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Status and trends of compliance and voluntary carbon markets in Latin America



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List of Acronyms

AFOLU	Agriculture, forestry and other land use	MRV	Monitoring, Reporting and Verification
CBIO	Brazil's RenovBio Decarbonization Credit	NBS	Nature Based Solutions
CCER	China Certified Emission Reduction	NCS	Natural Climate Solutions
CDM	Clean Development Mechanism	NDC	Nationally Determined Contribution
CER	Certified Emission Reduction	OECD	Organization for Economic Co-operation and Development
CO₂e	Carbon Dioxide Equivalent	PMR	World Bank's Partnership for Market Readiness
COP	Conference of Parties	REDD	Reducing Emissions from Deforestation and Forest Degradation
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation	SEMARNAT	Mexican Ministry of Environment and Natural Resources
CPI	Carbon Pricing Instruments	TPS	Tradable Performance Standards
CPLC	Carbon Pricing Leadership Coalition	TSVCM	Taskforce on Scaling Voluntary Carbon Markets
DNP	Colombian National Planning Department	UNFCCC	United Nations Framework Convention on Climate Change
ECDBC	Estrategia Colombiana de Desarrollo Bajo en Carbono	VCM	Voluntary Carbon Market
ERPA	Emission Reductions Payment Agreement	VCS	Verified Carbon Standard
ETS	Emission Trading Systems	VER	Voluntary Emission Reduction
EU ETS	European Union Emission Trading System		
FCPF	World Bank Forest Carbon Partnership Facility		
GIZ	German Corporation for International Cooperation		
GS	Gold Standard		
GHG	Greenhouse Gas		
ICAO	International Civil Aviation Organization		
ITMO	Internationally Transferred Mitigation Outcomes		
LAB	Brazilian Laboratory of Financial Innovation		
LAC	Latin America and the Caribbean		
LATAM	Latin America		

EXECUTIVE SUMMARY

Net-zero targets adopted to date cover around 70% of global GHG emissions, but many are not yet supported by the near-term policies and regulations that are necessary to achieve them. Carbon markets, including those that are mandated by regulation and those in which demand is voluntary, can be part of the measures and mechanisms that can contribute to achieve the needed mitigation to achieve these targets.

With regards to carbon pricing instruments (CPIs), such as emissions trading and carbon taxes, these are an essential part of policy frameworks and decarbonization pathways. In 2021, 64 CPIs were in force worldwide, covering 21.5% of global emissions. In the Latin American (LATAM) region, Chile, Colombia, Mexico, and Argentina are frontrunners in implementing CPIs, with four federal carbon taxes, three subnational carbon taxes and one national ETS.

Several steps have typically helped Latin American jurisdictions to design, plan, implement and evaluate a CPI: (ambitious) climate goals provide justification for its introduction, and extensive preparation and analytical work supported the process, such as analysis of policy interactions in Chile, of CPI design in Colombia and São Paulo, of carbon leakage in Mexico, and regulatory frameworks in Brazil.

The process to implement a CPI in the region is contextualized by the wider regulatory framework and policy win-

dows of opportunity: all carbon taxes in Latin America have been part of larger tax reforms, but they fulfill different policy objectives that are context-specific, such as providing a carbon price signal, the need to implement environmental taxes, raise revenue and finance health and education programs. However, when jurisdictions have considered the implementation of compliance carbon markets, these are seen as policies that complement carbon taxes as part of their carbon pricing portfolios.

Throughout this process, jurisdictions in the region have developed valuable experiences to engage with domestic stakeholders from the early stages of CPI planning, design and implementation. They have also benefited from domestic, regional and international cooperation initiatives that help build capacities for relevant parties, and seek to provide a space for discussion, analysis and reflection on the role of CPIs in their jurisdictions and the existing opportunities for cooperation.

Complementary to CPIs, the voluntary carbon market (VCM) has grown in recent years and opened other possibilities for individuals, organizations and governments, to achieve real, verified, permanent and additional emission reductions.

Retirements of carbon credits – the key indicator for demand in the VCM – have more than doubled since 2017, after a period of relative stability. They reached



64

CPIs in force
worldwide in 2021

a record 95 MtCO₂e in 2020, with REDD+ and renewable energy credits currently representing over 70 % of voluntary retirements. REDD+ credits certified by Verra currently represent over 70 % of all credits retired in Latin America. The region is the world's second largest provider of voluntary credits overall, with just under 20 % of the total global credit supply coming from projects in the region in 2020 and 2021. These increasing issuances mostly come from nature-based solutions (NBS) and renewable energy (RE) projects.

The growth in the VCM seen in recent years is expected to continue. According to Troven Research, with increasing investor and consumer pressure on corporations to show climate action at the global level, VCM demand is expected to grow: 5–10-fold over the next decade; 8–20-fold by 2040; and 10–30-fold by 2050, potentially reaching 1 billion tCO₂e by 2030 and 2 billion tCO₂e by the end of 2040.

To accelerate climate action through the VCM, it will be important to send the right signals to private sector voluntary actors to grow demand, and to create market mechanisms for the development of new high-integrity supply at scale. An emerging challenge in this area is the requisite shift away from crediting opportunities in the power sector, with renewables becoming business-as-usual due to evolving policy and the increasing cost competitiveness of low-carbon technologies. Next in line project type opportunities, such as NBS and negative emissions technologies (e.g., CCUS, DAC), are potential growth markets for the supply of high-quality credits with co-benefits going forward.

Compliance and voluntary carbon markets can work in tandem to achieve emission reductions.

CPIs are proven, cost effective tools that are increasingly a key tool for countries to deliver on their Nationally Determined Contributions (NDCs) and net-zero goals, while the continuous growth of the VCM, combined with enhanced public scrutiny and pressure on corporates to invest in high-integrity credit supply with co-benefit creation, is accelerating foundational shifts in VCM design, oversight, governance and product innovation. And where the VCM can be an important stepping stone toward mandatory instruments – by building capacity among the private sector and helping uncover significant abatement potentials – a CPI will be needed, in concert with other policies, to drive decarbonization at scale.

In the near future, jurisdictions in Latin America will continue to develop and strengthen their carbon pricing and market mechanisms to achieve their mitigation objectives and drive different socio-economic and environmental objectives. The momentum towards carbon pricing may also receive an external push, with carbon clubs and border carbon adjustment mechanisms currently under discussion in the European Union, the United States and Canada functioning as potential incentives for carbon pricing in the region.

Chapter 1

The role of carbon markets and pricing towards net zero

Achieving the goal of the Paris Agreement to limit global temperature increases to well below 2°C and, if possible, below 1.5°C above pre-industrial levels is the challenge of our time.

This chapter was authored by the Secretariats of ICAP and IETA.

Over the last year, jurisdictions around the world have demonstrated their commitment to achieving net-zero emissions by announcing high-level pledges and/or embedding targets into laws and regulations. Global greenhouse gas (GHG) emissions, however, continue to grow. And although net-zero targets adopted to date cover around 70% of global GHG emissions, many are not yet supported by the near-term policies and regulations necessary to achieve them (Energy & Climate Intelligence Unit, 2021). The path to net-zero emissions will require a fundamental transformation of the global economy, including massive investment in low-carbon innovation and deployment – underpinned by a comprehensive suite of credible long-term policy signals.

Carbon pricing instruments (CPIs) such as emissions trading and carbon taxes are an essential part of policy frameworks and decarbonization pathways. By holding polluters responsible for the environmental cost of their emissions, CPIs can facilitate a rapid shift away from fossil fuels and incentivize a transition to

low-emissions technologies and industries (International Energy Agency, 2021).

While domestic CPIs were initially used primarily by industrialized countries and jurisdictions in Europe and North America, more and more emerging economies are now following suit. In 2021, 64 CPIs were in force worldwide, covering 21.5% of global emissions (World Bank, 2021c). After Asia emerged as an early carbon pricing hub in the global South, momentum for CPIs is now also increasing in Latin America (LATAM). Chile, Colombia, Mexico, and Argentina are acting as front-runners in this regard, with other countries, such as Brazil, equally considering this option.

Internationally, Article 6 of the Paris Agreement provides a framework for countries to cooperate in achieving their mitigation commitments. While the details of how to operationalize Article 6 are 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. An example of this is the recent agreement between Peru and Switzerland, which will be discussed in more detail in chapter 3 of this report.

Alongside government action on carbon pricing, private actors are also actively engaging in voluntary carbon market (VCM) activities, which can help drive additional finance to mitigation projects not mandated by regulation. This is spurred by increasing corporate interest in purchasing carbon credits to compensate for emissions across their operations and supply chains.

The region has great potential and a lot to gain from proactively engaging with CPIs. Understanding pathways and design options for carbon pricing, as well as the status and trends of policy developments in the region, is a key requirement for effective and scalable climate action. This report is an inroad to the complex web of global compliance and voluntary carbon markets for Latin American audiences:

Chapter 2 unpacks key terms and concepts; Chapter 3 outlines typical pathways toward domestic CPI implementation, drawing on existing experiences in LATAM and highlighting CPI outlooks for the region; Chapter 4 provides a deep dive into status, trends, pathways and prospects of the VCM globally and across LATAM; and Chapter 5 summarizes key takeaways and conclusions.



Global greenhouse gas (GHG) emissions, however, continue to grow. And although net-zero targets adopted to date cover around 70% of global GHG emissions, many are not yet supported by the near-term policies.

Chapter 2

Setting the scene – key concepts in carbon markets and pricing

To gain an overview of the various approaches and make sense of their interactions, this section outlines categories of CPIs relevant for Latin America. After distinguishing the different types of CPIs, we examine market-based CPIs in more detail, along with different sources of supply and demand, their geographical scope, and the types of units that are being traded.

This chapter was authored by the Secretariat of ICAP.

CPIs are usually mandatory (or “compliance”) instruments that governments use to put an explicit price on carbon and make regulated entities pay for their emissions. There are two main types of compliance CPIs: [emissions trading systems](#) (ETS); and [carbon taxes](#). The entry point of regulation in ETS is the [quantity](#) of emissions, while the point of regulation in carbon taxes is the [price](#). Otherwise, both instruments are broadly similar in that they follow the “polluter pays principle” by imposing an explicit price on companies’ emissions. If properly designed, both approaches can drive cost-effective mitigation across covered sectors and potentially generate government revenues that can be reinvested to further climate and social objectives.

- Emissions trading systems – ETS work on the principle of “cap-and-trade”, whereby the government imposes an overall quantity limit on GHG emissions. Covered entities (e.g. businesses, power utilities, fuel suppliers etc.) are then obliged to account for their emissions and submit a corresponding number of emissions permits, known as allowances. Allowances are tradable units whose market value represents the carbon price. Entities that do not surrender enough allowances to cover their emissions face penalties. [Tradable performance standards](#) (TPS, also referred to as baseline-and-credit systems) currently exist across several jurisdictions but are a less common variant of emissions trading and operate without a fixed cap on emissions.¹

¹ TPSs are typically used to meet sectoral targets measured in energy intensity or emissions intensity. In this type of system, the regulator sets a limit of the permitted emissions per unit of output or energy produced. Regulated entities that generate emissions below the standard are awarded credits that they can keep for the future or sell to entities that have emitted above the standard and are thus in need of compliance units. Without an overall cap, TPS markets can spur mitigation activities, but do not provide certainty on emissions outcomes.

- Carbon taxes – The government sets the carbon price, being the carbon tax rate. This carbon tax rate is typically defined as a fixed amount per tonne of GHG emissions, and may be applied either on fossil fuels use, on actual GHG emissions of regulated entities, or a combination of both.
- 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. Carbon credits are generated by crediting mechanisms and awarded to mitigation activities in sectors not covered by the regulation.

All CPIs focus on reducing and removing emissions. Yet another approach to give value to carbon, although in this case on a non-compliance basis, is **voluntary offsetting**. This approach is not driven by government regulation, but rather by private individuals and companies who voluntarily engage in carbon markets in order to compensate for their GHG emissions and meet their own carbon-neutrality goals. Voluntary offsetting typically makes use of carbon credits generated by crediting mechanisms, although allowances from

ETSs could also be used for this purpose. Voluntary offsetting and the voluntary carbon market will be examined in further detail in Chapter 4.



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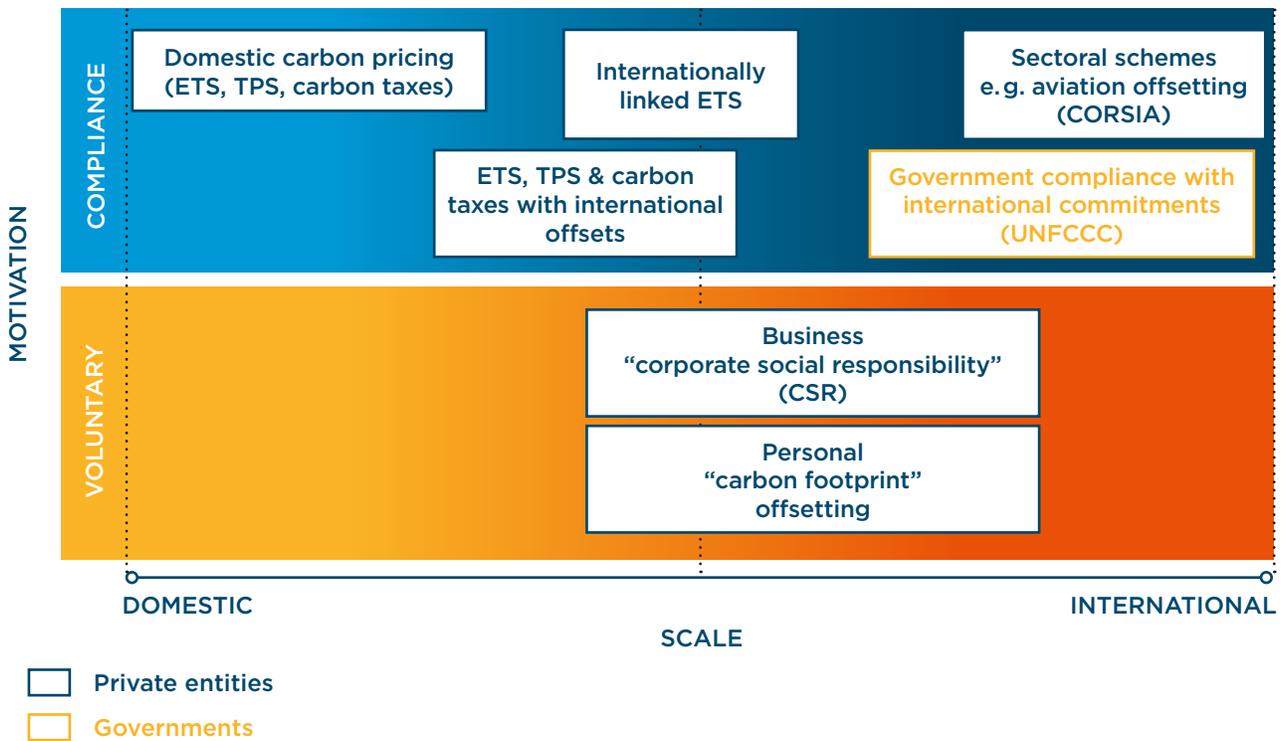
Among CPIs, a **carbon market** emerges when some type of unit (usually representing one tonne of CO₂e) is generated, traded, and used to meet an obligation or commitment, such as under an ETS. A “pure” carbon tax without offsets, then, is a CPI that does not make use of markets. CPIs can also be complemented by non-market initiatives, such as results-based climate finance mechanisms, which may apply similar methods for the monitoring and reporting of emission reductions, but do not necessarily generate tradable carbon credits.

When examining market-based instruments, supply and demand are key aspects that should be investigated. In the following sections, we analyze different types of carbon markets based on their supply and demand characteristics.

