

The Voluntary Carbon Market Explained

Chapter 1

Introduction

Chapter 1
About the VCM

Chapter 2
Role of Governments in the VCM

Chapter 3
VCM and the Paris Agreement

Chapter 4
GHG Accounting in the VCM

Chapter 5
About Carbon Credits

Chapter 6
High-Quality Carbon Credits

Chapter 7
Carbon Standards

Chapter 8
Carbon Credit Generation

Chapter 9
Carbon Credit Uses

Chapter 10
Carbon and Community Rights

Chapter 11
Benefit Sharing

Chapter 12
Nature-based Solutions

Chapter 13
REDD+ in the VCM

Chapter 14
REDD+ Nesting



Chapter 1: What is the voluntary carbon market?

The voluntary carbon market (VCM) is where private individuals, corporations and other actors issue, buy and sell carbon credits outside of regulated or mandatory carbon pricing instruments. The VCM aims to mitigate climate change by creating space for private actors to finance activities that remove greenhouse gas (GHG) emissions from the atmosphere or reduce GHG emissions associated with industry, transportation, energy, buildings, agriculture, deforestation, or any other aspect of human life.

Companies, governments, non-governmental organizations, and other public and private stakeholders participate in the VCM. Companies participate in the VCM to invest in projects and programs that generate tradable GHG credits, to acquire credits to voluntarily offset GHG emissions, or to otherwise support climate change mitigation through financing activities that reduce GHG emissions or remove GHGs from the atmosphere. Companies use investment in the VCM to contribute to their climate goals, to differentiate from competitors, to build brand recognition and consumer loyalty, and to define and market “carbon neutral” products. Private project and program developers and non-government organizations (NGOs) seek to access finance—often in hard currency—to implement projects that reduce GHG emissions or enhance GHG removals. Governments attract foreign direct investments and achieve additional mitigation through VCM investments.

Governments also develop programs in the context of **Reducing Emissions from Deforestation and Degradation plus (REDD+)**—to access VCM finance to support policy interventions and governance reforms that reduce deforestation. Local communities, private landowners, subnational governments, and other stakeholders also **engage in the VCM through project and program development** and **as beneficiaries** of climate change mitigation activities.

How does the VCM work?

Each credit in the VCM represents one ton of carbon dioxide equivalents (CO₂e) that is sequestered or has not been emitted. Carbon dioxide equivalents are a measurement unit that converts the global warming potential of any GHG into the reference GHG potential of carbon dioxide.

Carbon credits in the VCM are issued, accounted for at the project, program or jurisdictional levels, and certified by **carbon standards**. Carbon standards are private organizations—typically international non-governmental organizations—that provide requirements and rules to guide project developers in the design of activities that measurably remove GHGs from the atmosphere or reduce GHG emissions. The **four standards** that contribute the greatest volumes of credits to the VCM are the Verified Carbon Standard (VCS—68.5% of credits), the Gold Standard (GS—20.1%), the Climate Action Reserve (CAR—8.3%), and the American Carbon Registry (ACR—3.1%).

There is no single or centralized VCM. Most of the supply of carbon credits is generated in developing countries and most of the demand for carbon credits is in developed countries. Credits may be sold by project developers or governments (in the case of jurisdictional programs) directly to buyers or sold to intermediaries who then market carbon credits to final users. To **generate carbon credits**, activities need to be designed, developed and certified; GHG emission reductions and removals need to be monitored, reported, and verified; and carbon credits need to be issued and transferred. In parallel, proponents that develop projects and programs need to attract and structure investment into the activities that reduce emissions. The market may be segmented by project sector or type (i.e., forestry, land use, agriculture, renewable energy, waste), by the crediting standard, by the credit quality, or by the year in which a credit was produced.

