registries could enable the creation of standardized issuance numbers for individual projects, (similar to the International Securities Identification Number⁵⁶). Automation could offer timely data and help connect the credits to the projects where they derive from. Digitalization of processes could help trace and track projects and related credits regularly, lowering costs and shortening terms. The integration of tax/revenue authorities' IT systems could streamline the oversight of such credits in the carbon (or income) tax management system.

6.3 The impact of carbon tax rules on the value of carbon offset credits that affect carbon pricing

The ultimate logic of hybrid systems is associated with the costs of abatement or emission reduction costs. As more 'market' characteristics are introduced, i.e., the ability to offset the tax, implies that abatement costs are determined by those installations that have lower marginal costs, so in effect abatement costs are determined by the market. In the case of taxes, or highly regulated ETS systems, abatement costs will ultimately be determined by the regulator.

There is a sort of tradeoff between raising revenue with a carbon tax and allowing carbon offset credits to be used, between eliminating emissions and the environmental objective of reducing emissions as fast as possible. Hybrid systems can be effective at smoothing the political path of implementation for carbon pricing, though co-ordination in policy design becomes important. There is an impact on revenue, because the offset will have a direct impact on the domestic carbon price⁵⁷. The impact on the carbon price exists only if offsets are allowed in a carbon tax. Then the question is whether national or international offsetting are allowed and how that impacts on national carbon price⁵⁸.

The meaning of "price" in exchange for products or services between companies in the transfer pricing context⁵⁹ is not the same as the tax rate understood as a "price" established by a government in the carbon tax. In addition, there may be a difference in carbon offset prices between compliance markets and voluntary markets, so companies may have to take into account the price they are compelled to pay in the compliance markets, and the price they are willing to pay in the voluntary space. For the government, accepting the payment of the carbon tax with a carbon offset credit implies to forego one unit of the tax revenue (the carbon tax rate per tonne

⁵⁶Institute of International Finance, Taskforce on Scaling Voluntary Carbon Markets, Final Report, January 2021.

<https://www.iif.com/tsvcm#:~:text=In%20January%202021%2C%20the%20Taskforce,net%2Dzero%20emissions%20by%202050>.

⁵⁷ICC, cit., p.12.

⁵⁸ The collection of the carbon tax aims at encouraging decarbonization. When allowing for an offset (that, by definition, has eliminated emissions) policymakers face the question of balancing how fast emissions are reduced. A State may sacrifice part of its own revenues for environmental purposes considering emission reduction activities carried out in its own territory or elsewhere. To the extent that governments must fulfill several national determined contributions, they might have to buy credits in the international markets to meet their own targets using spare capacity that comes from a different country. Even if they do not collect revenue through the carbon tax due to the offsets, they may save public spending because they won't have to buy credits (if they don't have enough to meet their NDCs). Additionally, a government could just allow the buying of voluntary carbon permits without allowing the offset against the carbon price. Voluntary carbon markets and an explicit carbon pricing system can run parallel to each other without actually diminishing the impact of the carbon price.

⁵⁹ The Transfer Pricing Subcommittee has dealt with carbon offset credits under this approach. Add crossreference or link

CO₂ emissions basis), whereas the abatement is cheaper, this could be a very expensive way for the government to fund emissions reductions.

In practice, the carbon prices may have an influence on the acceptance of the carbon offset tool. For example, because of low prices (€0.30US\$ per tonne), as of 2019, Mexican fiscal authorities had not received tax payments via offsets. The taxpayer is likely to only choose the offset option if the (international) price of the offset is lower than the applicable carbon tax rate. In Mexico offsets are not being used in practice because the monetary value of the offsets would be discounted in the tax (not in terms of tonnes of CO₂), hence it doesn't make any sense just increase the transaction costs, as explained in detail in the following box.

Box 8: Limits to the use of carbon offset credits in Mexico's carbon tax

In 2017, the Ministry of Finance and Public Credit (SHCP) published the general rules for the optional payment of the IEPS through compensation units through the delivery of Certified Emission Reductions (CER) of the Clean Development Mechanism (MDL), allowing payment compensation up to 20% of the total (Government of Mexico, 2017). In February 2019, this limit was eliminated, so theoretically the entire tax payment could be offset through compensation with CER.