The demand side of carbon markets

To understand the demand side of carbon markets, it is important to identify where the carbon price signal is coming from, and whether the demand stems from compliance obligations or voluntary commitments. (See Figure 1)

FIGURE 1
A typology of carbon market demand..



Demand stems from private entities and governments, who may be motivated by reasons of compliance or voluntary action. The demand may stem from entities in the same country (domestic demand) or in another country (international demand).
 Source: adapted from: adelphi for GIZ (2020)

Compliance demand:

- Domestic compliance CPIs provide the main source of demand for allowances and carbon credits. In 2020, for example, surrendered units by stationary installations amounted to nearly 1.350 MtCO₂e under the EU ETS alone (European Environment Agency, 2021). By comparison, global trades in the VCM amounted to around 100 MtCO₂e in the same period (Trove Research, 2021). Compliance demand is thus the key driver for unit demand worldwide.
- Outside of domestic CPIs, demand has only recently started to emerge from airline companies to meet obligations under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) (see Box 1).

- National governments may also potentially use international carbon markets to meet their commitments under the United Nations Framework Convention on Climate Change (UNFCCC). In the past, international carbon markets were active under the Kyoto Protocol, and there is potential for such markets to begin again under the Paris Agreement Article 6 (see Box 2). If this happens, significant future demand for eligible international units could materialize.

Voluntary demand:

As mentioned above, demand for carbon market units also stems from private individuals and companies² who decide to voluntarily offset their emissions to reduce their carbon footprint or meet corporate social responsibility goals, such as science-based net-zero targets.³ Currently voluntary offsetting has a strong transboundary component,

BOX 1

Carbon markets and CORSIA

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is a global measure adopted by Parties to the International Civil Aviation Organization (ICAO). Its aim is to offset CO₂ emissions of international flights above a sectoral emissions baseline through carbon credits and sustainable aviation fuels. CORSIA is being implemented in phases. During the pilot and first phases (covering 2021–23, and 2024–26 respectively), offsetting requirements apply only to flights between states that have elected to opt into the system. During the second phase (2027–35), airline operators are liable to offset their share of emissions above the sectoral baseline for all flights between covered ICAO Member States. In total, 88 countries are participating in CORSIA during its first year, in 2021, whereas 106 are expected to participate from 1 January 2022.

While shorter-term offsetting demand under CORSIA has decreased as a consequence of the global downturn in aviation emissions during the COVID-19 pandemic, in the longer term CORSIA is expected to be a major source of demand for international carbon credits, including from Latin America. By 2021, the ICAO Council had approved eight carbon offsetting programs as eligible for delivering credits to airlines during the pilot phase.

² Just as private companies pursue voluntary action, government bodies may also look to purchase carbon credits to reduce their carbon footprint or achieve “green procurement” targets.

³ Beyond “end users”, voluntary demand is also driven by intermediaries and market players that acquire carbon units as financial assets, often with a speculative purpose.

as much of the current demand for carbon credits comes from multinational corporations in North America and Europe, while the majority of credit

supply has historically come from the global South. Trends for voluntary demand will be further examined in Chapter 4.

BOX 2

Article 6 of the Paris Agreement

The Paris Agreement recognizes the role of international cooperation through carbon markets in its Art. 6. This section of the 2015 agreement outlines provisions for countries to voluntarily cooperate on Nationally Determined Contribution (NDC) achievement through both market-based and non-market-based approaches. The objective of Art. 6 is to “allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity” (Art. 6.1).

Art. 6 defines two main market-based provisions:

- Article 6.2 defines “cooperative approaches” among countries, involving the use of “internationally transferred mitigation outcomes” (ITMOs) toward NDCs. When implemented, Article 6.2, which is largely understood as a channel of international cooperation, will define an international accounting and reporting framework enabling several different forms of international cooperation through markets. Article 6.3 requires that the use of ITMOs toward NDCs is authorized by all parties involved.
- Article 6.4 defines a new crediting mechanism, often referred to as the “sustainable development mechanism (SDM)” that will operate under UNFCCC oversight. The SDM will generate UN-stamped international units, will “contribute to the mitigation of GHG emissions and support sustainable development”, must “deliver an overall mitigation in global emissions”, and will generate a share of proceeds to assist developing countries in adapting to the impacts of climate change.

If implemented, the Art. 6 framework will establish an international carbon market under the Paris Agreement by creating a new source of demand and supply for international units.

The operationalization of Art. 6 is currently still being negotiated among Parties to the Paris Agreement, and defining implementing rules has proven highly contentious. Key controversial issues include questions of environmental integrity, accounting, transition of the Kyoto Protocol mechanisms (CDM projects, credits and methodologies), adaptation finance, and the implementation of corresponding adjustments under Art. 6.4, among others.

It is important to note that the Paris Agreement does not prevent Parties commencing international cooperation under Art. 6.2 in the absence of agreed rules. Consequently, while the Art. 6 implementation guidance is 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 just one example in this regard (Federal Office for the Environment, 2021).

The supply side of carbon markets

The supply side of a carbon market is made up of different types of units:

1. Under an ETS, carbon units (referred to as “allowances”) are generated and distributed by the government, through auctioning and/or free allocation, with quantities aligned to overall targets or caps. These units can be considered “permits to emit”.⁴
2. Under crediting programs, units (referred to as “carbon credits”) are typically generated at the project level, in the context of particular emission reduction or removal activities taking place outside the scope of compliance instruments, and following program-specific protocols. The type of carbon credit generated depends on the program or standard through which the units are certified and issued

(see Table 1 for examples). The certification body therefore plays a central role in the supply of carbon credits. Certification programs may be established and operated domestically (e.g. the California Compliance Offsets Program), internationally (e.g. the Clean Development Mechanism under the Kyoto Protocol), or independently (such as the Gold Standard or the Verified Carbon Standard of Verra). The diverse programs, protocols, and certification standards entail a wide range of types of carbon credits.

Compliance regimes (both under domestic governments and international agreements) typically determine the eligibility criteria and quantities of carbon credits that may be used for compliance within a specific CPI.

⁴ Like allowances under an ETS, tradable performance units (TPS-units) are generated by governments strictly within the scope of this type of system. Under a TPS, units are typically given to entities that have proven to have emitted less emissions than those allowed by their baseline and can be stored for future use or traded with entities that have emission levels above their own baselines. Unlike allowances, units under a TPS are units awarded for reduced or mitigated emissions.

Here is a non-exhaustive list of certification programs and standards, the types of credits they generate, and where they may be used:

TABLE 1
Certification systems, types of credits, and potential eligibility

Certification system	Credit type	Where crediting activities may take place	Examples of systems that accept the credits
Clean Development Mechanism (CDM) under the Kyoto Protocol of the UNFCCC	Certified Emission Reduction (CER)	International: non-Annex I Parties to the Kyoto Protocol	International compliance under the Kyoto Protocol, some domestic ETS (e.g., EU ETS until 2020, Korea ETS), Mexico carbon tax, voluntary market, CORSIA
China Certified Emission Reduction Program	CCER	In China	Chinese pilots and national ETS, CORSIA
California Compliance Offset Program	California Offset Credits	In California	California Cap-and-Trade Program
Verra Verified Carbon Standard	VCS	International	Voluntary market, Colombia carbon tax, CORSIA
Gold Standard (GS)	GS Voluntary Emission Reductions (VERs), GS CERs	International	Voluntary market, CORSIA
Mexico's crediting mechanism (under development)	(tbd)	Mexico	Mexican ETS
Brazilian National Agency of Petroleum, Gas and Biofuels	Brazil's RenovaBio Decarbonization Credit (CBIO)	Brazil	RenovaBio

Chapter 3

Domestic carbon pricing instruments in Latin America – instrument choice, capacity and experiences

Several LATAM countries have already committed to achieve net-zero emissions by 2050, with others planning to soon deliver similar commitments (Energy & Climate Intelligence Unit, 2021).

In addition to national action, an increasing number of subnational jurisdictions in the region are making ambitious net-zero pledges; in fact, following Europe, LATAM has the second highest number of subnational jurisdictions with a pledge to achieve net zero emissions, with 209 cities and five regions (Data-Driven EnviroLab & NewClimate Institute, 2020). Despite this notable longer-term climate ambition, most current Nationally Determined Contributions (NDCs⁵) across LATAM are considered to be insufficient to achieve the Paris Agreement goals and therefore must be updated and “enhanced” over time to be aligned with long term goals (Climate Analytics & New Climate Institute, 2021).

In LATAM, governments have turned to CPIs not only to meet their climate change commitments, but also to achieve wider environmental and social objectives. A broad array of compliance and voluntary CPIs are being implemented in the region, including innovative and hybrid approaches adapted to suit domestic political context and economic circum-

stances. The ability to tailor and adapt policies, while building on emerging best practice, means that there is enormous potential across the region for carbon pricing to deliver climate change mitigation and finance flows.

Status of carbon pricing initiatives across Latin America

As of March 2021, there are 64 CPIs implemented around the world, covering 45 national and 35 subnational jurisdictions (World Bank, 2021c). Among them, four federal carbon taxes, three subnational carbon taxes and one national ETS are in place in the LATAM region. This shows that the region is leading on CPIs in comparison with other parts of the world, which is very positive.

Figure 2 presents a geographical overview of carbon pricing in LATAM, covering both domestic CPIs implemented or under development in the region as well as international cooperation initiatives under Article 6 of the Paris Agreement. Table 2 also presents where these CPIs

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⁵ NDCs are the national pledges of post-2020 climate action that Parties to the Paris Agreement periodically present. For each Party, each successive NDC should reflect progress, as well as the highest possible ambition for the country. Collectively, NDCs determine the progress towards the Paris Agreement goals of “Holding the increase in global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels” (UNFCCC).

have been implemented in the region. To complement information on CPI implementation, table 2 additionally shows information on Article 6 piloting activities and results-based finance projects in the

region, which shows the diversity of mechanisms in which mitigation activities are developed in Latin America.

FIGURE 2

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



Source: own elaboration

TABLE 2

Carbon market and pricing initiatives in the LATAM region

Instrument type	Implemented in jurisdiction	Integration of (other) carbon market elements
Carbon taxes	Argentina, Chile, Colombia and Mexico. In Mexico, there is a national carbon tax and carbon taxes in the state governments of Baja California, Tamaulipas and Zacatecas	The Mexico national carbon tax, the Colombian carbon tax, and the Chilean carbon tax accept offsets for compliance.
Emission Trading Systems (ETs)	Mexico. Colombia has a mandate to develop a system.	In Mexico, up to 10% of the surrender obligation of regulated entities can be covered using offset credits (Secretaría de Gobernación, 2019). The country is currently in the process of developing compliance offset protocols for use under the system (Lithgow, 2021)
Pilots under Article 6	Peruvian-Swiss agreement on planned implementation under Article 6 of the Paris Agreement (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, 2020); Joint Crediting Mechanism activities in Mexico, Costa Rica and Chile; the Chile-Canadian Program to reduce emissions in the waste sector; Pilot activities in Chile under the Swedish Energy Agency; Pilot activities of the Swiss Climate Cent Foundation and of the ITMO Purchase Program of the Swiss KLIK Foundation in Mexico and Peru; the Nordic Environment Finance Corporation (NEFCO) - Peru Agreement for ITMO transfers (Climate Focus & Perspectives Climate Group, 2020)	N/A
Results-based finance (RBF)	Several projects in Latin America (World Bank Group & Frankfurt School of Finance and Management, 2017)	N/A

Deciding on and implementing a CPI

As shown above, several countries in the LATAM region have implemented and are currently operating CPIs, other countries are in the process of doing so, and others are considering it and will likely do so in the future. The process of conceptualizing, developing and launching a CPI is delicate and will determine, to a large extent, its future success. Having gone through the process already, many countries in the region, such as Colombia

and Chile, can offer lessons learned, best practices and examples that can benefit others. The World Bank and the International Carbon Action Partnership identify several key steps for the analysis and early decision on a CPI. National and subnational jurisdictions in LATAM have typically taken these steps during the implementation process.⁶ Figure 3 provides a first graphical overview, which is then discussed below.

⁶ Several of the steps presented here reflect two publications: the Emissions Trading in Practice: A Handbook on Design and Implementation (Partnership for Market Readiness & International Carbon Action Partnership, (2021)) and the Carbon Pricing Assessment and Decision-Making: A Guide to Adopting a Carbon Price (Partnership for Market Readiness (2021)). The order here does not indicate a strict linear progression, as some steps may occur at several points of the implementation process.

FIGURE 3
Steps for carbon pricing implementation





Clearly defined climate goals can provide grounds for jurisdictions to implement a CPI:

Climate goals guide the ambition level and direction of mitigation policies, including CPIs. Typically, national mitigation goals will be enshrined in legislation or in the country's NDC. The definition of (ambitious) climate goals provide justification for the introduction of a CPI. For example, in Mexico, initial criticism from the private sector on the possibility of implementing an ETS was addressed due to the fact that the sectoral mitigation commitments established in the General Climate Change Law ruled out the possibility of inaction (Partnership for Market Readiness & International Carbon Action Partnership, 2021).

Carbon pricing can achieve different environmental, social and economic goals:

Analyzing and defining the role and objectives of a CPI in the policy mix will help inform which type of CPI is best suited for the jurisdiction (see Box 3 on complementarity of CPIs in Colombia). A CPI can also be designed to achieve broader environmental, social, and economic goals. For instance, in Colombia and in Argentina, the revenues raised by the carbon taxes are earmarked. In Colombia, they flow to the "Sustainable Colombia Fund" (Ley 1819 de 2016, 2016), which is an initiative by the government to support sustainable practices and projects in areas affected by the violent conflict (Colombia Sostenible). In Argentina, revenues from most of the fossil fuels on which the tax is implemented go to the social security system, as well as transport infrastructure investments, the national housing fund, and

to the provinces, among others. In the case of Chile, although resources are not earmarked, the tax was approved as part of a wider tax reform with the objective of raising funding for education and health initiatives (World Bank Partnership for Market Readiness, 2017).



Early and consistent engagement with stakeholders is key for the success of the policy:

Early engagement with stakeholders allows their input to be heard and their concerns to be understood and addressed. Regulated entities and firms indirectly affected by the carbon pricing instrument are natural targets for intense engagement. Effective cross-government coordination involving other ministries as well as agencies and other bodies that will play a role in implementation, including the legislative branch, facilitates the smooth introduction and running of the instrument. Market service providers can equally be relevant as they provide crucial infrastructure and support functions to the nascent carbon market. Media, civil society, and the general public are also important, as their support is vital for the longevity of the CPI. Other jurisdictions with a CPI in place can provide valuable experience in this regard. For example, in Brazil, the Empresa de Pesquisa Energética has held workshops in 2021 in which national and international stakeholders from institutions like the International Energy Agency, research institutions, international jurisdictions with an ETS in place and representatives from industry associations have gathered to discuss the potential of implementing a CPI in the electricity sector in the country (Empresa de Pesquisa Energética, 2021)

Successful stakeholder engagement entails building capacities for parties to understand better the CPI, and a two-way dialogue that ensures that CPI design is rooted in the realities of the jurisdictions

(for an example, see Box 4 on Mexico). This process usually begins during planning and design, and continues throughout implementation.

BOX 3

Colombia – CPI complementary options to achieve mitigation and social benefits

In the context of the Colombian Strategy on Low Carbon Development (Estrategia Colombiana de Desarrollo Bajo en Carbono, ECDBC), which seeks to de-link GHG emissions from economic growth, and as part of the preparation activities for the country's accession to the Organization for Economic Co-operation and Development (OECD), Colombia has done extensive work to consider the role of economic and market instruments to mitigate emissions (Ministerio de Ambiente y Desarrollo Sostenible, 2016).

