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# The Voluntary Carbon Market Explained

**Chapter 5**



## Chapter 5: What is a carbon credit?

A carbon credit is a tradable unit that represents one ton of greenhouse gas (GHG) emission reductions or removals. Carbon credits in the voluntary carbon market (VCM) are generated by the activities of projects and programs that are certified by carbon standards. The credits are purchased by companies, individuals, and other entities to offset GHG emissions or otherwise contribute to emissions abatement. The prices of carbon credits are determined by the types and quality of VCM activities and the demand for credits from those activities.

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### What does a voluntary carbon market carbon credit represent?

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A carbon credit is a tradable emissions unit. Each carbon credit that is generated in the VCM represents one ton of GHG emissions that was not emitted to or removed from the atmosphere compared to baseline emissions. To enable standardized accounting, GHG emission reductions and removals are measured in carbon dioxide equivalent (CO<sub>2</sub>e) units, often expressed in tons (t) or Metric tons (Mt) of CO<sub>2</sub>e emissions reductions and removals and abbreviated as tCO<sub>2</sub>e or MtCO<sub>2</sub>e.

Carbon credits that are traded in the VCM are certified and issued by carbon standards according to the rules and requirements set by **carbon standard** organizations and GHG crediting programs. Certified GHG emission reductions and removals are converted into carbon credits when they are issued in the GHG registry of the certifying carbon standard. Registries allow the

transfer of credits between accounts and the tracking of issuances and transfers.

Carbon credits are distinct from the allowances that are traded in **cap-and-trade systems**. Allowances are tradable permits that authorize the holder to emit a certain quantity of GHGs in the future, while carbon credits represent emissions that were sequestered or avoided in the past. Through carbon credits, the VCM provides incentives to private and public actors to contribute to climate action. Sellers generate voluntary carbon credits to finance activities that reduce the release of new GHG emissions to the atmosphere or remove emissions already in the atmosphere. Buyers **use VCM carbon credits** to directly offset their GHG emissions against a voluntary or compliance emission reduction target, or to contribute to broader corporate or public climate goals to reduce GHG emissions overall by buying credits without offsetting.

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### How is the market for carbon credits structured?

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In economic terms, carbon credits are tradable commodities. Carbon credits are generated, sold, transferred, and purchased by private and public actors that fill different roles in the carbon market. The supply and demand structure of the market is depicted in figure 5.1.

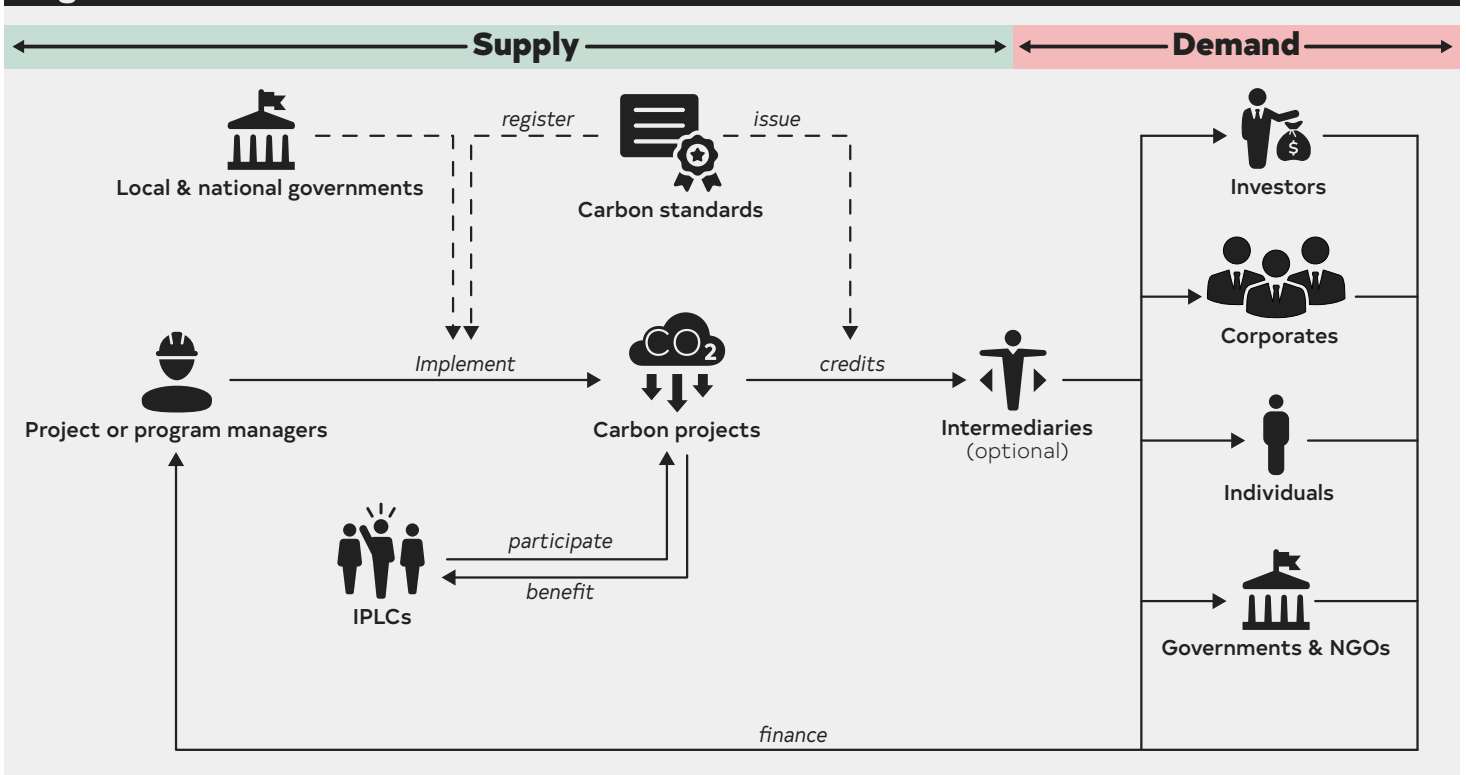
**Carbon credit supply:** Project and program managers design and implement mitigation activities that