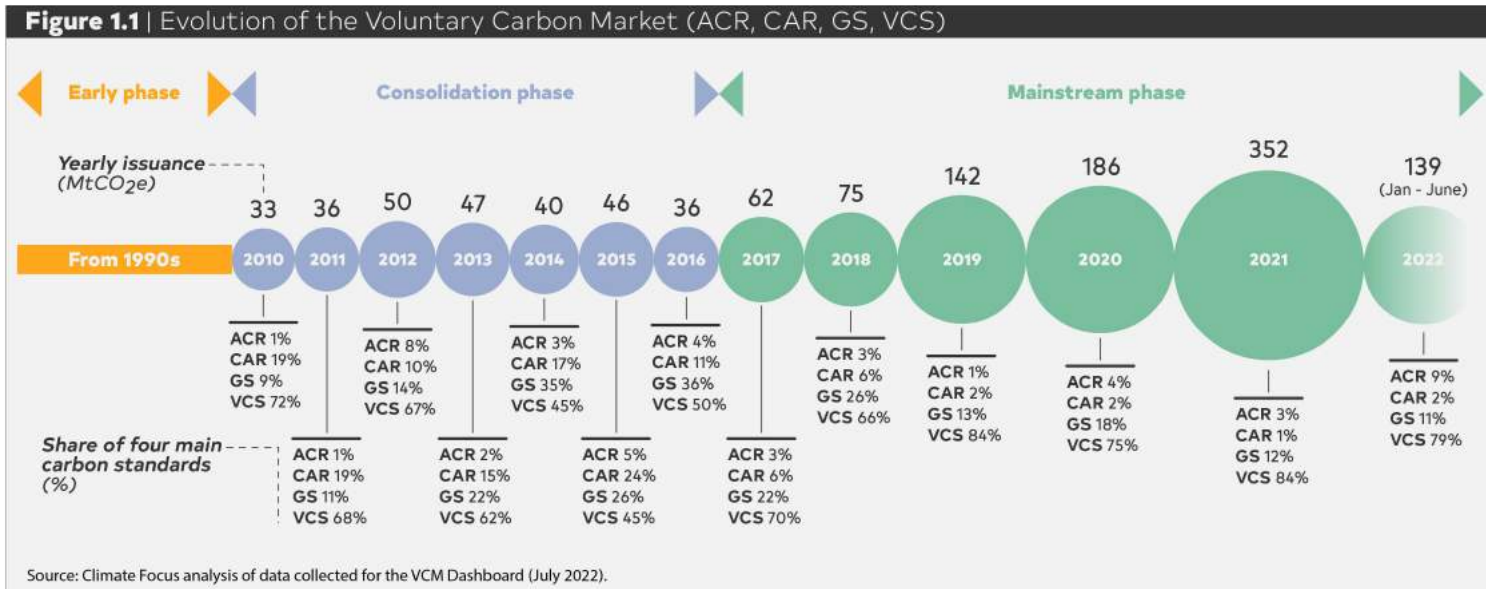
Carbon credits that are traded in the VCM are generated by projects, bundles of projects, programs, or public policies. VCM activities are implemented at the project level and, in the case of REDD+, at jurisdictional level. In addition, **carbon standards** allow the aggregation of projects in grouped projects or in programs of activities. A **project** is a specific activity that removes or reduces GHG emissions in a specific sector following a standard-approved methodology. Projects are defined in a geographic location over a period of time and approved, validated, monitored, and verified by a **carbon standard**.

'**Grouped projects**' or bundles of activities under the Verified Carbon Standard aggregate multiple projects engaged in the same activity into a single project, enabling smaller projects to grow in scale without seeking full new validations from carbon standards for each expansion. A program of activities (as **defined by the Clean Development Mechanism** and **applied by the Gold Standard**) is a set of multiple project activities registered as a single project activity in a defined geographic area with shared methodologies for project design and monitoring. **Jurisdictional programs**—developed in the **context of REDD+**—are government-led GHG reduction programs and account for emissions reductions and removals at the national or subnational scale.

What is the status and market volume of the VCM?

The status of the VCM can be understood in terms of growth of the market (Figure 1.1), volumes of carbon credits transacted and retired (Figure 1.2), and geographic and emissions scope (Figure 1.3).

The idea of private companies offsetting GHG emissions with carbon credits emerged in the late 1980s. The **first known carbon offset deal** was an investment by the American energy company AES in a project run by the NGO CARE in Guatemala, in which AES provided finance for farmers to plant trees. This was followed in the mid-90s by the launch of the Environmental Resources Trust (later rebranded the American Carbon Registry), the first private registry for voluntary offsets in the United States.