In the context of the Colombian Strategy on Low Carbon Development (Estrategia Colombiana de Desarrollo Bajo en Carbono, ECDBC), which seeks to de-link GHG emissions from economic growth, and as part of the preparation activities for the country's accession to the Organization for Economic Co-operation and Development (OECD), Colombia has done extensive work to consider the role of economic and market instruments to mitigate emissions (Ministerio de Ambiente y Desarrollo Sostenible, 2016).

The Colombian government has conducted several analyses through the National Planning Department (DNP) to estimate the costs and benefits of implementing a carbon pricing mechanism. As a result of this work, the National Carbon Tax was incorporated into the Structural Tax Reform – Law 1819 of 2016 (Natalie Rona, 2019). The carbon tax system also considers a non-causation mechanism, which allows regulated parties to reduce due payments of the tax by using offsets from recognized carbon projects (OECD, 2019). Since its design, it was decided that the revenues would be earmarked for sustainable projects such as land management in the Amazon, and this flexibility and earmarking have been seen as facilitating good political acceptance (Javier Sabogal Mogollón, 2020).

Parallel to the design of the carbon tax, and with the support of the World Bank's Partnership for Market Readiness, the Colombian government started the analysis and consideration of the role that an ETS could play in the policy mix and its potential link to international markets, as well as potential interactions with the carbon tax (Ministerio de Ambiente y Desarrollo Sostenible, 2017, 2020) and legal and institutional challenges to its implementation. This analysis facilitated the provision of input to the draft of the Climate Change Law (Ministerio de Ambiente y Desarrollo Sostenible, 2018), which was passed in 2018 (Law 1931 of 2018) and mandated the creation of an ETS. In this setting, the experience acquired by the carbon tax and its offsetting mechanism were seen as a basis for the implementation of a compliance carbon market (Ministerio de Ambiente y Desarrollo Sostenible, 2019).

In the Colombian context, the carbon tax and the ETS are seen as complementary policies (IDEAM, PNUD, MADS, DNP, CANCELLEÍA., 2018) in which lessons learned from the implementation of the tax are useful for the implementation of the ETS. Together, they seek to drive decarbonization, generate co-benefits and contribute to the long-term net zero goal of the country (Government of Colombia, 2020b; IDEAM, PNUD, MADS, DNP, CANCELLEÍA., 2018).

BOX 4

Mexico – early engagement with stakeholders to build an ETS

The process of developing an ETS in Mexico started in 2015, when the Ministry of Environ-

ment and Natural Resources (SEMARNAT) began an assessment of a mandatory ETS.

In 2016, an informal dialogue process began with representatives from sectors likely to be covered, such as steel, cement and the chemical industry. Initial feedback from the private sector was rather critical. However, the existence of an international mitigation commitment by Mexico in the form of its NDC ruled out the possibility of inaction.

In 2017–18, SEMARNAT announced a simulation exercise with the support of the PMR, which facilitated a deeper understanding and capacity building among private sector stakeholders. These activities facilitated further, more technically-centered dialogues and the eventual creation of a Working Group with these actors, once a legislative reform to the Mexican General Law on Climate Change, which mandated an ETS, was approved. The dialogue within the Working Group increased the buy-in for the policy by prospective regulated entities, and allowed the regulator to hear and incorporate concerns into the draft regulations. Throughout this process, technical studies commissioned by SEMARNAT with the support of the German Agency for International Cooperation (GIZ) informed the discussions and design of the system.

This Working Group and the interaction that it facilitated with key stakeholders was so important that it led to the incorporation of a Consultative Committee into the draft ETS regulation, which also includes actors from academia and civil society. In this sense, stakeholder engagement is and will continue to be an important avenue for policymakers and other actors to find common ground and strengthen Mexico's carbon market (International Carbon Action Partnership, 2019; Partnership for Market Readiness & International Carbon Action Partnership, 2021)



Jurisdictions need to consider their economic and institutional context:

Potential impacts should be assessed to understand which stakeholders may be affected and to what extent, both economically and socially. Within the context of the jurisdiction, typical issues arising

include competitiveness concerns, and impacts on households and employment (see Box 5 below). These questions are intertwined with the regulatory framework and the policy interactions that a CPI could have in the jurisdiction, as well as with the characteristics of regulated entities and their context.⁷ For example, the regulatory framework may put in question the level of government that can implement a certain CPI.

⁷ For further discussion on this topic, see the publication by the Partnership for Market Readiness, Carbon Pricing Assessment and Decision-Making: A Guide to Adopting a Carbon Price (Partnership for Market Readiness (2021))

BOX 05

Addressing social impacts of carbon pricing

there is also a concern that CPIs may have unwanted impacts on low-income households. Nonetheless, recent research shows that a carbon price may be progressive (i.e. have a larger relative impact on the household budgets of higher income groups) in many developing countries, given the much larger carbon footprint and related carbon price expenses of wealthier groups (Dorband et al., 2019; Ohlendorf et al., 2021).

In any case, assessing potential adverse distributive effects of carbon pricing and identifying means to address them should be a priority for policy-makers. A number of international best practices exist, centered around the use of revenue from carbon pricing. California, for instance, returns a share of carbon pricing revenue to consumers through a rebate on their electricity bills; in addition, 35% of funds in its Greenhouse Gas Reduction Fund must benefit low-income households or communities. British Columbia combined the introduction of its carbon tax with a tax credit that compensates low-income households for the impacts of the policy. Finally, revenues from Colombia's carbon tax flow into the "Sustainable Colombia Fund", an initiative by the Colombian government to support sustainable and conservation projects by women, black communities, indigenous communities, farmers and people with disabilities, in areas affected by the violent conflict.

Carbon pricing has potential to give rise to significant co-benefits that extend beyond the GHG mitigation impact of the policy. However,



Understanding policy interactions is key for CPI design:

Interactions with other climate, energy and economic policies must be understood in order to assess whether they are complementary, overlapping, or contradictory, and what measures could be taken. For example, in the case of an ETS that intends to cover the power sector, energy market reform that allows cost pass-through to consumers supports the effective functioning of the system, whereas fossil fuel subsidies are countervailing policies that need to be considered when designing the CPI. In LATAM, international cooperation with initiatives like the World Bank's Partnership for Market Readiness (PMR) and the German Corporation for International Cooperation (GIZ) have provided support to jurisdictions for the development of technical studies that assess these interactions, such as an analysis between the Chilean carbon tax and its energy and environmental pol-

icies (Carbon Counts & E2BIZ Consultores, 2016), and an analysis of interactions between the ETS and clean energy certificates in Mexico (Center for Resource Solutions, 2018). For more information on the support that international cooperation initiatives provide, see Box 6.

Preparing for the implementation of a CPI requires analyzing existing infrastructure and capacities and remaining gaps in the jurisdiction:

Different CPIs require different capacities and infrastructure, and currently many gaps exist. The PMR and GIZ have been actively providing key technical and capacity development support to help address these gaps. Knowledge, competencies, and institutions may need to be developed or can, in some cases, be adopted or adapted from existing systems. For instance, Chile undertook a study of the existing capacities and infrastructure for the implementation of its green taxes (which includes the carbon tax) in 2017 with the support of GIZ (Ministerio de Medio Ambiente & GIZ, 2020).

Because the carbon tax is implemented downstream, the studies assessed the steps that the jurisdiction had undertaken to strengthen its MRV system for the implementation of the taxes, as well as the challenges that still existed in this regard. In a similar manner, the IDB has led the development

of studies of possible regulatory frameworks for the carbon market in Brazil (Lopes, 2015), as well as a study on potential allocation methods and risk of carbon leakage in the state of São Paulo (Gusmão, 2015).

BOX 6

International cooperation in LATAM in pursuing a CPI

support of several initiatives and platforms. These include the Carbon Pricing Leadership Coalition, launched in 2015 with the objective to place carbon pricing on the global agenda (World Bank, 2021a); the Pacific Alliance, an initiative for regional integration comprised of Chile, Colombia, Mexico and Peru established in 2011 (Alianza del Pacífico, 2021); Carbon Pricing in the Americas, which collaborates with experts and institutions to provide resources and technical support (Paris Declaration on Carbon Pricing in the Americas, 2017); the Partnership for Market Readiness, which provides support to several countries for the preparation and implementation of carbon pricing policy (Partnership for Market Readiness, 2020a); and the Latin American and Caribbean Carbon Forum, hosted by IETA, as a regional conference and exhibition for climate action connected to markets and economic instruments. In a similar manner, the Brazilian Laboratory of Financial Innovation (LAB) is a collaborative platform to share knowledge, enhance regulatory frameworks, and pilot innovative products in order to advance sustainable finance in Brazil and promote dialogue in the region. Often, these platforms and initiatives can facilitate the emergence of direct governmental cooperation activities, such as the cooperation between Québec, California and Mexico, or the cooperation between Québec and Chile, that can provide other spaces to exchange experiences and knowledge.

Furthermore, international cooperation initiatives such as the PMR and GIZ have provided key support for governments to develop technical studies around CPI planning and implementation. These include studies on interactions of carbon pricing and related policies and regulatory impact assessments of carbon pricing policy options for Brazil (Partnership for Market Readiness, 2019a, 2020b); studies on policy coherence of different CPI options, participation in international carbon markets and a study on voluntary carbon markets for Chile (Partnership for Market Readiness, 2019b; Precio al Carbono Chile, 2021); a study on ETS system design, an impact assessment of an ETS on sectoral competitiveness, a study on design options for a mandatory GHG reporting program for Colombia (World Bank, 2020); and studies on the allocation of allowances, cap setting, analysis of carbon leakage risks, interactions with other policies and a strategy on stakeholder engagement, communications and capacity in Mexico (Gobierno de México, 2021; World Bank, 2021b).

In the process of planning, designing and implementing a CPI, jurisdictions in LATAM have the



Modelling the impacts of the CPI on the economy can provide valuable inputs to decide on a CPI and its design:

Modelling requires extensive statistical and economic information as well as the preparation of different scenarios for CPI implementation, such as different stringency levels and potential changes to the policy over time. Although costly, it can provide very valuable information to decide on a CPI and to inform its design. Supported by the GIZ and the PMR, Mexico and Colombia have developed several studies to model different aspects of CPI design in the policy mix and in the economy. In Mexico, examples of these studies are an analysis on different options for a climate policy mix (Michael Mehling & Emil Dimantchev., 2017), and an analysis on carbon leakage (Vivid Economics, 2018). In Colombia, modelling studies have included a revision on the Colombian Computable General Equilibrium Model for Climate Change that includes different ETS scenarios (Get2C & Universidade do Minho, 2020).



Jurisdictions will decide on a CPI based on their analysis of suitability, policy objectives and windows of opportunity:

All the aforementioned steps will allow policy-makers to decide on the CPI that is appropriate for their jurisdiction. In this process, jurisdictions will typically balance the objectives that they are trying to achieve with their specific context and starting conditions, but also the windows of opportunity that they encounter. For instance, in Argentina, Colombia, Chile and Mexico,

the respective carbon taxes were approved as part of wider tax reforms, but the objectives that they were following were not the same. In Colombia, the tax was introduced as part of a policy portfolio to meet its GHG reduction commitments (Natalie Rona, 2019). Argentina had to consider a complex macroeconomic context and the recent phase-out of fuel subsidies: the jurisdiction wanted to introduce a price signal and introduce awareness around carbon pricing without increasing energy prices, and thus replaced part of existing taxes with the carbon tax as a compensatory measure⁸ (Carlos Trinidad Alvarado, 2019). However, in both cases, the process of accession to the OECD played a role in the introduction of the CPI, due to the implementation of environmental taxes being a pre-requisite (Mariana Micozzi; Ministerio de Ambiente y Desarrollo Sostenible, 2016). In Chile, the wider tax reform had the objective of increasing revenues to finance health and education (World Bank Partnership for Market Readiness, 2017), whereas in Mexico the reform was part of a strategy to raise revenue in the context of decreasing oil revenues and with the objective of being compatible with reforms to liberalize the energy sector (Carlos Muñoz Piña). It is important to consider that CPI suitability, policy objectives and windows of opportunity can change over time as a result of internal and external drivers. For instance, as a result of the change in the aforementioned macroeconomic context in Argentina, and the impact of the COVID-19 pandemic, the government has recently decided to increase fuel subsidies in real terms again (Rojo, 2021). CPIs also evolve over time: in Colombia (IDEAM, PNUD, MADS, DNP, CANCELLERÍA., 2018), Mexico (Rodrigo Pizarro Gariazzo, 2021) and Chile (in terms of its technical and institutional infrastructure (GIZ et al., 2021)), carbon taxes are both seen as a first step and a complementary policy to a compliance carbon market.

⁸ In the case of fuel oil, the carbon tax is additional to pre-existing taxes.

A legal mandate provides the basis for the CPI:

Implementation process will then typically be followed by the creation of a legal or regulatory mandate, the achievement of which will typically also require extensive communication and analytical work with policymakers and legislators. During this process, the basic design elements will be crafted and set as part of the regulatory framework of the jurisdiction. In practice, this process will be conditioned by policy procedures and available windows of opportunity for policymakers, with a framework law often representing the initial legal basis, while subsequent regulations that require further analytical and communication work provide more details about the system design, institutions involved, responsibilities and other characteristics. For instance, the LATAM national carbon taxes were implemented through the corresponding tax reforms, whereas the Mexican ETS was initially mandated through the 2018 reform of the General Climate Change Law, and the Colombian ETS was mandated through Law 1931 of 2018.



The design of the system will typically continue after implementation legislation is passed:

Policymakers need to design the CPI and develop implementing rules. Studies and recommendations on the CPI typically serve as a foundation. Stakeholder engagement and consultation processes

typically continue to incorporate input from relevant actors and, depending on the CPI, different design elements will be considered – such as how to set the cap or baseline, the use of stability mechanisms, and offsets. When designing the system, particular care should be put to the environmental integrity of the system, which in the case of compliance carbon markets may include consideration to the cap, its trajectory, and the use of flexibility mechanisms, whereas in the use of offsets it may include adhering to the highest quality standards and solid methodologies to make sure that the offsets are additional, permanent, not otherwise claimed, not overestimated and verifiable. In Mexico, after its legal mandate was established in 2018, policymakers continued to work on the design of the ETS and published it in 2019. In Colombia, the legal mandate was established in 2018 and work on the design of the system has continued, and the pilot is expected to start in the next few years.

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A robust MRV system forms the backbone of a CPI with high environmental integrity:

Introduction of an MRV system for GHGs typically precedes the introduction of a CPI and ensures a solid basis of data underpinning its design, for instance on cap-setting and allocation in the case of an ETS. In Mexico, the General Climate Change Law mandated the introduction of mandatory MRV for entities that emit above 25,000 tCO₂e per year; the resulting data was instrumental for the design of the ETS (International Carbon Action Partnership, 2019). In Chile, an MRV system was implemented for compliance under the carbon tax, and it is seen as a key infrastructure element that could allow policymakers to expand the CPI to other pricing instruments (GIZ et al., 2021).



Capacity building prepares stakeholders for their participation in the instrument:

Particularly when planning for an ETS, policymakers may want to implement capacity building activities for all parties to understand how the policy works, how it affects them and their responsibilities. In LATAM, and in many cases with the support of ICAP, GIZ and the PMR, different capacity building activities have been implemented to enable stakeholders to deepen their understanding of compliance carbon markets, including in-country and virtual courses, simulations, and study tours to countries that have implemented an ETS.



Jurisdictions planning for an ETS will require technical infrastructure and governance systems, such as a registry for allowances and an auctioning platform:

In the case of compliance carbon markets and of carbon taxes with offset provisions, jurisdictions will need a registry for transactions of allowances and/or carbon credits to be registered and eventually surrendered and, in the case of carbon credits, cancelled. If an ETS auctions off allowances to participants, an auctioning platform will also be required. Finally, rules and regulations may need to be developed for a marketplace to enable participants to trade allowances among each other.



