

Carbon Credit

Carbon credit is a generic term for any tradable certificate or permit representing the right to emit one tonne of carbon dioxide or the mass of another greenhouse gas with a carbon dioxide equivalent to one tonne of carbon dioxide.

Carbon credits and carbon markets are a component of national and international attempts to mitigate the growth in concentrations of greenhouse gases (GHGs). One carbon credit is equal to one metric tonne of carbon dioxide, or in some markets, carbon dioxide equivalent gases. Carbon trading is an application of an emissions trading approach. Greenhouse gas emissions are capped and then markets are used to allocate the emissions among the group of regulated sources.

The goal is to allow market mechanisms to drive industrial and commercial processes in the direction of low emissions or less carbon intensive approaches than those used when there is no cost to emitting carbon dioxide and other GHGs into the atmosphere. Since GHG mitigation projects generate credits, this approach can be used to finance carbon reduction schemes between trading partners and around the world.

There are also many companies that sell carbon credits to commercial and individual customers who are interested in lowering their carbon footprint on a voluntary basis. These carbon offsetters purchase the credits from an investment fund or a carbon development company that has aggregated the credits from individual projects. Buyers and sellers can also use an exchange platform to trade, such as the Carbon Trade Exchange, which is like a stock exchange for carbon credits. The quality of the credits is based in part on the validation process and sophistication of the fund or development company that acted as the sponsor to the carbon project. This is reflected in their price; voluntary units typically have less value than the units sold through the rigorously validated Clean Development Mechanism.

Burning of fossil fuels is a major source of industrial greenhouse gas emissions, especially for power, cement, steel, textile, fertilizer and many other industries which rely on fossil fuels (coal, electricity derived from coal, natural gas and oil). The major greenhouse gases emitted by these industries are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons (HFCs), etc., all of which increase the atmosphere's ability to trap infrared energy and thus affect the climate. The concept of carbon credits came into existence as a result of increasing awareness of the need for controlling emissions.

The mechanism was formalized in the Kyoto Protocol, an international agreement between more than 170 countries, and the market mechanisms were agreed through the subsequent Marrakesh Accords. The mechanism adopted was similar to the successful US Acid Rain Program to reduce some industrial pollutants. Under the Kyoto Protocol, the 'caps' or quotas for Greenhouse gases for the developed countries are known as Assigned Amounts. The quantity of the initial assigned amount is denominated in individual units, called Assigned amount units (AAUs), each of which represents an allowance to emit one metric tonne of carbon dioxide equivalent, and these are entered into the country's national registry.

In turn, these countries set quotas on the emissions of installations run by local business and other organizations, generically termed 'operators'. Countries manage this through their national registries, which are required to be validated and monitored for compliance by the UNFCCC. Each operator has an allowance of credits, where each unit gives the owner the right to emit one metric tonne of carbon dioxide or other equivalent greenhouse gas. Operators that have not used up their quotas can sell their unused allowances as

carbon credits, while businesses that are about to exceed their quotas can buy the extra allowances as credits, privately or on the open market. As demand for energy grows over time, the total emissions must still stay within the cap, but it allows industry some flexibility and predictability in its planning to accommodate this. By permitting allowances to be bought and sold, an operator can seek out the most cost-effective way of reducing its emissions, either by investing in 'cleaner' machinery and practices or by purchasing emissions from another operator who already has excess 'capacity'.

Since 2005, the Kyoto mechanism has been adopted for CO₂ trading by all the countries within the European Union under its European Trading Scheme (EU ETS) with the European Commission as its validating authority. From 2008, EU participants must link with the other developed countries who ratified Annex I of the protocol, and trade the six most significant anthropogenic greenhouse gases. In the United States, which has not ratified Kyoto, and Australia, whose ratification came into force in March 2008, similar schemes are being considered.

A tradable credit can be an emissions allowance or an assigned amount unit which was originally allocated or auctioned by the national administrators of a Kyoto-compliant cap-and-trade scheme, or it can be an offset of emissions. Such offsetting and mitigating activities can occur in any developing country which has ratified the Kyoto Protocol, and has a national agreement in place to validate its carbon project through one of the UNFCCC's approved mechanisms. Once approved, these units are termed Certified Emission Reductions, or CERs. The Protocol allows these projects to be constructed and credited in advance of the Kyoto trading period.

For trading purposes, one allowance or CER is considered equivalent to one metric ton of CO₂ emissions. These allowances can be sold privately or in the international market at the prevailing market price. These trade and settle internationally and hence allow allowances to be transferred between countries. Each international transfer is validated by the UNFCCC. Each transfer of ownership within the European Union is additionally validated by the European Commission.

Climate exchanges have been established to provide a spot market in allowances, as well as futures and options market to help discover a market price and maintain liquidity. Carbon prices are normally quoted in Euros per tonne of carbon dioxide or its equivalent (CO₂e). Other greenhouse gasses can also be traded, but are quoted as standard multiples of carbon dioxide with respect to their global warming potential. These features reduce the quota's financial impact on business, while ensuring that the quotas are met at a national and international level.

Currently there are six exchanges trading in carbon allowances: the Chicago Climate Exchange, European Climate Exchange, NASDAQ OMX Commodities Europe, PowerNext, Commodity Exchange Bratislava and the European Energy Exchange. NASDAQ OMX Commodities Europe listed a contract to trade offsets generated by a CDM carbon project called Certified Emission Reductions (CERs). Many companies now engage in emissions abatement, offsetting, and sequestration programs to generate credits that can be sold on one of the exchanges. At least one private electronic market has been established in 2008: CantorCO₂e. Carbon credits at Commodity Exchange Bratislava are traded at special platform - Carbon place.