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Carbon Credits

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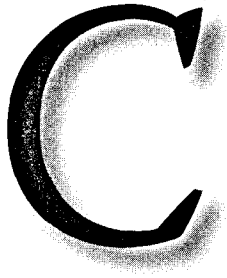
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CARBON CREDITS

A carbon credit is an allowance or offset equal to one metric ton of carbon dioxide (CO₂) or other greenhouse gas (GHG) equivalent calculated in tons of CO₂. Carbon markets allow individuals, companies, or states to finance emissions reductions in other locations, for example, through projects that create or promote renewable energy, energy efficiency, or reforestation, as a means to lower their own carbon footprint. Trade of carbon credits within compliance and voluntary markets is a multibillion-dollar enterprise that makes up a cornerstone of international efforts to combat climate change. Buying and selling emissions allowances often means that mitigation can be achieved at lower costs.

Carbon trade was modeled after an experiment in the United States in the early 1990s involving the trade of sulfur dioxide and nitrogen dioxide credits to mitigate the effects of acid rain. The United States championed similar market-based mechanisms for inclusion in the Kyoto Protocol with the belief that placing a price tag on carbon emissions would create economic incentive to decrease the release of GHGs. The protocol adopted in 1997, and legally binding after 2005, included these market mechanisms in its climate governance regime, but it was never ratified by the United States, in contrast to nearly every industrialized country in the world.

Compliance markets involve transfers of carbon credits under a cap-and-trade system, meaning there are established goals for emission levels contained within set periods of time. If members cannot reduce internal emissions to the level of their established cap, they can purchase credits from other members who pollute less than their quota. Two of the best-known cap-and-trade systems are the Kyoto Protocol's Clean Development Mechanism (CDM) and the Emission Trading System of the European Union (EU ETS).

The EU ETS began operating in 2003 with the goal of limiting or reducing GHG emissions in a cost-effective way. About 12,000 energy-intensive plants in the EU, such as those in the power generation, iron and steel, glass, and cement industries, buy and sell carbon permits. Companies that exceed their individual limit are able to buy unused permits from firms that have cut emissions. Those that exceed their limit and are unable to buy spare permits are fined. Although the system was successful in that it rapidly expanded to cover a large portion of regional carbon emissions, the early caps established may have been too lenient, and a surplus of carbon permits contributed to market collapse by 2007. The EU ETS is currently under revision to reverse initial shortfalls.

Carbon credit transfers under the CDM must be validated to comply with the Kyoto Protocol, which differentiates responsibilities between industrial and developing countries. Industrialized countries must reduce emissions by 5.2 percent by 2012 compared with their 1990 levels. There are two flexible mechanisms established for trading carbon credits. Joint Implementation reduces emissions in projects created between industrialized countries. Because of the relatively high costs of reducing carbon in industrialized countries, there were only 22 Joint Implementation projects worldwide as of late 2008. In contrast, by the same time period, there were more than 1,000 CDM projects partnering industrialized and developing countries. Developing countries that host clean development projects receive payments for emission reductions, which are also intended to finance sustainable development. This stipulation is important so that offset purchasers do not merely pursue cheap offsets. CDMs are intended to provide wider social and ecological benefits and technological transfer—goals that are sometimes not actualized. The distribution of CDM credits is highly uneven: It is expected that by 2012, China will have received over 50 percent of the total credits. Energy efficiency and renewable energy projects have made up smaller portions of CDM credits than initially anticipated. The top project type, those that capture fugitive emissions, initially exposed the potential for corruption. Some plants started producing the potent GHG HFC-23 to receive carbon credits to capture it. This loophole has since been closed, but this example exemplifies the potential for perverse incentives and demonstrates why the rigorous requirements exist, as well as what can be perceived as an unwieldy CDM oversight bureaucracy.

Voluntary carbon markets allow individuals and businesses to elect to reduce their carbon footprint; for example, by offsetting air travel. They allow the purchaser to establish the level of their GHG emission abatement in the time frame that they select and with any of the numerous carbon credit providers supplying voluntary markets. These markets have been able to streamline implementation and sidestep some of the problems faced under compliance markets. However, validation requirements are less stringent, and oversight is inconsistent. Although lacking much of the bureaucracy and the high transaction costs of compliance markets, there is a concerning amount of variability and opaqueness in the voluntary sector. Increasingly, standards are being established, such as the Voluntary Gold Standard, to protect consumer rights, prohibit double-counting among providers or intermediaries, and ensure quantifiable emissions reductions. Use of the Climate, Community, and Biodiversity Standard promotes carbon credits from vegetation and soils, which are important carbon sinks, as they sequester and store carbon. To date, concerns about measurement, permanence, and leakage have largely kept biocarbon projects out of compliance carbon markets.

There need to be ongoing improvements to measurement, reporting, verification, and enforcement to avoid unscrupulous manipulation in both voluntary and compliance carbon markets. Carbon market critics suggest that actors will choose the easiest, least-expensive means to offset their emissions, thereby potentially constricting long-term planning and sustainable development. Carbon trade in well-regulated programs may serve to mitigate climate change but can also distract attention from wider systemic changes that are necessary, whether in personal consumption patterns or finance policy.

See Also: Carbon Emissions; Carbon Offsets; International Regulatory Frameworks; Kyoto Protocol.

Further Readings

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