Jurisdictions have different options to launch their CPI and improve them over time:

Particularly for emissions trading systems, given their complexity, they may first be launched as pilot phases, so that participants gain practical knowledge on their roles and responsibilities. Another option is gradual implementation, i.e. starting with a limited number of sectors or a higher participation threshold for participation (World Bank Partnership for Market Readiness & International Carbon Action Partnership, 2021). Both approaches have their own advantages and drawbacks. In the Mexican ETS, for example, the 2020–22 period is a test phase that will help in testing the system's design, enhance the quality of emissions data and build capacities in emissions trading (International Carbon Action Partnership, 2021). More broadly, it is common for CPIs to undergo reviews and for their design to be revised over time to incorporate

lessons learned since they began or to adjust to changing circumstances. In the case of the Chilean carbon tax, a reform approved in 2020 will change the definition of the application threshold from 2023 onwards. The underlying justification was that three years of the carbon tax had enabled a better repository of data that enabled this change, which will better reflect the spirit of the “polluter pays” principle (GIZ et al., 2021).



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The diverse roadmaps towards the implementation of a CPI in Latin America presented above are in summary form for the case of the countries that have implemented or are considering an ETS (specifically, Brazil, Chile, Colombia and Mexico). Table 3 presents a simplified version of the “key steps” presented above. The “analysis and assessment” column incorporates the definition of goals; analysis of interactions, of the local context, of existing and needed capacities; and modelling, so as to reflect the different measures that jurisdictions take to assess the suitability of an ETS. The undertakings by jurisdictions presented here are non-exhaustive but highlight relevant measures that have been taken in the process of designing and implementing a compliance carbon market.

TABLE 3

Country experiences in implementing a compliance carbon market in Latin America

Country	Definition of climate goals	Analysis and assessment of compliance market	Engagement with stakeholders	Mandate for a compliance carbon market
Brazil	Brazil's NDC : GHG emissions reduction by 37% in 2025 and by 43% in 2030 compared to 2005 levels	With the support of the World Bank's PMR, the country has developed several studies to inform policy design and on modelling	With the support of the PMR , engagement activities, such as seminars to raise awareness and discuss carbon pricing, have been implemented	Although a process unrelated to the one supported by the PMR, there is discussion happening around law 14120 of 2021 , that could see the eventual creation of a compliance carbon market
Chile	NDC : limit GHG emissions to 1100 MtCO ₂ e between 2020–30. Peak emissions by 2025. 95 MtCO ₂ e emissions by 2030. Climate neutral by 2050	With support from PMR & GIZ, several technical studies have been developed: e.g. policy coherence of CPIs, international carbon markets, MRV systems for carbon markets	With support from PMR & GIZ, implementation of working group with different stakeholders to provide inputs on the development of a compliance carbon market	Climate Change Framework Law (under discussion): potentially a system of GHG emission limits. Surplus in reductions could be certified as a tradeable unit
Colombia	NDC : limit emissions to 169.44 MtCO ₂ e in 2030; emissions decreasing between 2027–30. Achieve carbon neutrality by mid-century	With support from PMR, development of several studies , such as impact assessment of an ETS, sectoral competitiveness, design options for a mandatory GHG reporting program	With support from PMR, development of capacity building and stakeholder engagement activities, such as in-country or virtual trainings on ETS and simulation exercises	Law 1931 of 2018 . Articles 29 and 30 provide for the creation of a compliance carbon market, which may be integrated with the carbon tax
Mexico	NDC : By 2030: Unconditional commitment: -22% (GHGs); -51% (black carbon) compared to BAU. Conditional: -36% (GHGs); -70% (black carbon)	With the support of GIZ & PMR, development of several studies on design elements, options and interactions, as well as communication and stakeholder engagement	Stakeholder engagement processes started early on in the planning process and has continued throughout the planning and implementation process	General Law on Climate Change (2018 reform), in its Article 94

TABLE 3

Country experiences in implementing a compliance carbon market in Latin America

Country	Design of the system	MRV system development	Capacity building activities	Technical infrastructure & governance	Launch the compliance market
Brazil	Although a process unrelated to the one supported by the PMR, there is discussion happening around law 14120 of 2021 , that could see an eventual creation of a compliance carbon market in this sector	Not currently	Although not a government activity, the Sustainability Studies Center of the Getulio Vargas Foundation implements yearly voluntary ETS simulations for companies	Not currently	Not currently
Chile	Discussions around CC Framework Law and dialogue fora with stakeholders	MRV system specific for GHG emissions for the implementation of its carbon tax. Environment Superintendent in charge of MRV development and methodologies	With PMR support, implementation of technical seminars, domestic trainings and a study tour to Sacramento, California, with the California Air Resources Board	Not currently (MRV exists for the carbon tax)	Not currently
Colombia	Currently being studied and developed by the government	Currently being studied and developed by the government	With support from PMR, development of capacity building and stakeholder engagement activities, such as in-country or virtual trainings on ETS and simulation exercises	Currently being studied and developed by the government	Pilot phase expected to take place before the middle of the decade ⁽¹⁾
Mexico	Implementing regulation sets design elements, such as the scope, thresholds, responsibilities, flexibility mechanisms, etc. Other rules include the system's cap and allocation	The National Emissions Registry (RENE) was created in 2012 . Reporting to RENE occurs in parallel to reporting to the ETS. Verification for the ETS has to happen every year	With support from PMR and GIZ , implementation of several capacity building activities, such as carbon market simulations, in-country and virtual trainings, and study tours	MRV system infrastructure and registry are already developed, while offset protocols are under development , governance structure established by regulation. Auctioning platform to be developed	Pilot phase until the end of 2022. Operational phase from 2023.

(1) Presentation by government official during regional carbon pricing panel, Mexico Carbon Forum (2021) <https://www.mexicocarbon.com/>

Future prospects for carbon pricing initiatives across Latin America

Colombia, Chile and Mexico have been leading the way in testing and implementing various forms of CPIs, including carbon taxes, emission trading systems and hybrid carbon tax systems that allow for the use of carbon credits towards compliance. These CPIs work in tandem with other policies to achieve their mitigation goals (World Bank, 2020).

The potential for near-term expansion of CPIs across LATAM is high, despite some recent political and socio-economic challenges and program delays. In Chile, the legislative discussion around the Framework Law on Climate Change continues, and with it the potential of another compliance carbon market to begin in the region. In Colombia, the current internal analysis around the design of the ETS and the expected launch of the system in its pilot phase by 2023 or 2024 will be another hallmark of CPI implementation in Latin America. In Mexico, the operational phase of its ETS is expected by 2023 and will benefit from the experience of the pilot years, which are currently helping stakeholders build capacities and test system design, to strengthen it in the future.

Multiple initiatives in the Latin American region provide support to countries in their implementation of CPIs and generate valuable experiences that inform policy needs. Whereas the World Bank's Partnership for Market Readiness provided technical assistance to 23 countries to design and deploy carbon pricing instruments, including Argentina, Brazil, Chile, Colombia, Costa Rica, Peru and Mexico, its successor Partnership for Market Implementation will support countries to develop and implement CPIs, help them participate in the operationalization of Article 6, and help policymakers identify best practices and share lessons learned (Partnership for Market Implementation). Furthermore, the Carbon Pricing in the Americas Declaration of 2017 has created a forum of exchange between jurisdictions in the Americas and of cooperation with other institutions to regularly discuss carbon pricing status, design and implementation.

In this context, jurisdictions in LATAM will continue to benefit from domestic and regional exchange activities that foster cooperation and allow them to continue to strengthen their CPIs. For those that expand the scope of their CPI, or that are seeking to implement a new one, stakeholder engagement and capacity building activities will likely play a key

role. Previous experiences of stakeholder engagement, such as the working groups in Mexico and Chile, and capacity building activities, such as study tours to countries with mature CPIs, carbon market simulations, and in-country or virtual courses, such as those financed by GIZ and PMR and implemented by ICAP, constitute an important source of institutional knowledge and can serve as a reference point for future activities.

The momentum towards CPI design and implementation in Latin America may also receive an external push in the future, with signals coming from the United States, Canada and the European Union on the possibility of implementing some type of border carbon adjustment instrument (World Bank, 2021). In the case of the European Carbon Border Adjustment Mechanism (CBAM), a carbon price would be set on imported goods equivalent to the price that the producer of those goods would have had to pay had they been produced in the European Union (European Commission, 2021), which could impact Latin American countries such as Brazil, Chile and Colombia, as these are important exporters of iron and steel, fertilizers and cement products which could potentially be covered by the CBAM (Kardish et al., 2021).

This chapter focused on compliance CPIs in the region. Yet there are other market-based options to drive mitigation and help achieve climate goals outside of compliance policy. Voluntary carbon markets have grown in recent years and open other possibilities for individuals, organizations and governments, to achieve real, verified, permanent and additional emission reductions. Chapter 4 examines the history, the functioning, drivers, and trends of the voluntary carbon market, with a particular emphasis on the LATAM region.



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Chapter 4

Voluntary Carbon Markets

The voluntary carbon market (VCM) drives finance to projects which deliver independently verified mitigation action. Similar to the compliance market, a VCM credit is an instrument representing the reduction, avoidance or sequestration (biological or technological) of one tonne of CO₂e.

This chapter was authored by IETA and the International Carbon Reduction and Offset Alliance (ICROA)

In contrast to compliance markets, carbon reductions enabled by the VCM are achieved independently from government mandates and legal requirements. The VCM allows corporations and other non-state actors to achieve climate goals and net zero commitments by complementing internal decarbonization with the purchase of verifiable carbon credits.

Demand for carbon credits in the VCM has grown substantially in recent years, driven by various considerations including corporate social responsibility, response to investor demand, market differentiation, and reputational or supply chain risks. A newer trend and driver for demand, including across LATAM, is compliance or pre-compliance use of credits under innovative “hybrid” carbon pricing instruments, where selected programs and protocols that generate credits are being adopted or adapted to meet regulated carbon tax compliance obligations.

Despite the growing popularity and widening implementation, current multilateral international negotiations and

governmental carbon pricing schemes are insufficient to fully address climate change and the challenge of global decarbonization. Particularly over the coming decades, the VCM holds a large potential to play an instrumental role in accelerating the global transition to net zero emissions by helping to close the emissions and finance gap, and drive technology innovation in support of the Paris Agreement goals.

A bit of history

In its early days, the VCM was characterized by pioneering new approaches for fighting climate change. A good example of this are the Reducing Emissions from Deforestation and Forest Degradation (REDD) projects in Belize and Bolivia in 1996, which started the creation of Multilateral Development Funds such as the Forest Investment Program, the Climate Investment Funds, and the Forest Carbon Partnership Facility, among others. Over time, the VCM has evolved and matured into an important tool to tackle climate change by driving resources to projects which deliver carbon reductions on a

global scale. This interactive graphic⁹ sheds light on the market's evolution.

Voluntary Carbon Market Trends

Voluntary climate action is growing strongly across the private sector. In 2020 and even more so the first half of 2021, there has been record demand for voluntary carbon credits and record issuances. Globally, corporates are showing appetite to support the goals of the Paris Agreement by committing to carbon neutrality and net zero strategies, often supported by (i) targets for internal decarbonization (e.g., Science Based Targets¹⁰) combined with (ii) the use of carbon credits from the VCM to complement their effort outside of their value chain. Although still small compared to compliance carbon markets, the VCM is poised to grow significantly through 2030.

Market Value

According to Ecosystem Marketplace's State of the Voluntary Carbon Market (Donofrio et al., 2021) in the first eight months of 2021, the VCM has already posted a near 60% increase in value from last year. This comes after 2020 which was already a banner year for the VCM, continuing 2019's strong growth trajec-

tory despite the emergence of COVID-19, making 2021's performance all the more striking. 2021 is on track for an annual market value record of \$1 Billion+ for the first time, as all-time market value hits \$6.7 Billion, with traded credits from projects located in 80 countries.

VCM Global Demand

Over 500 million voluntary carbon credits certified under the VCM's four main independent standards¹¹ have been retired for voluntary uses over the last decade. This retirement occurs when a buyer permanently sets aside a credit in a designated registry, effectively taking the unit's unique serial number out of circulation. Retiring offsets through a registry ensures that they cannot be resold, which is an especially critical feature if the buyer's intent is to claim the associated emissions reduction against a voluntary carbon reduction or neutrality target.

Retirements of carbon credits – the key indicator for demand in VCM – have more than doubled since 2017, after a period of relative stability, and reached a record 95 MtCO₂e in 2020. This trend continues with retirements for the first eight months of 2021 (92.4 MtCO₂e) already higher than the level for all 2019 (70.1 MtCO₂e).¹²

⁹ <https://voluntarycarbonmarket.org/docs/VCM-Interactive-PDF-Version-1-With-Introduction.pdf>

¹⁰ The Science-based Target initiative (SBTi) provides companies with a clearly-defined path to reduce emissions in line with the Paris Agreement goals. Includes corporate voluntary signatories committed to meet individual SBTi targets. As of September 2021, 899 companies have committed to SBTi targets. More information is available on the initiative is available at <https://science-basedtargets.org>

¹¹ American Carbon Registry (ACR), Climate Action Reserve (CAR), Gold Standard and Verra.

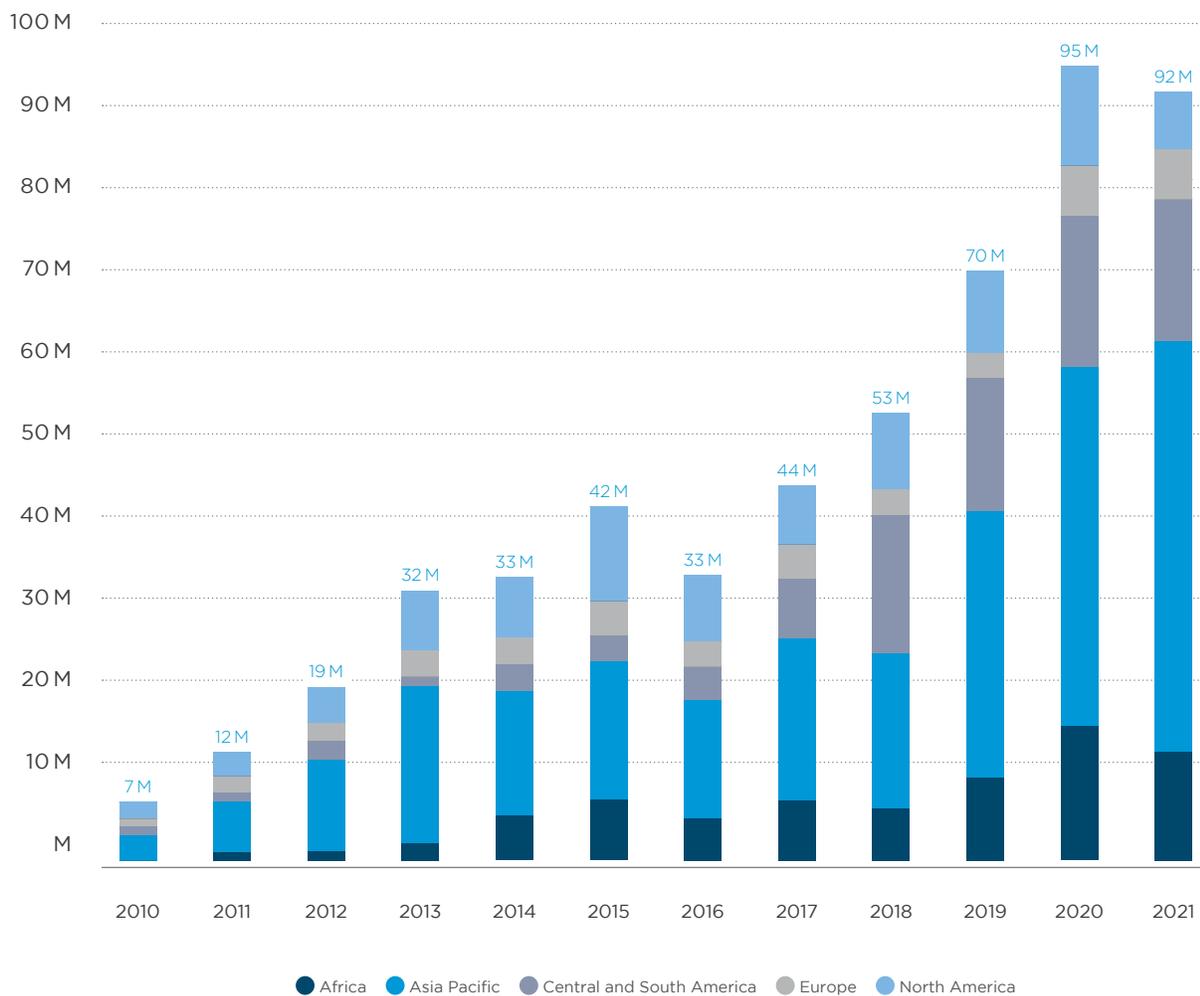
¹² Trove Intelligence.

