

The Voluntary Carbon Market Explained

Chapter 8



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Chapter 8: How are carbon credits generated?

Carbon credits are tradable, certified greenhouse gas (GHG) emission reductions or removals. Carbon standards issue carbon credits to registry accounts. Each voluntary carbon market (VCM) carbon credit represents one ton of GHG emissions removed from the atmosphere or one ton of GHG that has not been emitted, as compared to a baseline.

How do baseline-and-credit systems work?

GHG emission reductions or removals are measured using VCM protocols and methodologies. The VCM generates carbon credits through a baseline-and-credit system that compares actual GHG emissions to a counterfactual baseline emissions scenario. The differences between actual and counterfactual emissions are accounted for as GHG emission reductions and removals that would not have occurred in a business-as-usual scenario.

To generate **carbon credits** in the VCM, project or program proponents (i.e., the public or private entities designing the mitigation activities) must demonstrate that project or program activities lead to GHG emission reductions and removals beyond those that would have occurred in the absence of the carbon activity. A baseline or reference level must be developed, against which emission reductions or removals are quantified. Baselines describe a counterfactual scenario that will not *actually* occur, but *would have* occurred in an alternative reality without the VCM project or program. This makes the definition of **conservative reference scenarios**

essential for the credibility of baselines.

Standards require that programs and projects pass an **additionality** test to demonstrate that project or program activities face barriers that would prevent them from otherwise going ahead. In other words, activities and **credits are additional** if they would not have happened in the absence of carbon finance. To demonstrate additionality, program or project proponents must follow the rules, procedures, and methodologies of the VCM Standard under which they choose to certify their activities.

How does government action relate to VCM baselines?

National **policies, laws, and regulations** must be taken into account when testing additionality and developing baselines. For example, if there is regulation in place to require certain emission reduction practices—and strong enforcement of those regulations—then VCM projects that seek to provide incentives for those same practices would not be additional, as the regulated emission reductions would have likely taken place in the absence of the VCM project. In the case of **jurisdictional programs**, some standards require governments to show that ‘additional’ policies and measures have been adopted to achieve GHG emission reductions and removals below jurisdictional reference levels.

Under the **Paris Agreement**, all countries have the obligation to develop increasingly comprehensive and

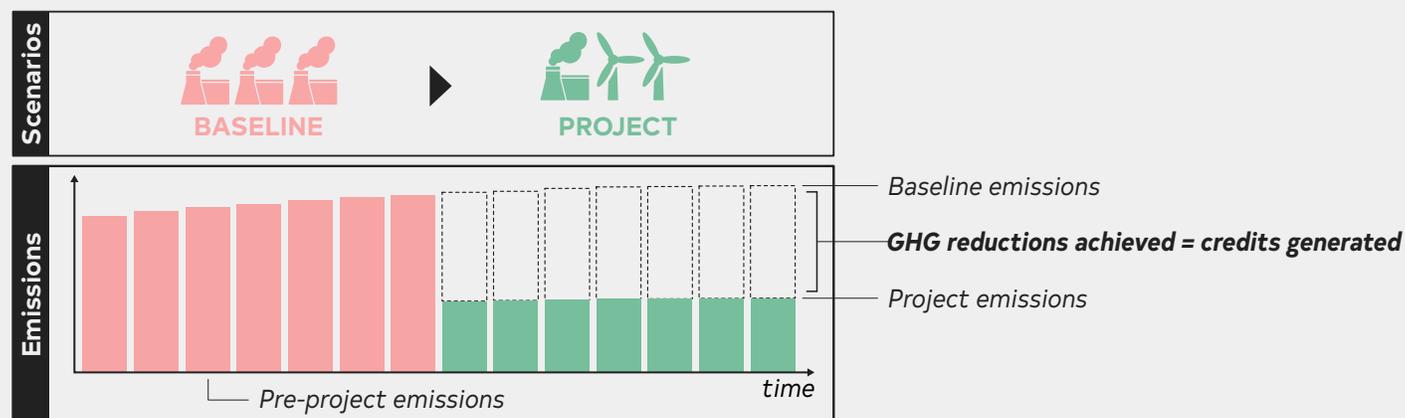
Box 8.1: Baseline-and-credit systems vs. cap-and-trade systems

Tradable carbon units are either carbon credits generated through baseline-and-credit systems, or emissions permits allocated under cap-and-trade systems. Most compliance GHG emission trading systems are regulated cap-and-trade systems whereas baseline-and-credit systems can be applied to both compliance and voluntary markets. The VCM is organized as a baseline-and-credit system. The table below provides an overview of the most important differences between baseline-and-credit and cap-and-trade systems.