However, due to the rules established for the operation of this mechanism, this has not happened in practice. The reason for this is that when compensation units are purchased to reduce the payment of the carbon tax, the monetary value of the CERs is discounted, not the tons of carbon reduced, causing a lack of sufficient economic incentives to promote the purchase of CERs.

This inefficiency is due to the fact that if an entity required to pay the tax chose to use CER, it would go through a more complicated process than paying the tax directly. For this reason, since the value of the CERs is what is recognized, there would be no reduction in the fee to be paid, so there would not be any advantage or incentive to prefer the use of CERs over the payment of the tax.

Source: MÉXICO₂, 2022⁶⁰

In fact, the tax rate will set the value of the carbon offset credits used to satisfy tax—and, therefore, the value of offset credits will vary significantly from country to country. The interaction of carbon credits with changes in the tax rate should be further explored when schemes are in evolution. Often a low tax rate is intended to give significant emitters time to transition their operations. Furthermore, it will be relevant to consider that the added cost of taxation to the investments required to generate carbon credits should not serve to disincentivize carbon offset projects.

When allowing carbon offset credits to be used to reduce the carbon tax, countries also will need to consider how taxpayers are treating the original cost of those credits for other tax purposes to assess the budgetary/revenue sacrifices to reach an adequate environmental protection. For example, should (polluting) companies be able to deduct the value of the offset credit used as a carbon tax payment, if they have already been able to (partially or totally) deduct the purchase/generation cost of the carbon offset credits in their corporate income tax? Considering the purpose of environmental taxation, this affects the real cost to the polluters who are paying the carbon tax. The tax benefits should not be given twice. Where several jurisdictions are involved, different domestic approaches in cross-border transactions could hinder future international environmental and tax cooperation⁶¹.

Carbon markets require rules, protocols and practices that clearly identify the carbon emission or credit exchanged, recording and accounting the different trades and recording the final position of each trader. For a carbon market to exist, a MRV system for reductions is needed, as well as a

⁶⁰ MÉXICO₂ (2022) *Impuestos al carbono en México: desarrollo y tendencias*. Ciudad de México: Plataforma Mexicana de Carbono.

⁶¹ For an explanation of these issues, see Grau Ruiz, M.A., International fiscal cooperation to better integrate public and private efforts on sustainability: the case of carbon offset credits, in Saraiva, R.; Alves Pardal, P., *Sustainable Finance: Between public and private solutions*, Springer, Cham (2024).

reliable intermediary to record and verify the reductions. However, the expectation is that rules for regulation of voluntary markets will be gradually concluded, like in the compliance markets where the details of the regulations and the market mechanisms have evolved as policy makers and market participants have learned over time (about the importance of the headline price, the sector covered, etc.). This means that there is a risk of manipulation, some of these credits could overtime have their eligibility questioned, and even eventually be disallowed. Companies should find ways in which to justify transactions, and carefully record them to harness some legal certainty (especially if tax purposes are eventually sought).

7. Conclusion

The state of the art reveals how some tax authorities are already dealing with carbon offset credits and the interaction with their carbon taxes. These approaches deserve attention, particularly with a special focus on the conditions imposed relying on the available tools for verifying the quantity, quality and price of emission reductions or removals related to the credits allowed in the tax system. By sharing comparative examples about various legal options in the life cycle of carbon offset credits, policymakers can learn from them and accordingly establish new opportunities to strengthen international tax cooperation and reinforce global environmental action.

Box 9: Key considerations when allowing the use of carbon offsets to reduce a carbon tax

Below are key points to consider when allowing the use of carbon offsets to reduce a carbon tax:

- What kind of carbon offsets will be accounted for (e.g. type of projects or pollutants)?
- To what extent quantitatively (e.g. all or part)?
- Will the territorial scope be limited (e.g. only domestic or international projects)?
- For how long will they be accepted (e.g. set periods, no evergreen credits)?
- What are the key administrative issues (e.g. application procedure, connections to NDC, verification and environmental result) to take into account?