Ecosystem Marketplace reported that, in January 2021, retirements surpassed issuances for the first time since 2017; an increase primarily driven by forestry project retirements. REDD+¹³ and renewable energy credits currently represent over 70% of voluntary retirements. In terms of certification, REDD+ credits certified by Verra currently represent over 70% of all credits retired in LATAM, followed by Gold Standard at about 15%. In terms of geographical distribution, the Asia Pacific region provided 45% of credit retirement in 2020, and 55% in the first eight months of 2021 (See Figure 4).

However, according to Trove Research, the estimated demand for credits, particularly across forestry and Nature-Based Solutions (NBS), in the LAC region will significantly increase.

Now, while the potential eligibility and generation of credits in the energy sector are estimated to shrink over the coming years as crediting opportunities are becoming business-as-usual and/or covered by domestic regulations, project types poised for significant and lasting growth and eligibility, and which are capable of generating low-cost near-term supply with co-benefits, are across NBS, removals (nature and geo-engineered) and waste.

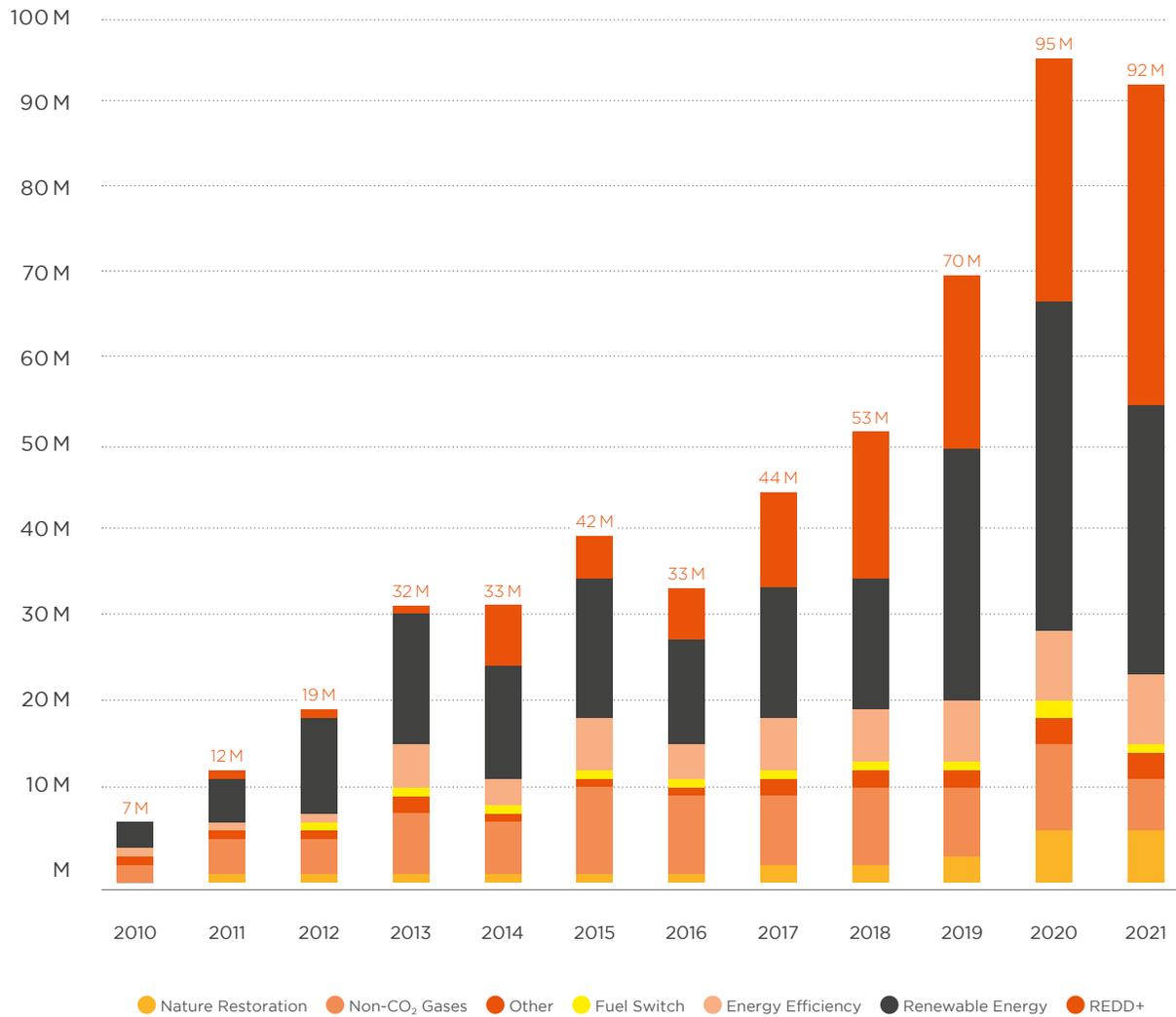
FIGURE 4
Discrete Retired Credits Split by Region (tCO₂e)



Source: Trove intelligence. 2021 data through 31 August. Data drawn from Verra, Gold Standard, ACR and CAR.

¹³ "Reducing Emissions from Deforestation and Forest Degradation", with the "+" signifying the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

FIGURE 5
Discrete Retired Credits Split by Project type (tCO₂e)

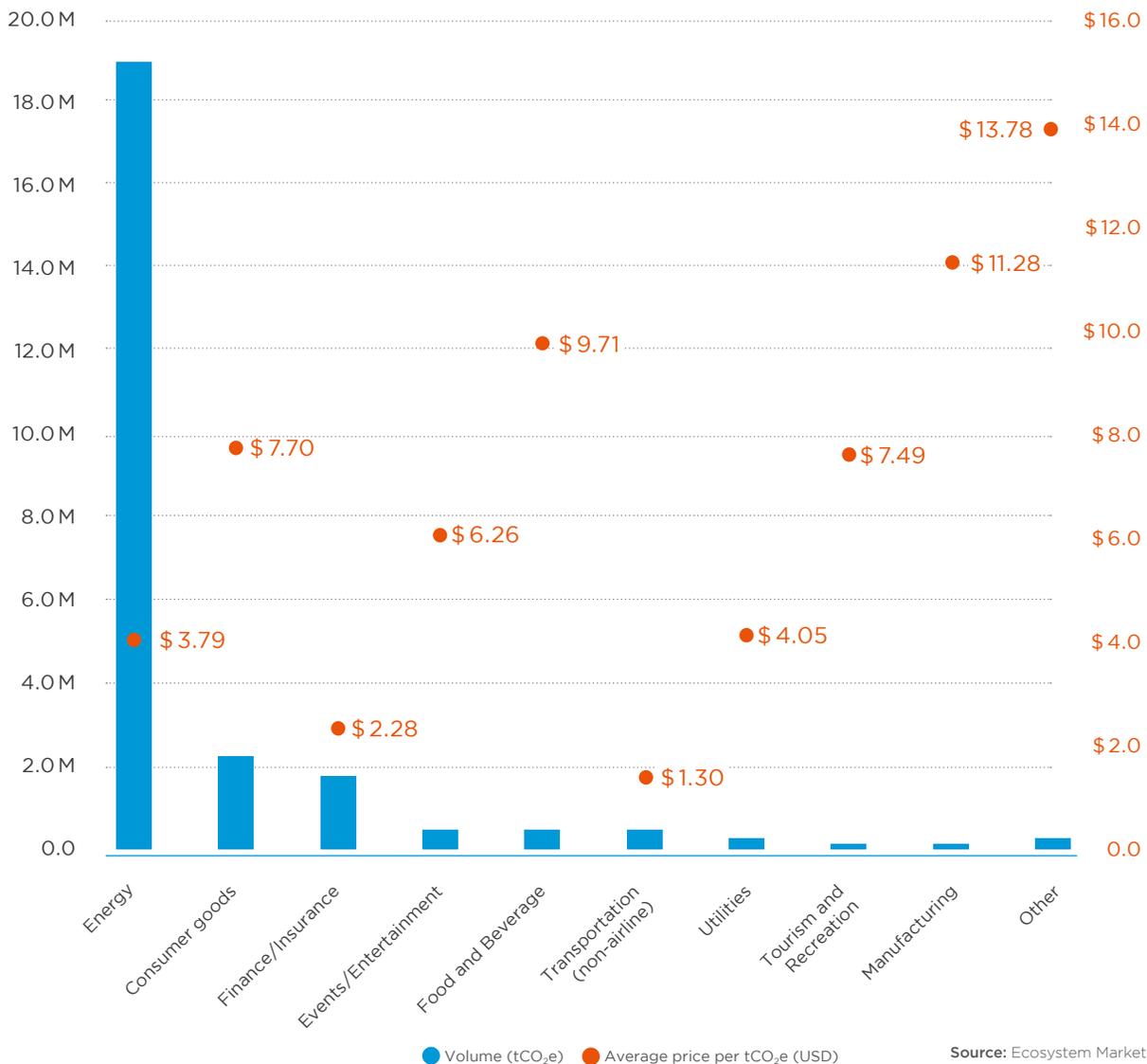


Source: Trove intelligence. 2021 data through 31 August. Data drawn from Verra, Gold Standard, ACR and CAR.

2021 Ecosystem Marketplace data (Donofrio et al., 2021) shows that the most active buyers in the market are the energy, consumer goods, finance, and insurance sectors.

It's not just companies who are buying carbon credits as a small piece of their corporate net-zero strategy. There's an increase in speculators purchasing credits. Although prices are still in the \$3-5 range on average, some asset classes are attracting higher prices given the co-benefits they deliver, and the combined value of those deals is becoming a serious source of finance for green projects around the world.

FIGURE 6
Volumes and Prices by Buyer Sector, 2021 through August



BOX 7

TSVCM overview & objectives

The work and broad attention being paid to the TSVCM and its recent output is making a notable difference across a broad range of VCM market participants and observers.

The initiative aims to dramatically scale the VCM through 2030 by enhancing transparency, liquidity and standardization while ensuring a sufficient supply of high-quality carbon credits that meet a set of Core Carbon Principles.

The role and operationalization of the TSVCM umbrella Governance Structure and initial VCM piloting/complementary market and product launches through 2022 will be important developments to watch.

Links to reading and resources: www.iif.com/TSVCM

The strong interest in the VCM from the financial sector globally is a newer development and a growing trend to watch.

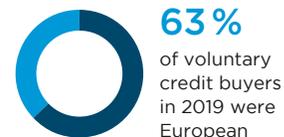
This trend might be signaling a potential speculative interest coming from this sector already in 2019. With the 2020 launch of the Taskforce on Scaling Voluntary Carbon Markets (TSVCM) (see Box 7), the growing involvement of the financial sector in the VCM has become more obvious, prefiguring a desire to commoditize parts of the market for pre-compliance investments and hedges.

A 2021 publication from Ecosystem Marketplace (Donofrio et al., 2021) reported that 63% of voluntary credit buyers in 2019 were European, up from 48% in 2016. European-based companies were the largest buyer region in 2019 with

23.5 million carbon credits purchased, followed by North American buyers with 12.2 million. The data also shows that more recent vintages¹⁴ dominate the European and North American buyer preferences.

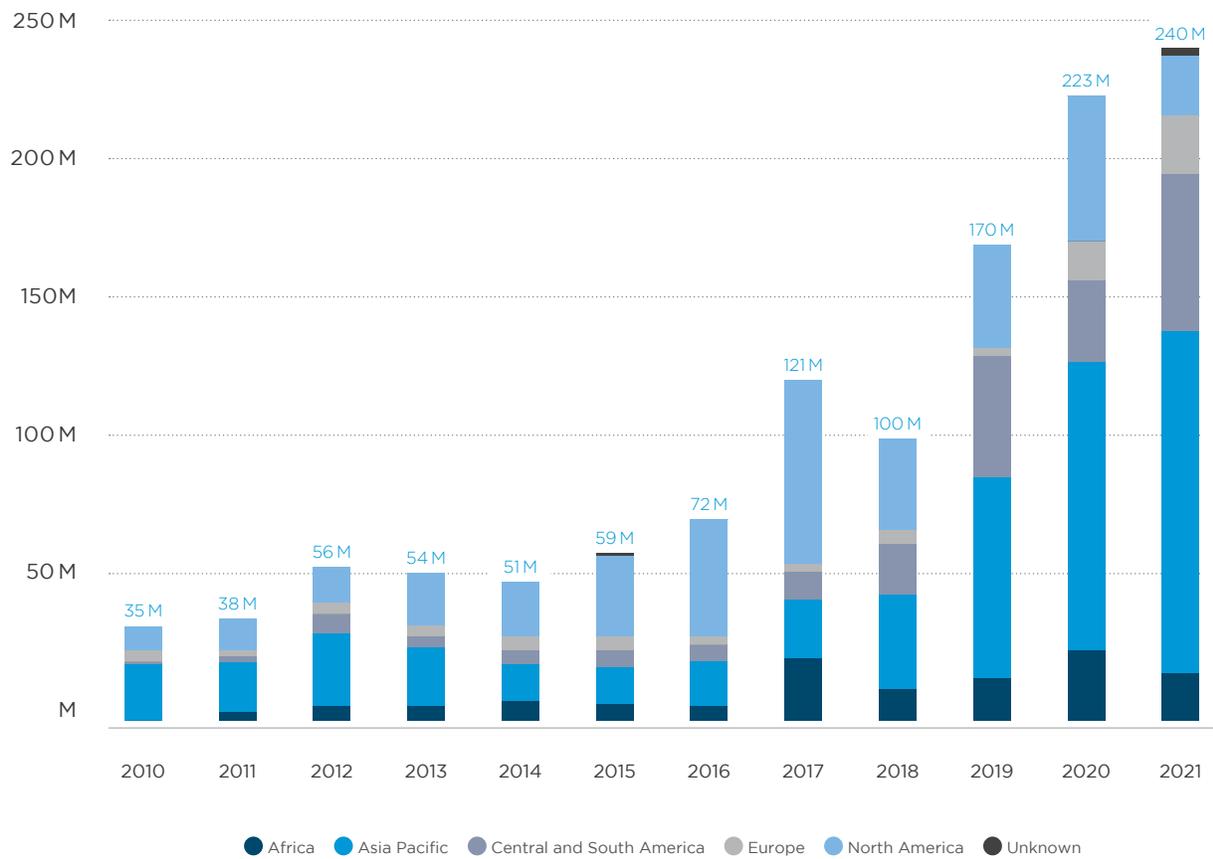
VCM Global Supply

VCM credit issuances are at an all-time high and continuing to increase rapidly through 2021. According to a recent Climate Focus report (Climate Focus, 2021), issuance of carbon credits more than doubled in the first half of 2021, when compared to the same timeframe in 2020, and could reach over 400 MtCO₂e. More credits have been issued during the first eight months of 2021 alone than in all of 2019 (See Figure 7 below). Worldwide, carbon credit issuances leapt to 104 MtCO₂e in Q2 2021, a 33% increase on Q1 which had already set a record.