Carbon offsetting under compliance mechanisms then took off with the Kyoto Protocol’s flexible mechanisms—particularly the Clean Development Mechanism (CDM), which registered its first project in 2004. In parallel, but at a slower pace, the VCM grew. The **private carbon standards** that dominate the VCM today—the American Carbon Registry (ACR), the Climate Action Reserve (CAR), the Gold Standard (GS), and the Verified Carbon Standard—emerged in the 2000s. The evolution of the VCM and of the four leading standards is depicted in Figure 1.1.

The VCM has grown rapidly since 2016 after steady growth in the preceding decade. Although international compliance markets still cover more GHG emissions than the VCM, the VCM is growing relative to compliance markets as the demand for carbon credits by private actors outside of regulated schemes increases.

One way to show the growing demand for carbon credits in the VCM is through credit retirements. Credits are retired when they are acquired by an end user and put towards offsetting carbon emissions or other non-offsetting goals. If more credits are retired overtime, then it is clear that there is a growing demand for the type of credit. Figure 1.2 shows that retirements of VCM credits increased significantly from 2016-2020, particularly from **nature-based solutions** and renewable energy activities. The VCM is on track to set an **all-time record for market volume** in 2021.

While the issuance of carbon credits is increasing rapidly, it may not be sufficient to meet demand, especially for increasingly popular credits associated with agriculture, forestry, and other land use projects, often also called **nature-based (climate) solutions (Nbs)**.

As the VCM continues to grow, it is likely that more credits from all types of projects will be generated to meet demand and **carbon standards** will continue to develop more **robust methodologies** for different types of projects.

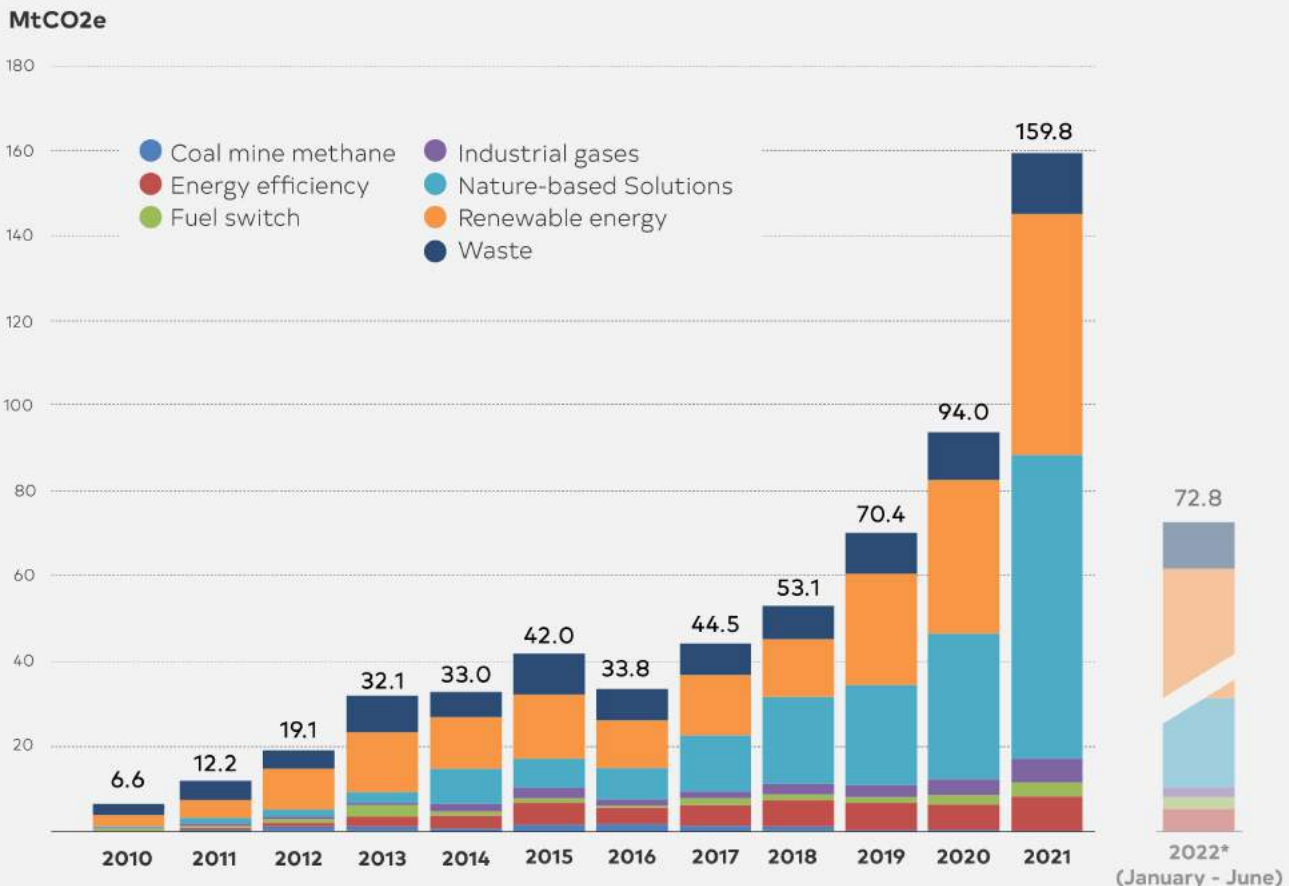
Finally, it is helpful to understand the scope of the VCM both in terms of geography and how many emissions units the VCM is currently offsetting. Figure 1.3 shows both pieces of information. Globally, across all sectors, there are 3,959 VCM projects, generating 1,303 MtCO₂e of GHG emission reductions and removals, which is equivalent to the average yearly emissions produced by about 911 coal plants. Some regions are overly contributing offsets relative to emissions generated, while other regions contribute disproportionately few