Feature/ Mechanism	Baseline-and-credit	Cap-and-trade
Traded commodity	Credits: climate benefits (i.e., GHG emission reductions and removals) that exceed an established baseline.	Allowances: tradable permits to emit GHGs.
Quantity of commodity available	No limit on how many climate benefits can be generated below an established baseline.	Limited and determined by the overall cap, which is set by regulators.
Emission sources covered	Those approved by standards and for which accounting methodologies are available.	Emissions from sources and installations that are identified by law.
Emissions impact	The emissions impact of the trade in credits is neutral when credits are used to offset emissions, i.e., to compensate for emissions occurring elsewhere. Trade in credits may lead to a decrease in overall emissions if the credits are bought for non-offsetting purposes. The emissions impact of baseline-and-credit systems depends on the use of carbon credits by corporates, governments, and civil society in the context of credible mitigation strategies.	The emissions impact of the trade in allowances is neutral when allowances are used as permits to offset emissions. The emissions impact of the entire cap-and-trade system depends on a tightening of the emissions cap over time.

Figure 8.1 shows an example of a project in which transitioning from conventional power plant to wind power generation results in the achievement of emissions reductions relative to the baseline power plant emissions that would have occurred without the project.

Figure 8.1 | Example of a baseline-and-credit system



ambitious Nationally Determined Contributions (NDCs) that inform national climate targets and plans. This presents an essential challenge for carbon market mechanisms because additionality may need to consider the host country's NDC. However, NDCs are often aspirational statements that are not backed by concrete policies and implementation plans. NDCs are also often conditional on additional financing. NDCs that are not being implemented may not need to be considered in VCM baselines or additionality tests.

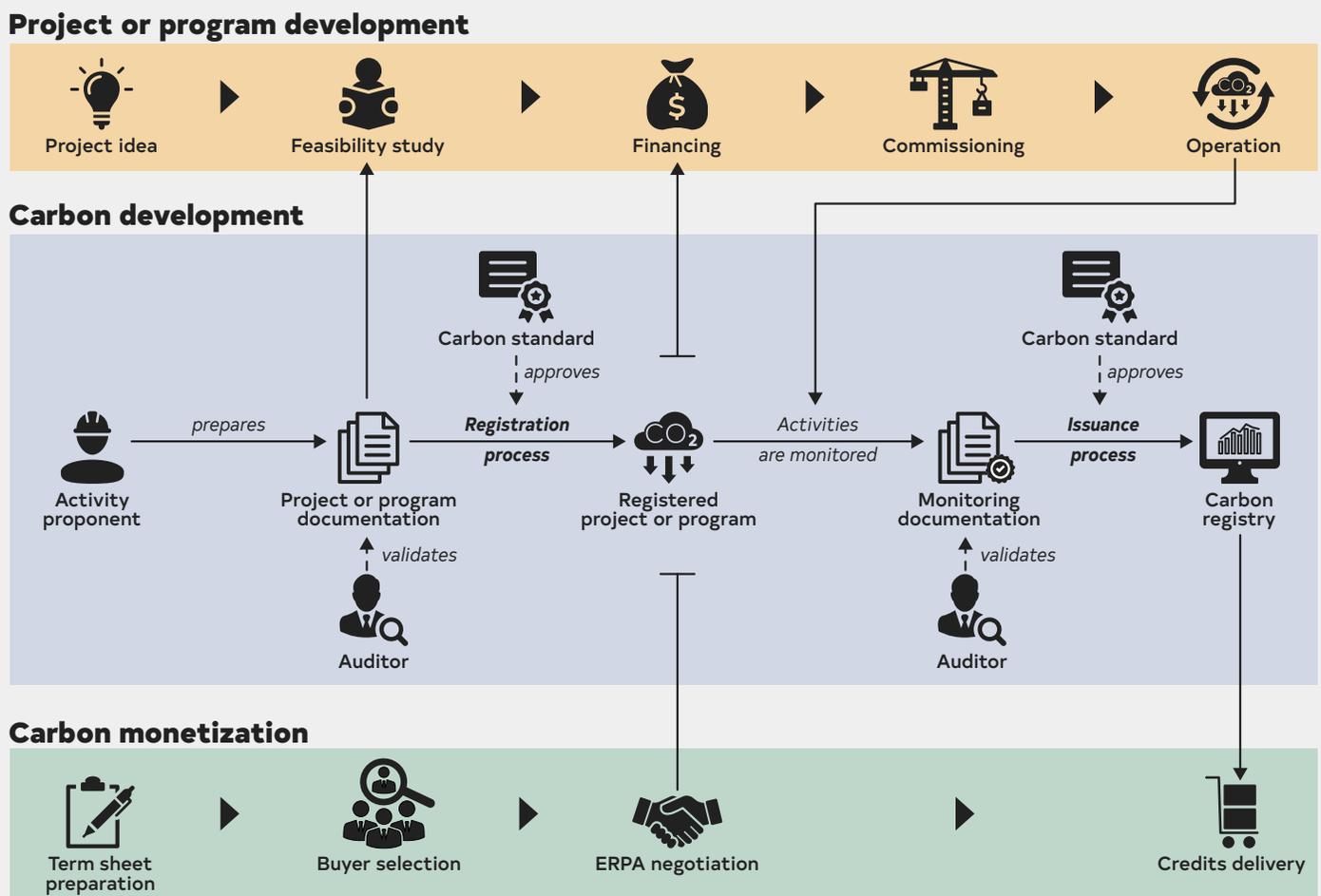
Governments can encourage the development of VCM projects in sectors or regions where VCM activities would clearly be additional. This is the case for sectors or regions not yet adequately covered by government regulation.