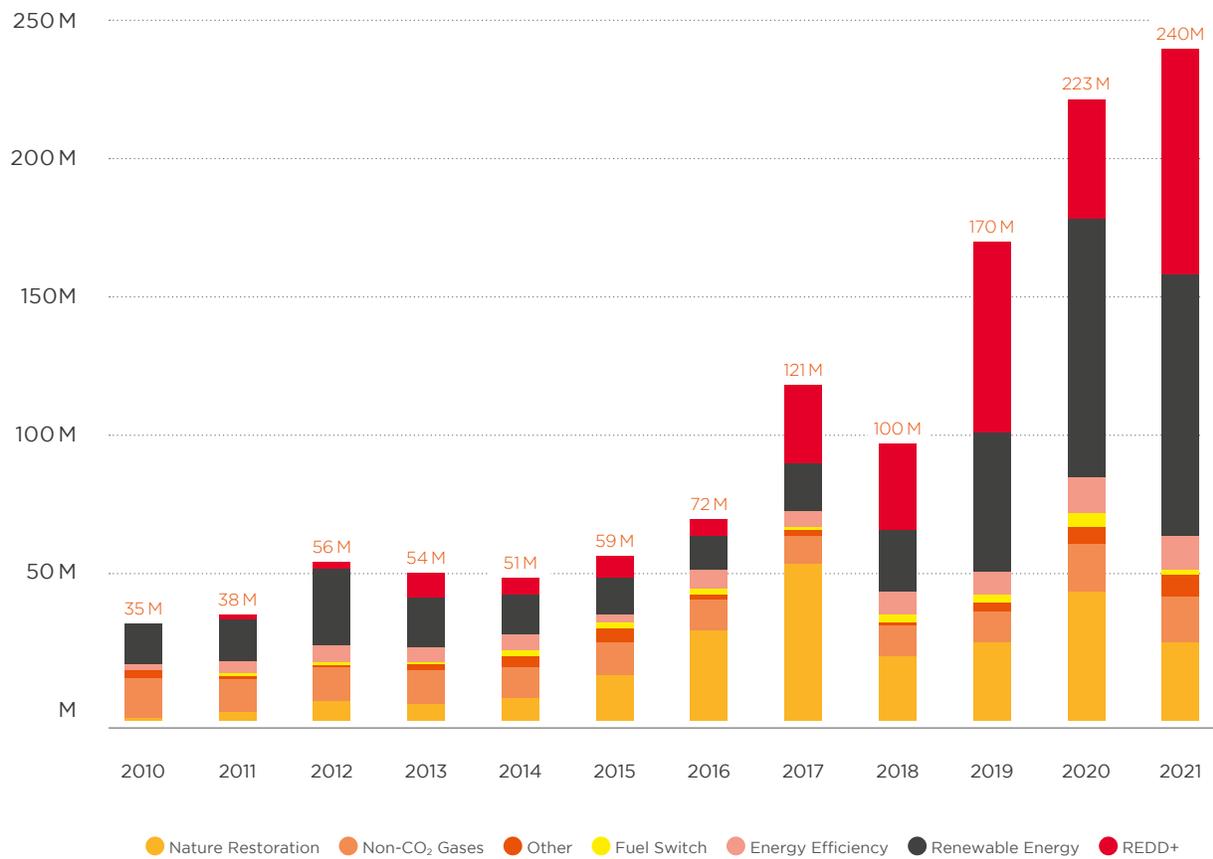
¹⁴ The vintage of a credit is the year in which the emission reduction or removal occurred, irrespective of the date the credit was issued.

FIGURE 7
Discrete Issued Credits Split by Region (tCO₂e)



Source: Trove intelligence. 2021 data through 31 August. Data drawn from Verra, Gold Standard, ACR and CAR.

FIGURE 8
Discrete Issued Credits Split by Project Type (tCO₂e)



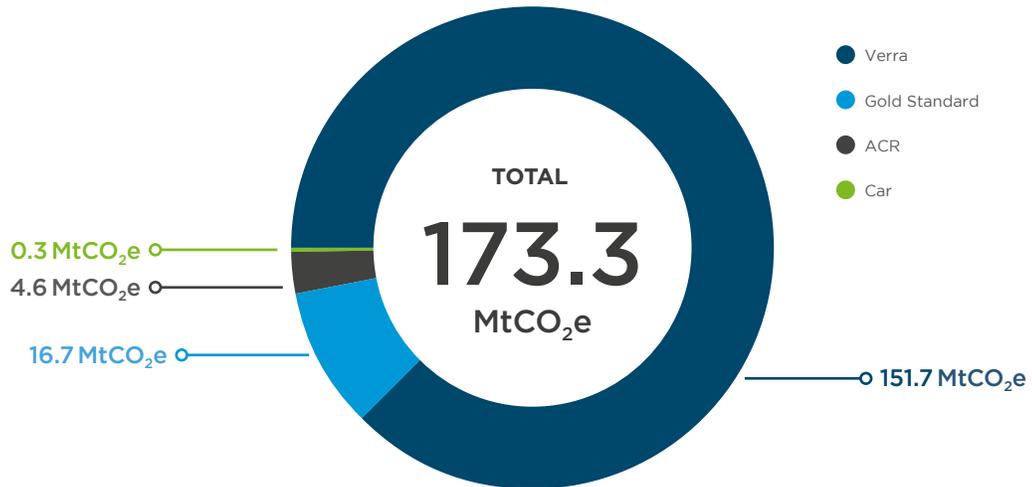
Source: Trove Intelligence. 2021 data through 31 August. Data drawn from Verra, Gold Standard, ACR and CAR.

LATAM Regional Trends

The LATAM region is the world's second largest provider of voluntary credits, with slightly less than 20% of the total global credit supply coming from the region in 2020 and 2021. Peru, Brazil and Colombia are by far the largest contributors

of credits in the region, representing more than 80% (71 MtCO₂e) of all LATAM carbon credits retired to date in the VCM. Verra is the most commonly used certification program for voluntary credits in LATAM, largely due to protocol availability and importance of REDD+ projects in the region.

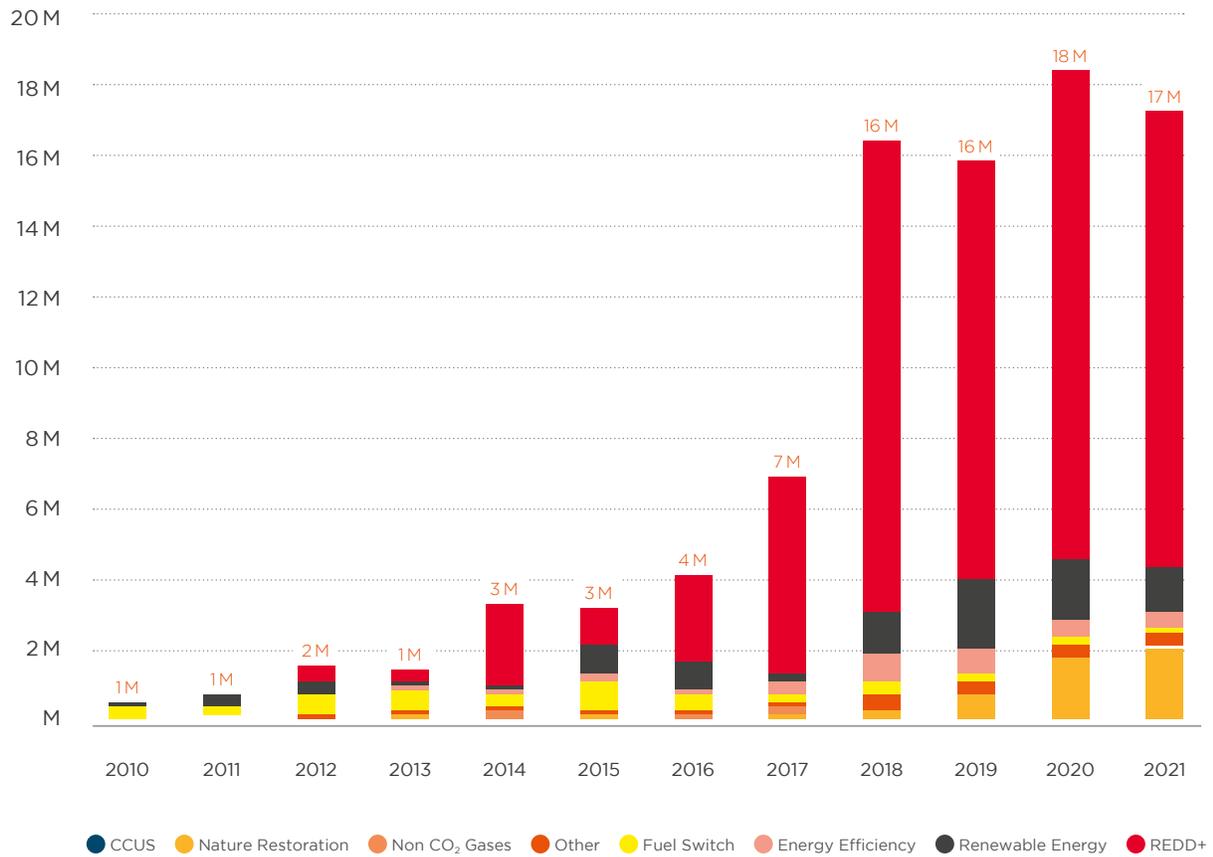
FIGURE 9A
2010–2021 Carbon Credit Issuances (MtCO₂e) in Central and South America (Including Mexico) by Standard



Source: Trove Intelligence. Data drawn from Verra, Gold Standard, ACR and CAR

FIGURE 9B

Discrete Retired Credits Split by Project type in LATAM (tCO₂e)



Source: Trove Intelligence. 2021 data through 31 August. Data drawn from Verra, Gold Standard, ACR and CAR.

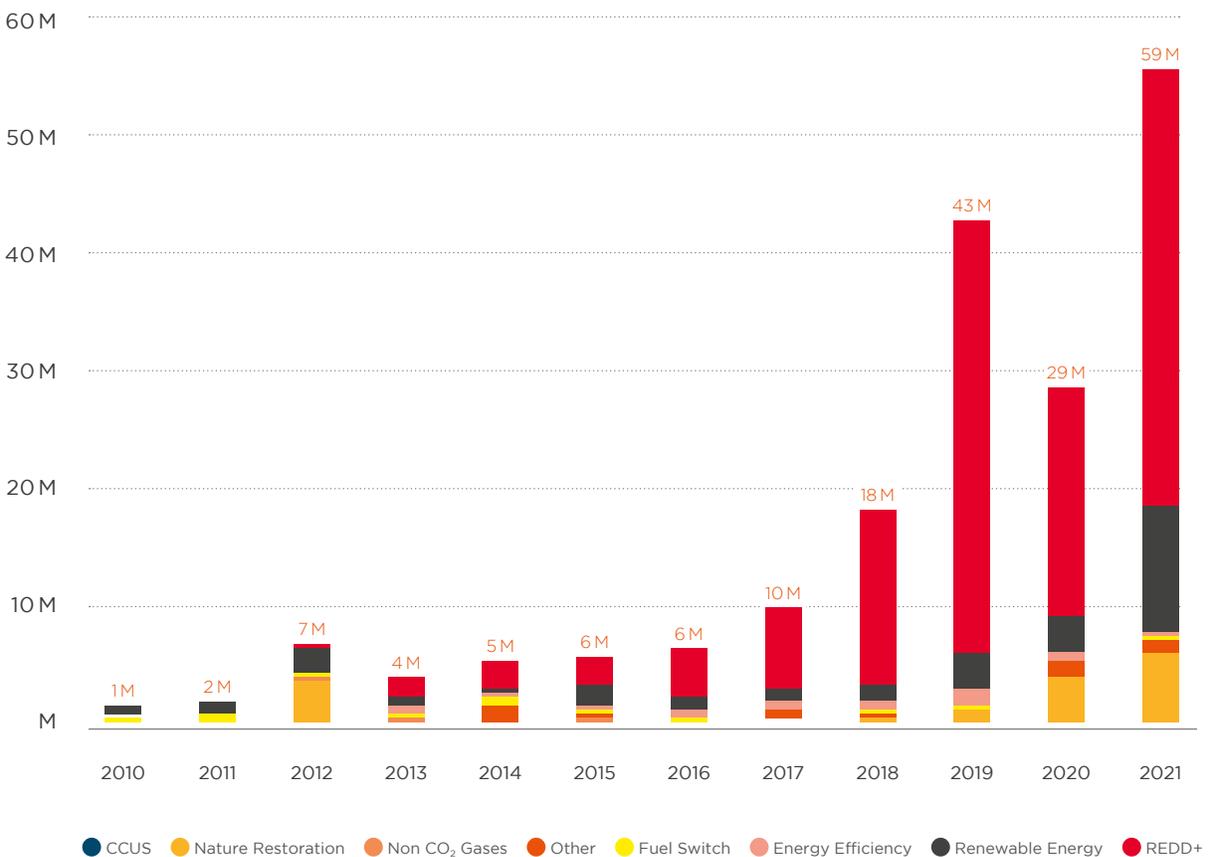
LATAM issuances are also increasing steadily and account for almost 25% of global issuances in Q2 2021, compared to 12% in Q2 2020.

Brazil and Peru both lead in terms of total issuances in LATAM to date, with 58 MtCO₂e and 57 MtCO₂e respectively. Colombia, Uruguay and Guatemala round out the top five.

In LATAM, these increasing issuances mostly come from NBS and renewable energy projects.

Such a new volume of carbon credit issuances entering the market would represent a nearly 50% rise in total issuance of new carbon credits since the market's inception.

FIGURE 10:
Discrete Issued Credits Split by Project Type in LATAM (tCO₂e)



Source: Trove Intelligence. 2021 data through 31 August. Data drawn from Verra, Gold Standard, ACR and CAR.

BOX 8

Focus on Brazil

- Brazil is currently the most important carbon credit supplier in LATAM.
- 16 million carbon credits have been issued in H1 2021 alone, more than in FY 2020 (13 million).
- REDD+ is the main project type, followed by renewable energy.
- More than 90% of credits are certified by Verra.
- The largest REDD+ project in Brazil to date is the RMDLT Portel project in the Para region, with over 7 million credits issued. Other large REDD+ projects include the Pacajai and Envira Amazonia projects.
- Brazil represents 50% of the world's potential for REDD+ and restoration (Trove), reinforcing its status of making suppliers in LATAM in the next decades. It is followed by Indonesia and Colombia, both at around 10%.
- The largest issuer of renewable energy credits in Brazil is the 700MW BAESA hydro project, with over 6.5 million credits issued to date.

Drivers for future demand for voluntary carbon credits

In June 2021, Trove Research published a report (Trove Research, 2021) presenting a detailed analysis of the future demand and supply for voluntary carbon credits, gathering data on climate commitments from 5600 businesses in the CDP and SBTi databases to estimate their long-term carbon credit needs. Demand in the VCM currently represents about 100Mt-CO₂e/year or only 0.2% of the reductions needed to achieve the 1.5°C Paris temperature goal pathway in 2030, but the analysis shows that demand is likely to increase significantly, driven by private sector commitments to net-zero.

The report states that with increasing investor and consumer pressure on corporations to show climate action, VCM demand is expected to grow: 5–10-fold over the next decade; 8–20-fold by 2040; and 10–30-fold by 2050. With this anticipated demand increase, the VCM would account for approximately 5% of the emission reductions required under country NDCs in 2030 and 2% of the reductions required to meet the 1.5°C Paris goal pathway in 2030. With the understanding that forecasts depend on a host of variables, these scenarios imply that global VCM demand could potentially reach 1 billion tCO₂e by 2030 and 2 billion tCO₂e by the end of 2040.

