



CARBON CREDIT & MONEY



From CarbonCreditResearch.com

**It's like Bitcoin
in 2011**

TABLE OF CONTENTS

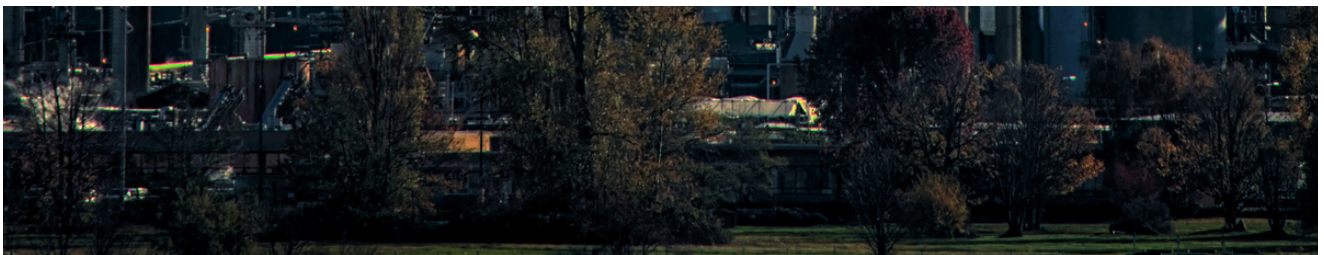
01	What is Carbon Credit
02	Types of Carbon Credit
03	Background
04	Emission Markets
05	The Market Price for Carbon
06	How it reduces emission
07	Buying Credits to reduce pollution
08	Carbon Tax
09	Advantages of Carbon Credits
10	Advantages of Carbon Tax
11	How Carbon Credits are created
12	Creation of Carbon Credits
13	Additionality





WHAT IS A CARBON CREDIT?

Definitions, Background, Markets and Price



DEFINITIONS

Before diving deep into the emerging carbon markets, first, let's have a clear understanding of the basics of Carbon Credits.



Introduction

The main goal of carbon credits and markets is to mitigate the growth of the concentration of greenhouse gas (GHC) in the environment. Carbon credits and carbon markets are a component of national and international attempts to save the Earth and Environment from pollution. 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.

Definition

The Collins English Dictionary defines a carbon credit as “a certificate showing that a government or company has paid to have a certain amount of carbon dioxide removed from the environment”.

A carbon credit is a generic term for any tradable certificate or permits representing the right to emit one tonne of carbon dioxide or the equivalent amount of different greenhouse gas.





TYPES

There are mainly two types of carbon credits:

1. Voluntary emissions reduction
2. Certified emissions reduction



- 1 Voluntary emissions reduction (VER): It is a type of carbon offset that is exchanged in a voluntary way or over-the-counter market for credits.
- 2 Certified emissions reduction (CER): Emission units (or credits) created through a regulatory framework with the purpose of offsetting a project's emissions.



BACKGROUND

Let's know how it all started!



The burning of fossil fuels is a major source of 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.

Important Events

- The U.S. Clean Air Act
- The United Nations' Kyoto Protocol
- The Paris Climate Agreement

1 The U.S. Clean Air Act

The U.S. has been regulating energy emissions since the passage of the U.S. Clean Air Act of 1990, which is credited as the world's first cap-and-trade program (although it called the caps "allowances")

2 The United Nations' Kyoto Protocol

The Kyoto Protocol was an international treaty that extended the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits state parties to reduce greenhouse gas emissions.





BACKGROUND

Let's know how it all started!



This Protocol divided countries into two groups, industrialized economies and developing economies. If a country emitted less than its target amount of hydrocarbons, it could sell its surplus credits to countries that did not achieve its Kyoto level goals, through an Emission Reduction Purchase Agreement (ERPA).

Important Events

- The U.S. Clean Air Act
- The United Nations' Kyoto Protocol
- The Paris Climate Agreement

3 The Paris Climate Agreement

In the meantime, more than 190 nations signed on to the Paris Agreement of 2015, which also sets emission standards and allows for emissions trading.





EMISSION MARKETS

Let's know the markets

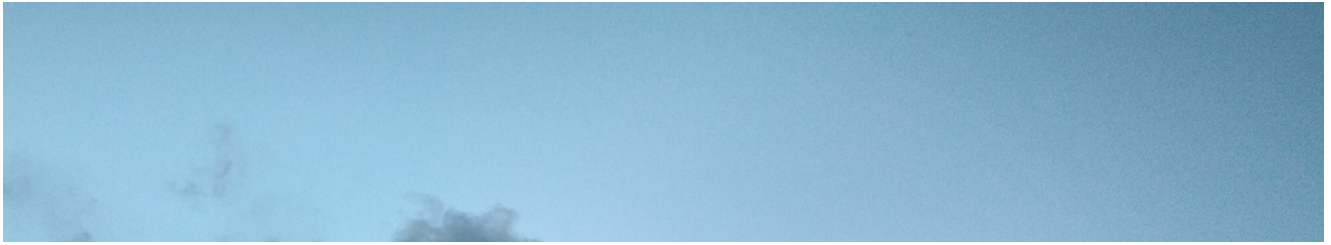


For trading purposes, one allowance or CER is considered equivalent to one metric ton of CO₂ emissions. These allowances can be sold privately or in the international market at the prevailing market price. These trade and settle internationally and hence allow allowances to be transferred between countries.