are registered under GHG crediting **standards** and generate carbon credits. Activity managers may be for-profit or non-for-profit private project developers, local private or community landowners, or municipalities, public agencies and—particularly in the case of public sector jurisdictional programs—subnational or national **governments**. To create a VCM activity, developers design a project or program, consult with government entities and local communities, comply with carbon standard requirements to receive certification, establish monitoring systems, and sell credits to buyers or to intermediaries. Activity developers may recruit investors to provide upfront financing, partner with local communities or civil society organizations, or engage other participants. Government may mobilize advance finance for VCM activities from budgetary resources or from donor-sponsored programs.

**Carbon credit demand:** The final users of most VCM carbon credits are private companies that voluntarily engage in climate mitigation to offset their GHG emissions or to achieve broader corporate climate goals. Governments, non-governmental organizations (NGOs), and individuals also buy VCM carbon credits to offset emissions from flights, events or the production of goods and services. **Activities, products, or services that offset** GHG emissions are often marketed as carbon neutral.'

**Investors and intermediaries** operate on both the supply and demand sides by investing in projects and by purchasing carbon credits. Market intermediaries generally are for-profit companies that act as traders or fund managers that manage carbon credit portfolios. They ensure the availability of risk capital and help market stability. Investors are private companies, foundations or individuals who work

**Figure 5.1** | The market for carbon credits



with intermediaries or project developers to finance carbon credit projects or programs, often in exchange for a guaranteed quantity of or price for credits generated by the projects or programs.

**Regulators:** The direct regulators of the VCM are private **carbon standard** organizations, which are, in most cases, international NGOs. The standard organizations set requirements of GHG crediting programs that projects and programs must fulfill to generate tradable carbon credits. **Governments** may regulate the VCM, by formulating social or environmental project standards (safeguards), defining **carbon rights** and **benefit sharing** requirements, or linking the VCM to **Paris Agreement** commitments, compliance carbon markets or other carbon pricing schemes.

**Indigenous Peoples and local communities (IPLCs):** IPLCs may hold **land, forest, or carbon rights**, or have customary or traditional access to land where emission reduction activities take place. As land managers, IPLCs are on the supply side of the VCM. They may engage directly in project development or participate through **benefit sharing** agreements.

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## How are carbon credit prices determined?

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The price for a carbon credit is an essential piece of information for both the supply and demand side of the market. On the demand side, it allows end buyers to evaluate the costs of meeting corporate climate targets and to determine what role the VCM can play in achieving those targets. On the supply side, clear price signals are important for project developers to

decide whether it is worth developing VCM projects or programs and how much carbon finance can contribute to development and implementation costs.