TABLE 4Summary of VCM demand scenarios – MtCO₂e per year

	2020	2030	2040	2050
EU oil & gas scope 3	-	100-200	200-410	310-620
CORSIA	-	60 -150	160-400	270-640
Economy-wide scope 1 and 2	90	270-950	440-1,990	520-2,340
Total	90	430-1,300	800-2,800	1,100-3,600

Source: Trove Research, 2021

Price Disparities – and Higher Prices on the Horizon?



While the average market price for a carbon credit is approximately \$3-5/tCO₂e, prices currently range from a few cents to more than \$20 per credit (and in some instances even higher). Some argue that to ensure high environmental integrity and to incentivize mitigation options with higher abatement costs, VCM prices will need to increase significantly to move away from the current “unsustainable” low prices. According to Trove Research, if the financing of voluntary projects is to reduce emissions beyond those that would otherwise have occurred, today’s average prices will need to increase to \$20-50/tCO₂e by 2030, and potentially \$100/tCO₂e if governments undertake lower cost projects first.

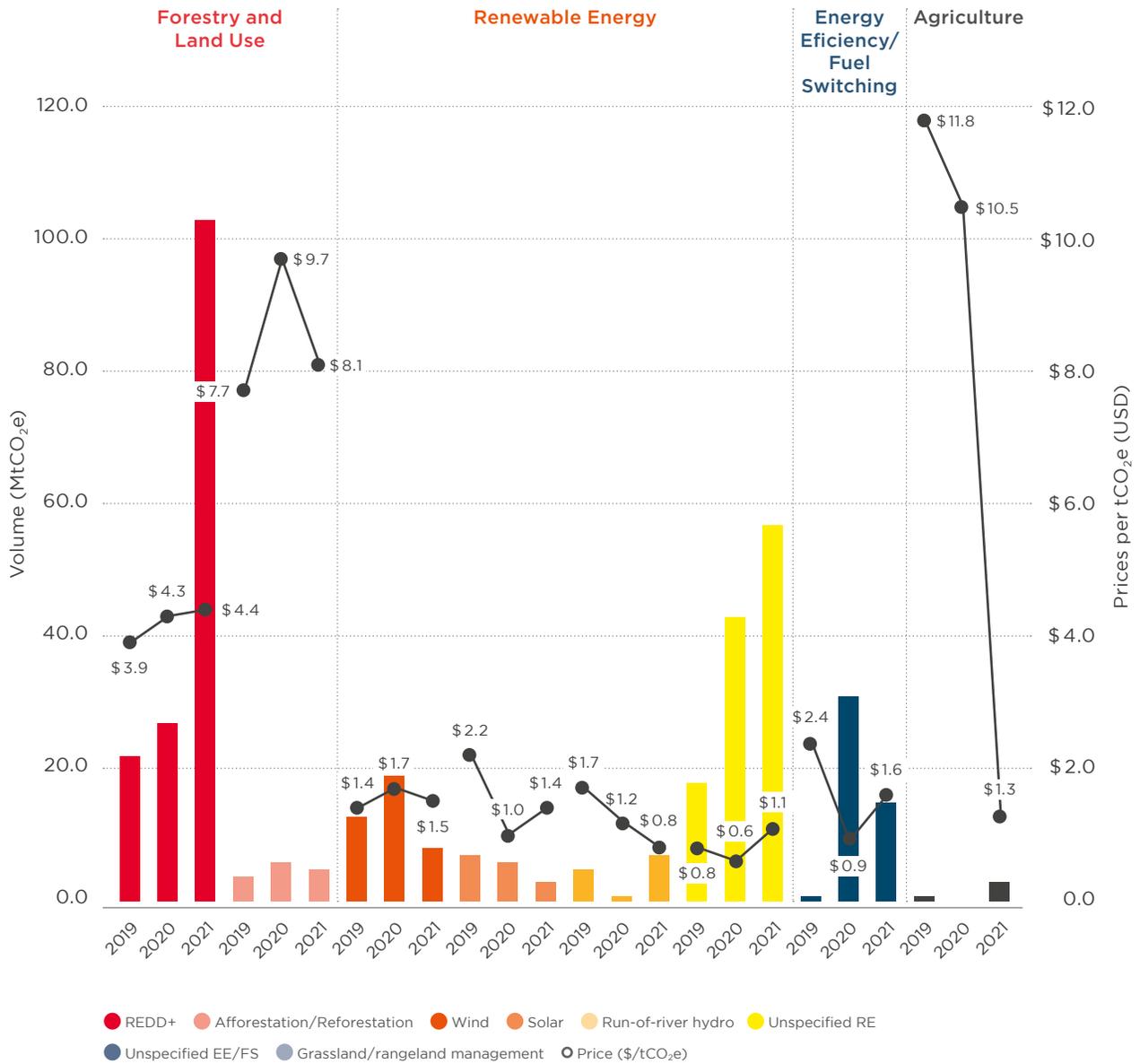
In other words, higher VCM demand could help play an important role in achieving this scenario, but that would require rising

prices which could enable the development of more costly projects that do not yet have a business case at current price levels. This means the future VCM would need to revolve to no longer simply focus on “low hanging fruit projects”, but instead prioritize and channel investment into harder-to-abate reduction and removal opportunities, while governments could focus on cheaper reductions. The VCM would therefore enable greater ambition.

Realistically, the increased demand forecasted by Trove Research (and mentioned in the previous section) will not be enough to enable the necessary greater ambition. Instead, it is likely that regulatory action, in complement to increasing VCM demand, will be necessary in addressing the current price disparities and reducing emissions beyond those that would otherwise have occurred.

FIGURE 11

Transacted Voluntary Carbon Market Sizes by Largest Project Types 2019 – August 2021



Source: Ecosystem Marketplace

Government-Enabled Voluntary Programs

Another growing and welcome trend across LATAM has been the emergence of government- supported voluntary climate and market initiatives, such as carbon footprinting and neutrality programs.

In 2021, for example, Colombia introduced its national Carbon Neutral Program (Ministerio de Ambiente y Desarrollo Sostenible, 2021b), a voluntary initiative that recognizes and promotes 2050 carbon neutrality efforts of public and private sector organizations. In exchange for Colombian companies and consumers calculating footprints and establishing targets, the country provides tax reduction incentives based on “levels of effort” to reduce greenhouse gas emissions while at the same time generating public revenues. Panama has recently introduced a similar “Reduce Your Footprint” (UN Climate Change News, 2020) program, aimed at both carbon and water footprinting and does not yet include target-setting or outcome-oriented tax incentives for participation.

Not only are these LATAM voluntary market programs driving private sector engagement and climate investment, but they are also becoming instrumental in building knowledge and technical capacities on carbon accounting, MRV and, more broadly, market mechanisms. As this

awareness grows, markets and VCM finance and trading opportunities evolve across LATAM, along with the foundations for business support and corporate carbon management for future compliance systems.

One recent government-enabled voluntary program is the Floresta Carbon+ program (see Box 10), which aims to create and enhance infrastructure for payment of carbon markets, carbon finance and ecosystem services.

Innovative public-private carbon finance initiatives, with support from multilateral institutions, are also expanding to support scaled-up LATAM voluntary activity.

For example, the World Bank Forest Carbon Partnership Facility (FCPF) has entered into several agreements for the verifiable GHG reductions and removals from forest carbon in LATAM, including the 2021 P-REDD+ agreement with the Dominican Republic for \$25 million¹⁵. The FCPF payments will support the Dominican Republic’s vision to reduce 5 MtCO₂ from 2021 to 2025, with the funds received from FCPF being channeled to high socio-economic impact agroforestry and pastoral forestry sectors. The Dominican Republic’s government aims to serve as an example to other Caribbean countries, including in terms of delivering transparency and accountability of all transactions related to FCPF payments for results.



support to reduce
5 MtCO₂
from 2021 to 2025

¹⁵ <https://www.worldbank.org/en/news/press-release/2021/05/12/dominican-republic-signs-agreement-with-the-world-bank-to-curb-carbon-emissions-and-reduce-deforestation>

BOX 9

Brazil Floresta Carbon+ Program

Launched in 2020, recognizes conservation of native forests in all biomes to bridge the payment/monetization of environmental benefits.

It creates a basic voluntary market structure by formalizing the conservation activity, giving credibility to projects, providing a fair and secure return on investment, incorporating forest conservation into corporate decisions, and seeding a favorable business environment to align policies of economic development, climate change, communities and biodiversity.

Forest landowner (state, individual or corporate) must conserve land for a period stipulated in contract (e.g., 30 years) and ensure permanence. Instead of landowner for sale of land/assets, they are paid for conservation of native vegetation.

Eligible project activities include REDD and restoration of native forests

Soon after launch of Floresta program, Brazil's Congress adopted a new Payment for Ecosystem Services Law. This foundational legislation may lead to other governmental approaches related to payment for ecosystem services and carbon markets.

VCM Outlook in LATAM

Both globally and across LATAM, the VCM is poised to grow and play an instrumental role in helping to fill the massive private finance gap required to help meet Paris-aligned net zero targets. This growth is not only expected to occur alongside the expansion of compliance carbon pricing mechanisms in LATAM, but could also play an important catalytic and complementary role to regional CPI design and adoption. We already see this evolving relationship and convergence occur across several LATAM countries, such as Colombia, which has chosen to adopt or adapt existing VCM programs, protocols, advanced MRV systems, platforms and market infrastructure into national legislation and compliance programs. This trend of leveraging and/or building on VCM best practices and tools is expected to continue across future LATAM compliance systems with other countries actively exploring transitional voluntary-to-compliance market policy options, including Chile and Peru.

The decade ahead will be a critical transition period for the VCM.

To accelerate climate action through the VCM, it will be important to send the right signals to private sector voluntary actors to grow demand, and to create market mechanisms for the development of new high-integrity supply at scale. An emerging challenge in this area is the requisite shift away from crediting opportunities in the power sector, with renewables becoming business-as-usual due to evolving policies and the increasing cost competitiveness of low-carbon technologies. Next in line project type opportunities, such as NBS and negative emissions technologies (e.g., CCUS-DAC), are potential growth markets for the supply of high-quality credits with co-benefits going forward.



This growth is not only expected to occur alongside the expansion of compliance carbon pricing mechanisms in Latin America, but could also play an important catalytic and complementary role to regional CPI design and adoption.

BOX 10

Blue Carbon Cispatá Project (Colombia)

In 2020, Verra released the first blue carbon conservation methodology approved under any major GHG market program.

Cispatá interinstitutional mangrove preservation project, along Colombia's Caribbean coast Conservation International Colombia, designed by South Pole and four other NGOs projects, calculates not only the amount of carbon stored above-water in mangrove but also the amount stored underwater in roots and soil. This accounting method increases the amount and value of carbon that communities can claim if they protect mangrove forests.

This new carbon-measuring methodology can now be a financially viable carbon investment, which will drive the funding communities need to keep them standing benefit sharing mechanism approach:

- Usage of transparent third parties with an engaging participatory process
- Optimizing social & environmental benefits
- Active community participation

As a subset of NCS project types, “blue carbon” project and credit creation opportunities are starting to emerge in LATAM, as evidenced by the new Colombia CISPATA project (see Box 10). Given the challenges of including the land-use sector into compliance instruments, private sector initiatives to drive mitigation in NBS – across forestry, agriculture and blue carbon – are both complementary and desirable. Wide stakeholder participation, notably of governments, in the development of protocols and quality standards can secure the integrity and credibility of crediting mechanisms.

Real and perceived challenges will arise as LATAM's carbon pricing and carbon market landscapes evolve in a post-Paris era.

For instance, many unregulated LATAM companies and sectors are currently benefiting from offset generating opportunities (e.g., CER generation under the CDM). Capturing these previously uncovered GHG emissions and actors in new

LATAM compliance programs may narrow project eligibility and finance options (for both VCM and compliance purposes) and prompt pushback or political hurdles. It is therefore crucial for governments to pre-empt these challenges and support education and capacity efforts to affected participants and key stakeholders. Securing a detailed and common understanding of policy design options and trade-offs such as facility/sectoral coverage thresholds and offset design/protocol eligibility will be vital to accurately evaluate policy paths amid the evolving landscapes within the region.

VCM and Paris Agreement-Article 6 Considerations

The future role of the VCM in achieving increasingly stringent climate objectives will also critically depend on the alignment with internationally accredited criteria to be developed under Article 6 of the Paris Agreement. For example, will corresponding adjustments be required to preserve the integrity of VCM transactions, or would they put at risk important flows of finance that projects entirely depend on? This issue, in particular, remains top of mind to many market participants and governments, especially as Parties to the Paris Agreement have yet to adopt rules for Article 6.

Clarity on these challenges would help to increase ambition and trigger much needed private finance investments for emerging markets' low-carbon transitions. However, voluntary market efforts alone will not be enough to drive the deep decarbonization needed. Countries need to consider the key role of the VCM in the

context of their national objectives and the inherent trade-offs with NDC achievement. Environmental accounting aspects aside, markets require correcting price signals for economies to fully decarbonize. Rewarding low-carbon investment and mitigation outcomes through the voluntary market helps level the playing field across technologies, but must be complemented by an explicit price on emissions to shift away from brown production and investment in parallel. Compliance markets are an effective instrument to introduce such an economy-wide price signal at a level attuned with broader climate objectives.



Rewarding low-carbon investment and mitigation outcomes through the voluntary market helps level the playing field across technologies

Chapter 5

Key Messaging and Conclusions

Reaching climate neutrality by mid-century requires governments around the globe to take a long-term view of possible decarbonization pathways and enabling policies for their countries.

CPIs are proven-to-work, cost effective tools that are increasingly becoming a key instrument for countries to deliver on their NDCs and net-zero goals. Beyond climate mitigation outcomes, CPIs can also yield broader socio-economic benefits, including on public health, support for climate-friendly jobs and industries, and contributing to green fiscal reform driving economic recovery in the context of pandemic.

Latin America is emerging as an exciting hub of compliance and voluntary market activity and innovation.

In the region, Colombia, Mexico, Chile and Argentina are front-runners in compliance with CPI adoption. Together with Asian economies, these pioneers are proving that carbon pricing has a real role to play in driving decarbonization efforts also in the global South. Other countries across the region are carefully watching these efforts with a view to incorporating best practice CPI design elements into new instruments.

Design and operation of robust and fit-for-context CPIs requires sufficient capacity, both on the part of the regulator and the private sector.

In this context, the importance of LATAM's rich history and success with CPI capacity building cannot be overstated. Development and increasing support for existing CPIs has benefited tremendously from more than a decade of extensive capacity building work across the region. These activities, enabled and delivered to both Latin American governments and non-government stakeholders by organizations such as the World Bank, GIZ, IDB, ICAP and IETA, have helped inform instrument design rooted in international best practice. Hundreds of policy makers, private sector/market participants and civil society leaders, were trained in the process. These efforts need to continue as additional jurisdictions in the region move toward CPI implementation and existing systems evolve and mature.

Alongside compliance CPI growth, Latin America is witnessing significant growth in VCM project activity and investments.

The VCM opportunities are expected to continue growing substantially over the coming decade in light of surging corporate net zero and carbon neutrality commitments alongside investor pressures on corporates and asset owners. This voluntary market evolution, combined with enhanced public scrutiny and pressure on corporates to invest in high-integrity credit supply with co-benefit creation, is accelerating foundational shifts in VCM design, oversight, governance and product innovation. It will be critical for Latin American public and private stakeholders to not only recognize but also help influence how the VCM evolves and ultimately converges in the context of Paris/compliance market growth.

Particularly relevant is the interplay between voluntary carbon market activities and the development of compliance carbon pricing in the region.