Each international transfer is validated by the UNFCCC. Each transfer of ownership within the European Union is additionally validated by the European Commission.

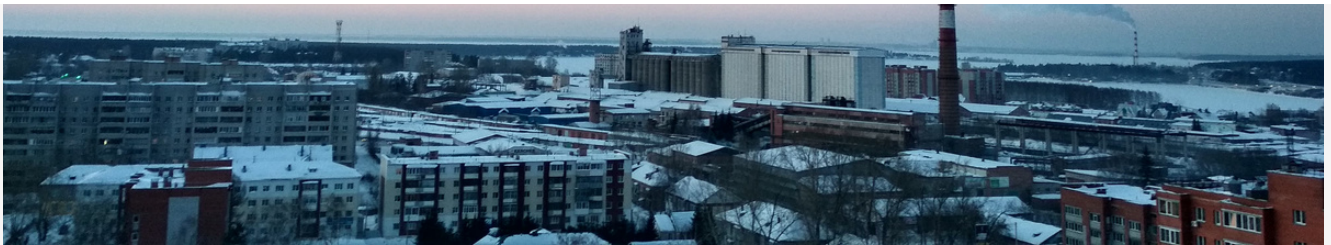
Carbon prices are normally quoted in Euros per tonne of carbon dioxide or its equivalent (CO₂e).





EMISSION MARKETS

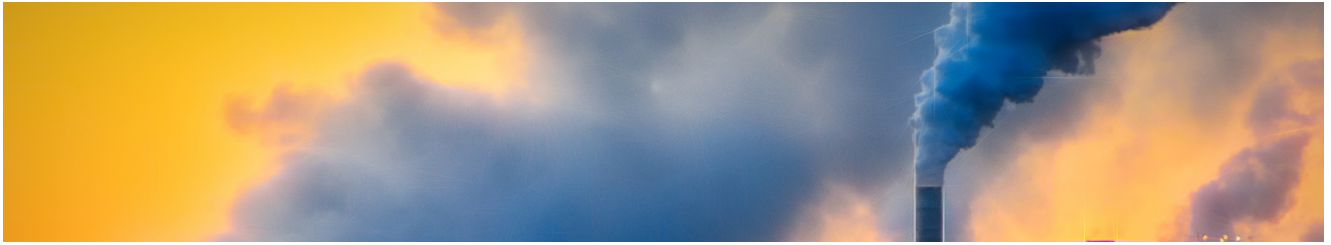
Let's know the markets



Other greenhouse gasses can also be traded, but are quoted as standard multiples of carbon dioxide with respect to their global warming potential. 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.

Currently, there are five exchanges trading in carbon allowances: the European Climate Exchange, NASDAQ OMX Commodities Europe, PowerNext, Commodity Exchange Bratislava, and the European Energy Exchange.





THE MARKET PRICE FOR CARBON

Let's know the price of carbon credits

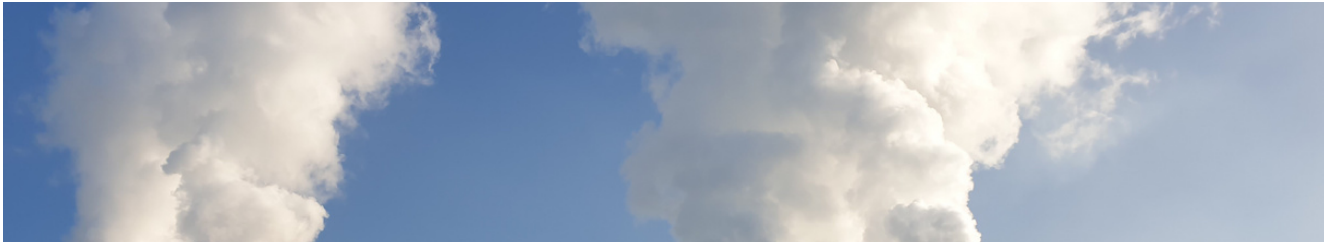


Since energy use and hence emission levels are predicted to keep rising over time. Thus the number of companies needing to buy credits will increase, and the rules of supply and demand will push up the market price, encouraging more environmentally friendly activities that create carbon credits to sell.

Yale University economics professor William Nordhaus argues that the price of carbon needs to be high enough to motivate the changes in behavior and changes in economic production systems necessary to effectively limit emissions of greenhouse gases.