offsets relative to the emissions they generate. More than half of the credits in the VCM are generated by projects in Asia, which is why the Asian region has been broken into several subregions in Figure 1.3.

What are the benefits and limitations of the VCM?

The VCM can mobilize foreign direct investment for climate change mitigation and sustainable development that is not provided through regulation. The VCM provides financing for climate mitigation projects that are complementary to governments' efforts to mitigate climate change, and, in the case of **jurisdictional REDD+ programs**, to government mitigation initiatives.

Figure 1.2 | Yearly volumes of retired voluntary carbon credits (VCS, GS, ACR, CAR)



Source: Climate Focus analysis of data collected for the VCM Dashboard (July 2022).

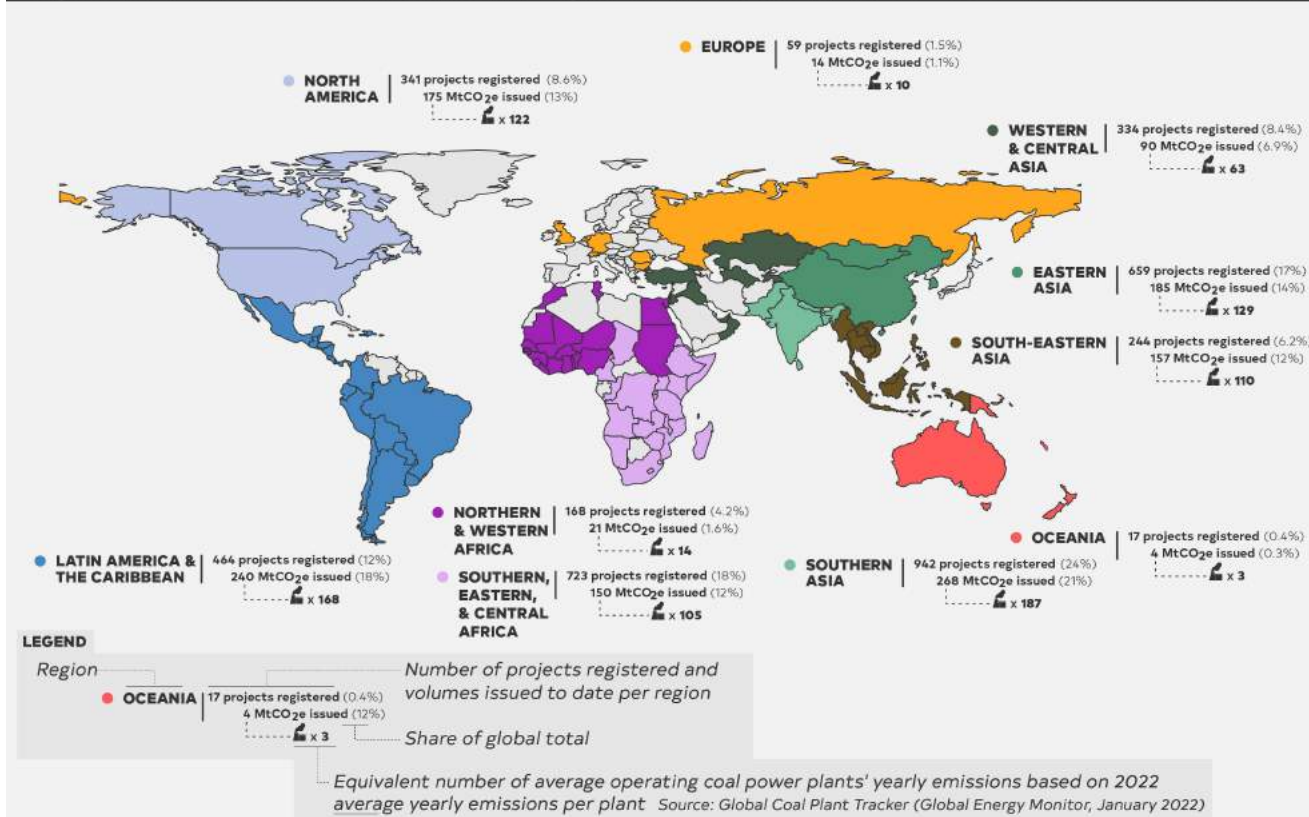
Historically, the VCM has allowed the trade of credits from projects that were not eligible to generate credits under the rules of the Kyoto Protocol Clean Development Mechanism (CDM)—mostly land-use related projects—or projects in countries which could not host CDM projects (for example, Turkey). Today, almost all developing countries are seeing increased interest in VCM projects and transactions from project developers and carbon credit buyers. If used strategically, VCM finance can free up public funds to be re-directed into climate change mitigation goals that are not sufficiently incentivized by carbon finance.