Voluntary approaches can be an important stepping stone toward mandatory instruments, building capacity among the private sector and helping uncover significant abatement potentials. Moreover, governments are adopting or adapting tools and infrastructure from the VCM for use in compliance instruments in Latin America but also beyond. This trend can be expected to continue across future Latin American compliance systems.

Yet ultimately compliance CPIs, in concert with other policies, will be needed to drive decarbonization at scale.

The VCM can complement these by offering flexibility to regulated entities, and by leveraging mitigation potentials in uncovered sectors that lend themselves less well to carbon pricing. Transitioning from voluntary to mandatory approaches may also involve challenges so governments are well advised to take a long-term perspective in planning for the role of carbon pricing in their decarbonization strategies. This applies not only to the relationship between domestic efforts and international cooperation under Article 6 but also to the interplay between voluntary carbon market opportunities where current uncertainties related to corresponding adjustments looms large.

Progress toward ambitious CPIs in Latin America is sustained and can be further accelerated through enhanced regional carbon pricing and market cooperation.

This includes the “Carbon Pricing in the Americas” Initiative, a first-of-its-kind pan-hemispheric cooperation platform, and activities under the Pacific Alliance’s 2017 Cali Declaration, which promotes voluntary market cooperation and alignment across the traditional trading bloc of Colombia, Mexico, Peru, and Chile. Regional cooperation helps drive implementation of domestic CPIs that are capable of alignment and thus facilitate potential future links between the instruments. While some early examples can be observed already, cross-border cooperation through markets is expected to further expand once final guidance for Article 6 of the Paris Agreement is adopted by the UNFCCC process.

Annex

Country snapshots: NDCs, Compliance and Voluntary Carbon Markets, and Current Capacity Building Developments in selected Latin American Jurisdictions

Brazil

NDC: GHG emissions reduction of 37% in 2025 and 43% in 2030, compared with 2005 levels (UNFCCC, 2021). Brazil has made significant progress toward achieving its targets. Emissions from land use, land use change and forestry (LULUCF) traditionally represented the largest contributor to the country's emissions profile but, due to a reduction in deforestation, the share of emissions from the LULUCF sector has decreased from 2004 to 2016 (which is the latest year for which data is available, as per the Fourth Biennial Update Report of Brazil). Furthermore, the country has made significant efforts to reduce emissions through the implementation of sectoral mitigation plans (UNFCCC, 2021).



Compliance carbon pricing:

- The government and the World Bank have been discussing carbon pricing initiatives, but no agreement has been made as of September 2021, so there is no set date for carbon pricing mechanisms to be implemented in the country.

Capacity building and policy analysis:

- With the support of the World Bank's PMR, the Brazilian government has studied the possible implementation of market instruments to meet Brazil's mitigation targets and reduce overall costs, such as design options, economic and regulatory impact assessments, and interactions with other policies. Furthermore, Brazil has implemented several engagement and communication activities on carbon pricing with different stakeholders (International Carbon Action Partnership, 2021).

Voluntary Carbon Market:

- Brazil is currently the most important carbon credit supplier in Latin America, issuing close to 16 million carbon credits in H1 2021 alone, more than the total issuances in FY 2020 (13 million).¹⁶ REDD+ is the main project type, followed by renewable energy.
- The government has dominated VCM activities in Brazil. Its role in the last few years has been to create a basic voluntary market structure by formalizing conservation initiatives, giving credibility to projects, providing a fair and secure return on investment, incorporating forest conservation into corporate politics/ESG, and seeding a favorable business environment. An example of this is their national Floresta+ program, which encourages payments for ecosystem programs and guarantees that project developers and investors receive a return for their investments (see box on the Floresta Program in Chapter 4).
- As a parallel process to the one supported by the PMR, the Chamber of Deputies (Câmara dos Deputados) in Brazil is, as of September 2021, discussing a bill (528/2021) that would regulate the VCM within the country and give the government five years to regulate the mandatory national GHG emissions offset program (Portal da Câmara dos Deputados, 2021).

Chile

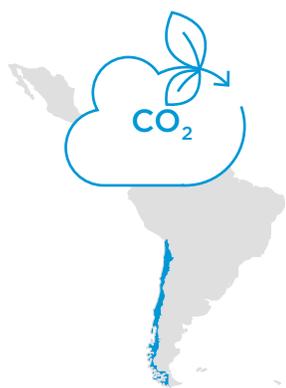
NDC: Commitment to limit GHG emissions to 1100 MtCO₂e between 2020–30, to achieve peak emissions by 2025, and achieve an emissions level of 95 MtCO₂e by 2030, with a climate neutrality goal for 2050 (UNFCCC, 2021).

Compliance carbon pricing:

- Chile has had a carbon tax implemented since 2017 with a value of USD 5 per tonne of CO₂ (World Bank, 2021b). Unlike other carbon taxes, which are implemented based on the carbon content of fossil fuels, the Chilean tax is levied on emissions from regulated entities, for which an MRV system on emissions is used (Ministerio de Medio Ambiente & GIZ, 2020).

¹⁶ <https://www.ecosystemmarketplace.com/articles/press-release-voluntary-carbon-markets-rocket-in-2021-on-track-to-break-1b-for-first-time/>

climate neutrality goal for 2050



- A reform approved in 2020 will change the application threshold of Chile's carbon tax to define it in terms of overall emissions (i.e., entities that emit equal or above 25,000 tCO₂) instead of based on the technical characteristics of regulated entities (i.e., based on the thermal power of boilers and turbines) starting in 2023. This change was possible after three years of the carbon tax had built better quality emissions data (GIZ et al., 2021).
- Chile's carbon tax regime does not currently allow for offsets to be used for compliance or compensation to fully/partially meet tax obligations by regulated entities, but a reform approved in 2020, and set to come into force in 2023 (Ley 20780, 2020), would allow regulated entities to offset part or all of their regulated emissions.
- Chile's Climate Change Framework Law proposal is under legislative discussion as of September 2021. If approved as currently drafted, it would provide for a system of GHG emission limits applied to specific or groups of regulated entities. Surplus in reductions of those emission limits could be certified as a tradeable unit (International Carbon Action Partnership, 2021).

Capacity building and policy analysis:

With the support of the World Bank's Partnership for Market Readiness (PMR) and the German Corporation for International Cooperation (GIZ), several studies, stakeholder engagement processes and capacity building activities have been generated, such as studies on policy coherence of CPIs and activities such as stakeholder dialogue to provide input on the development of a compliance carbon market. (Precio al Carbono Chile, 2021).

Voluntary Carbon Market:

- Today, voluntary offsets trade on the Santiago Climate Exchange, a local platform for voluntary carbon offset trading established in 2009.
- Chile has large expanses of forests and natural ecosystems, and tapping potential sources of finance (such as the upcoming Chilean offset mechanism) could significantly scale up the protection of these areas via carbon offset projects, while also supporting local communities and their well-being.
- AFOLU projects have issued high numbers of VCUs. Although these AFOLU projects represent 12% of the overall number of issued VCUs, they account for 32% of all to date from Chile.
- COVID-19 slowed down the global economy and thus the issuances of VCUs in Chile.

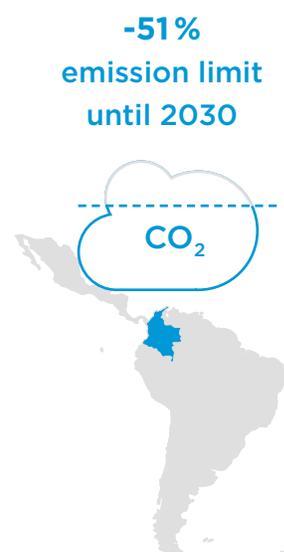
- There are several protocols that have been developed and are being used in Chile. Most of them are under the AFOLU category, but these are highly criticized since international organizations see issues with local indigenous communities.

Colombia

NDC: In its updated NDC, the country made a commitment to limit emissions to 169.44 MtCO₂e in 2030 (equivalent to a 51% reduction compared to BAU levels), with emissions decreasing over 2027–30, and achieve carbon neutrality by mid-century (UNFCCC, 2021).

Compliance carbon pricing:

- In 2017, Colombia implemented a national carbon tax on fossil fuels with a value of USD 5 per tonne CO₂ (World Bank, 2021b). The Colombian carbon tax includes an offset provision, in which entities that are certified as “carbon neutral” can partially or totally comply with their tax compliance obligation with the carbon neutrality certification (Ministerio de Ambiente y Desarrollo Sostenible).
- Revenues from Colombia’s carbon tax are earmarked for the “Sustainable Colombia Fund” (Ley 1819 de 2016, 2016), an initiative by the government to support sustainable and conservation projects by women, black communities, indigenous communities, farmers and people with disabilities, in areas affected by the violent conflict (Colombia Sostenible).
- In 2018, Colombia passed Law 1931, and articles 29 and 30 provide for the creation of a “National Program of Greenhouse Gas Tradable Emission Quotas” (Programa Nacional de Cupos Transables de Emisión de Gases de Efecto Invernadero, or PNCTE). Payment of the tax may be recognized as part of the compliance obligation of regulated entities under the PNCTE. This Law includes crediting provisions: voluntary actions of non-regulated entities that generate GHG emissions reductions or removals could be issued allowances if they are verified, certified, and registered in the National Emission Reductions Registry (International Carbon Action Partnership, 2021).
- The technical design of the ETS is currently under internal revision. An ETS pilot phase is expected to start between 2023 and 2024 (International Carbon Action Partnership, 2021).



Capacity building and policy analysis:

With significant support from the PMR, Colombia has developed several ETS technical studies and developed capacity building and stakeholder engagement activities. Studies include an impact assessment of an ETS, and studies on sectoral competitiveness and design options for a mandatory GHG reporting program. Capacity building includes in-country or virtual training on ETS and simulation exercises on ETS (World Bank, 2020).

Voluntary Carbon Market:

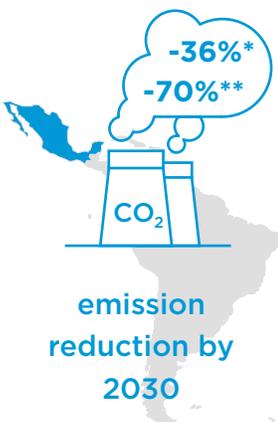
In 2021, Colombia introduced its voluntary program on carbon neutrality, which recognizes and promotes the efforts of public and private sector organizations in reducing GHG emissions by promoting organizational carbon neutrality commitments by 2050. In exchange for calculating footprints and establishing targets, the country provides tax reduction incentives based on “levels of effort” to reduce emissions while generating fiscal revenues.

Mexico

NDC: Unconditional reduction commitment of 22% for GHG emissions and of black carbon emissions by 51% by 2030, compared to business as usual levels, and a conditional reduction of GHG emissions of 36% and black carbon emissions of 70% by 2030 (UNFCCC, 2021).

Compliance carbon pricing:

- Mexico was the first country in Latin America to implement both a carbon tax and an emissions trading system. The national carbon tax, with a value of USD 0.40–3.20 (World Bank, 2021b), has been in operation since 2014 and applies to fossil fuels, excluding natural gas. Since 2017, Certified Emission Reductions for projects developed in Mexico under the Clean Development Mechanism can be used for carbon tax compliance, for a value equivalent to the market value of the credits (Cámara de Diputados del H. Congreso de la Unión, 2019). According to estimates by SEMARNAT (Mexico’s Ministry of Environment and Natural Resources), the carbon tax has been responsible for an abatement of approximately 1.8 MtCO₂ per year (Saúl Pereyra García, 2017). The Mexican ETS pilot started in 2020. It covers direct CO₂ emissions from installations in the energy and industrial sectors generating at least 100,000 tCO₂ per year, which in sum account for around 40%



* GHG emissions
** black carbon emission

of the country's emissions. It is designed to pose no economic impact on regulated entities and will help to test the system design, enhance the quality of emissions data and build capacities for regulated entities before the start of the operational phase of the ETS, planned for 2023. Several offset protocols under the ETS are currently under development, with an anticipated finalization date of late-2021. These protocols primarily will facilitate domestic offset projects in both afforestation and reforestation and improved forest management. The year 2022 will be a transition year toward the operational phase of the ETS, planned for 2023.

- **Sub-National Action:** Three Mexican states (Zacatecas in 2017, Baja California in 2020 and Tamaulipas in 2021) have also implemented local carbon taxes, and the state of Jalisco is considering following suit.

Capacity building and policy analysis:

With the support of GIZ and the PMR, Mexico has developed several studies on design elements, options and interactions, as well as communication and stakeholder engagement (Government of Mexico, 2021). The country has also implemented several capacity building activities, such as carbon market simulations, in-country and virtual trainings, and study tours, with their support (IKI Alliance, 2017; World Bank, 2021a). These technical studies and capacity building activities have continued after the start of the pilot phase of the ETS (World Bank, 2021a).

Voluntary Carbon Market:

- In November 2013, a voluntary carbon credit exchange was launched with assistance of the UN Environment Programme (UNEP) and the UK Government. The Mexico Carbon Platform, or MEXICO2, was established to trade carbon credits for voluntary purposes and for compliance with Mexico's national carbon tax.
- MEXICO2 provides carbon credits to the market that have been certified by internationally recognized methodologies and protocols.
- Mexico is also on schedule to finalize its compliance offset mechanism and is reviewing the Climate Action Reserve (CAR) forestry protocols by the end of 2021 and is now reviewing them to be used under the country's proposed ETS. The forestry protocols will facilitate domestic offset projects in afforestation, reforestation, and improved forest management. Other protocols for livestock, agriculture, and road transportation are in earlier stages but initial protocols are expected to be released for review and consultation by late 2021.

- The World Bank’s PMR supported the development of three other compliance protocols covering sectors not regulated under Mexico’s ETS, which applies to industrial and electricity installations emitting over 100,000 tonnes of CO₂ annually. All four protocols are designed for use in the country’s national carbon market.

Peru



**emission limit
to 208.8 MtCO₂e
in 2030**

NDC: Unconditional commitment to limit its GHG emissions to 208.8 MtCO₂e in 2030. Conditional commitment to limit GHG emissions to 179 MtCO₂e in 2030, depending on international finance and favorable conditions (UNFCCC, 2021).

Compliance carbon pricing:

Although Peru currently has no domestic carbon pricing policies in place, the government has developed a social cost of carbon of USD 7.17 per tCO₂e as part of its evaluations for public investment projects (Ministerio de Economía y Finanzas, 2021).

Capacity Building and Article 6 Pilot:

Peru has put considerable effort into foundational carbon pricing MRV, infrastructure and national rules to participate in international carbon markets under the Paris Agreement (Lorenzo Eguren, 2020). In 2021, Peru and Switzerland signed the first bilateral “Implementing Agreement to the Paris Agreement” (Ministerio del Ambiente, 2020), to establish the legal framework for the transfers of Mitigation Outcomes (i.e., GHG reductions or removals, in the context of Article 4.13 of the Paris Agreement) between the two countries, towards achievement of their NDC or other mitigation objectives (Swiss Confederation & Republic of Peru, 2020). This unique agreement allows Peru to fund sustainable development projects, while Switzerland gets to count the resulting emissions cuts against its national targets, giving the Swiss government the option to transfer the rights to retire the offsets to local government or to private companies headquartered in Switzerland.

Voluntary Carbon Market:

- With close to 14 million carbon credits already issued in H1 2021, Peru is the second largest carbon credit supplier in Latin America to date (behind Brazil).
- The issuances of carbon credits in Peru are almost exclusively generated from REDD+ projects, all of which are certified by Verra. The largest voluntary carbon project in Peru is the Cordillera Azul National Park REDD+ project, with over 25 million credits issued to date. The Madre de Dios Amazon REDD project (9 million) and Alto Mayo project (over 8.4 million) are second and third largest projects, by issuance volume, in the country.

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