At present, the prices in the VCM are not transparent. There is no common mechanism to set prices and enhance market transparency. Carbon credits of different origin and quality have different prices. In the current VCM (November 2021), the price per carbon credit can vary from a few cents per MtCO<sub>2</sub>e to USD 20 per MtCO<sub>2</sub>e. As the market gains volume and becomes more liquid, more standardized price setting methods are likely to emerge. Exchanges, credit ratings, and price indices are expected to lead to more transparent carbon pricing. In addition, initiatives such as the **Taskforce for Scaling Voluntary Carbon Markets** are looking to increase harmonization, efficiency, and transparency of the VCM. Carbon prices in the VCM are influenced by vintage, quality, certifications, negotiating power, and risk.

**Newer credits are valued more highly than older credits.** The year in which a carbon credit was issued is its vintage. Buyers may prefer credits with newer vintages because they are issued according to the more recently updated methodologies and standard requirements and may be available in sectors—like **nature-based solutions**—that previously were not credited in the VCM. It is also easier to determine that **newer credits are financially additional**, as credits from older vintages may represent GHG emission reductions or removals from activities that no longer need finance incentives from the VCM.

**High-quality credits are more costly.**

Often, projects or programs that generate **high-quality credits** have relatively higher costs for designing and implementing activities, monitoring, and verifying impacts, and building relationships with local stakeholders. High-quality credits represent real, measurable, and additional GHG emission reductions or removals. Verifying these impacts necessitates increased monitoring reliability, which comes with increased costs. High-quality credits also often yield sustainable development, biodiversity conservation, and other social or ecological benefits in addition to GHG reductions or removals, which require significant upfront investment. While buyers wish to support high-quality projects, they do not always demonstrate a willingness to pay prices that reflect the true financial needs of these projects. Increased investment in high-quality projects can be encouraged by clear and transparent **benefit sharing** requirements in the jurisdictions where projects take place, the use of **carbon standards** that certify sustainable development goal contributions, and monitoring and quantification of sustainable development benefits to demonstrate that high prices are fair.

**Additional certifications can drive higher prices.** Projects that have achieved additional certifications of broader sustainability benefits demand higher prices. For example, the **Climate, Community, and Biodiversity Standard** confirms environmental and social benefits of forest carbon projects. Under Verra's **Sustainable Development Verified Impact Standard** (SD VISta) or the Gold Standard for the Global Goals (GS4GG), project developers can certify contributions to Sustainable

Development Goals (SDGs). Certified sustainable development contributions give buyers the assurance that such benefits are real and likely to generate positive environmental and social impacts in addition to GHG emission reductions and removals. GS4GG and SDVISta certify positive environmental or social attributes for VCM projects, or—for project developers that wish to go a step further—independently tradable sustainable development assets, which can be priced independently of carbon credits of the underlying project.

**Prices are determined by power asymmetries and the ability of parties to negotiate.** If certain buyers or groups of buyers dominate shares of the VCM, they are often able to determine the price. This is particularly true for jurisdictional programs for **Reduced Emissions from Deforestation and Degradation Plus (REDD+)**, where a few coordinated multilateral and bilateral buyers dominated transactions in the past. Results-based payment programs, such as the Forest Carbon Partnership Facility (**FCPF**) or the REDD Early Movers (**REM**) Programme, or bilateral buyers, such as Norway's International Climate and Forests Initiative (**NICFI**), set reference prices. Recently, the Lowering Emissions by Accelerating Forest finance (**LEAF**) Coalition, a private-public consortium, decided to set a new, higher reference price. The prices set by these program-level initiatives influence project-level carbon prices in comparable project classes.

**The distribution of risk is reflected in carbon prices.** Carbon prices depend on the allocation of project development, investment, and performance risk. In general, the lower the perceived risks, and the more robust the measures put



the quality of GHG reductions or removals, the higher the price of the carbon credit. Where buyers act as investors in projects, they often retain the right to receive carbon credits at a discount from market prices. Similarly, buyers that agree to make upfront payments and share the risk of project failure pay less per carbon credit than buyers that pay for credits after project implementation and certification. Buyers that enter into forward contracts benefit from fixing prices for future carbon credits, which may or may not be beneficial for buyers and sellers depending on market developments.

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