Governments can also encourage VCM projects in sectors that are covered by conditional NDC targets, which depend on external financing. In this way, government engagement with the VCM can ensure that VCM projects complement public efforts to mitigate climate change.

What does the VCM project or program cycle look like?

The process through which VCM projects or programs are designed, climate benefits are generated, and carbon credits are issued and traded is called the project or program cycle. This project or program cycle generally consists of the steps shown in Figure 8.2 and described in more detail below. The cycle for standards that certify projects

Figure 8.2 | VCM Project or Program Cycle



(e.g., **Verified Carbon Standard** and **Gold Standard**) and the cycle for those that certify jurisdictional programs (e.g., Jurisdictional and Nested REDD+ — **JNR**— and Architecture for REDD+ Transactions The REDD+ Environmental Excellence Standard—**ART/TREES**) follow comparable steps. A distinct feature of ART/TREES is that program proponents—called participants—must be a national government or subnational entity with jurisdiction. JNR also requires jurisdictional-level proponents, and provides different requirements for nested or jurisdictional projects or programs.

Planning: Private or public proponents of mitigation activities choose a **VCM standard** and an approved methodology with which to develop the project or program activities. Stakeholders are identified. Feasibility studies and stakeholder consultations may be conducted or initiated during this step.

Design: Proponents prepare the project or program documentation according to the guidelines of the carbon standard under which they wish for the climate benefits from a project or program to be certified. The documentation must demonstrate that the VCM project has applied the chosen methodologies correctly and met the associated requirements.

Validation: To be registered, a project or program must be validated by an independent third-party auditor, often known as a Validation/Verification Body (VVB). Validation reports are submitted following an audit of the activity design documents, which typically includes a site visit and consultation with stakeholders.

Registration: Prior to registration, validation reports are reviewed by the standard. A project or program is registered if it meets the rules and requirements of the standard under which it is certified. Projects can begin implementation after registration.

Implementation: A project or program is implemented as laid out in the documents submitted for registration and validation.

Monitoring: Project or program activities are monitored to ensure that emission reductions are generated as described in project documents. Project developers prepare and follow a monitoring plan and record emissions reductions in periodic monitoring reports.

Verification: Project or program periodic monitoring reports are verified by an independent, third-party auditor and by the carbon standard under which the project is certified. Verification is required for the issuance of carbon credits.

Issuance: After the regulatory body of the carbon standard approves credit issuances, carbon credits are deposited into the proponent's account on the registry of the carbon standard. Carbon credits can be sold, traded, retired, and canceled after they have been issued. The terms of the sale are established in an Emission Reductions Purchase Agreement (ERPA). The sale of carbon credits is recorded in the registry of the carbon standard, which enables the transfer of credits between accounts and the tracing of transactions.

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