There are two notable limitations of the VCM. First, the robustness of the VCM depends on the rigor that **GHG programs and standards** apply when certifying real and additional emission reductions and removals.

The **quality of credits** varies by the conservativeness of project quantification methods, the extent to which projects address uncertainty, and the inclusion of co-benefits such as contributions to Sustainable Development Goals (SDGs). The methods applied to appropriately **measure and monitor** GHG reductions and removals are frequently revised and debated. As methodologies continue to improve, this limitation may be addressed.

The second limitation is that offsetting through the VCM is a supplementary measure that nets out emissions. It does not reduce emissions overall. As long as carbon credits are used solely to offset emissions, the VCM cannot provide a solution to climate change on its own. **Non-offsetting uses** for credits can help to shift the role of the VCM to a mechanism that drives emissions abatement.

Figure 1.3 | VCM credits issuance and registered projects for 2002 - 2022 (VCS, GS, ACR, CAR)



The regional divisions on this map were selected to showcase the share of the global total of registrations and issuances in different regions rather than always following conventional political divisions. Jurisdictions were included in their geographical rather than political region (for example, Aruba is included in Latin America and the Caribbean rather than as part of the Netherlands). Jurisdictions that have no issued credits and have no registered projects are grey on the map. Jurisdictions with registered projects that have not yet issued credits (i.e., Angola, Bahrain) were included. Eight Gold Standard projects categorized as international—0.2% of projects globally, representing 0.17 MtCO₂e or 0.01% of issued credits, and equivalent to less than one tenth of a coal plant—were excluded from the map but included in the global total for calculating percentages.

Source: Climate Focus analysis of data collected for the VCM Dashboard (July 2022).

Further Reading

1. Donofrio S, Maguire P, Myers K, Daley C, Lin K. *Markets in Motion: State of the Voluntary Carbon Markets 2021. Marketplace; 2021.* Forest Trends' Ecosystem Marketplace. *Voluntary Carbon and the Post-Pandemic Recovery. State of Voluntary Carbon Markets Report, Special Climate Week NYC 2020 Installment.* Forest Trends Association; 2020:16.
2. Forest Trends' Ecosystem Marketplace. *The Only Constant Is Change. State of the Voluntary Carbon Markets 2020, Second Installment Featuring Core Carbon & Additional Offset Prices, Volumes and Insights.* Forest Trends Association; 2020:23.

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