Raising the price of carbon will achieve four goals. First, it will provide signals to consumers about what goods and services are high-carbon ones and should therefore be used more sparingly. Second, it will provide signals to producers about which inputs use more carbon (such as coal and oil) and which use less or none (such as natural gas or nuclear power), thereby inducing firms to substitute low-carbon inputs. Third, it will give market incentives for inventors and innovators to develop and introduce low-carbon products and processes that can replace the current generation of technologies.





THE MARKET PRICE FOR CARBON

Let's know the price of carbon credits



Fourth, and most importantly, a high carbon price will economize on the information that is required to do all three of these tasks.

If 0.01 of a ton of carbon emissions results from the wheat-growing and the milling and the trucking and the baking of a loaf of bread, then a tax of \$30 per ton carbon will raise the price of bread by \$0.30. The “carbon footprint” is automatically calculated by the price system. Consumers would still not know how much of the price is due to carbon emissions, but they could make their decisions confident that they are paying for the social cost of their carbon footprint.

Nordhaus has suggested, based on the social cost of carbon emissions, that an optimal price of carbon is around \$30(US) per ton and will need to increase with inflation.

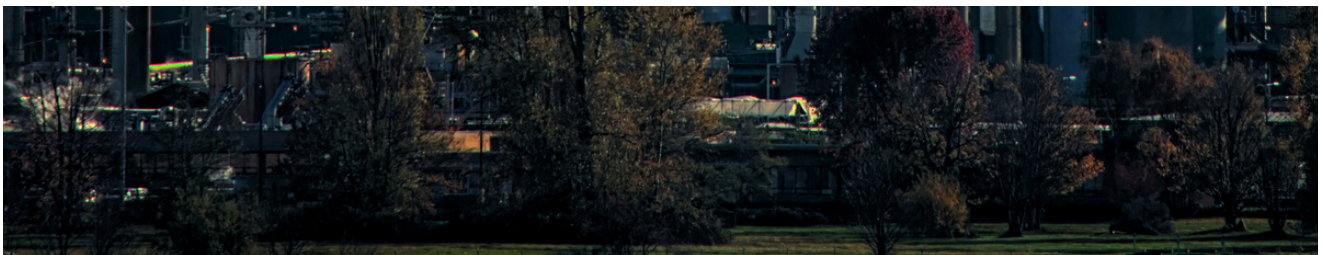
If a country wished to impose a carbon tax of \$30 per ton of carbon, this would involve a tax on gasoline of about 9 cents per gallon. Similarly, the tax on coal-generated electricity would be about 1 cent per kWh or 10 percent of the current retail price. At current levels of carbon emissions in the United States, a tax of \$30 per ton of carbon would generate \$50 billion of revenue per year.





HOW CARBON CREDITS PROPOSE TO REDUCE EMISSION

Buying carbon credits to reduce pollution.



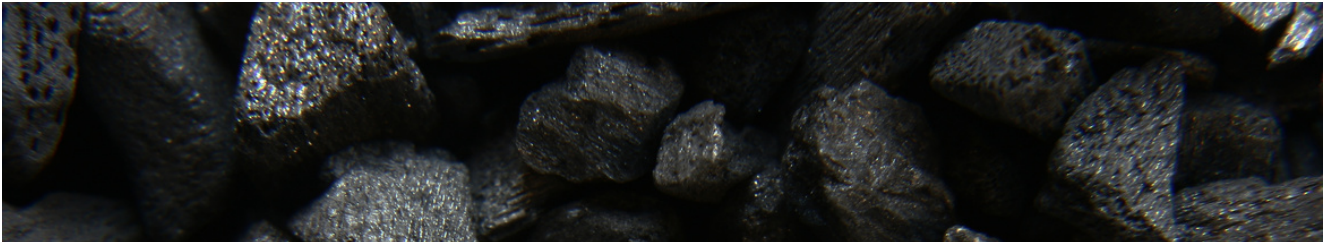


Carbon credits create a market for reducing greenhouse emissions by giving a monetary value to the cost of polluting the air.

The main 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 are no cost to emitting carbon dioxide and other greenhouse gases (GHGs) into the atmosphere.

Carbon credits create a market for reducing greenhouse emissions by giving a monetary value to the cost of polluting the air. Emissions become an internal cost of doing business and are visible on the balance sheet of the entity.





BUYING CARBON CREDITS TO REDUCE POLLUTION

1 carbon credit=1 ton CO₂



For example, consider a business that owns a factory putting out 1,000,000 tonnes of greenhouse gas emissions in a year. Its government is an Annex I country (Developed economy) that enacts a law to limit the emissions that the business can produce. So the factory is given a quota of say 750,000 tonnes per year.

The factory either reduces its emissions to 750,000 tonnes or is required to purchase 250,000 carbon credits to offset the excess. After costing up alternatives the business may decide that it is uneconomical or infeasible to invest in new machinery for that year.

Instead, it may choose to buy carbon credits on the open market from organizations that have been approved as being able to sell legitimate carbon credits.





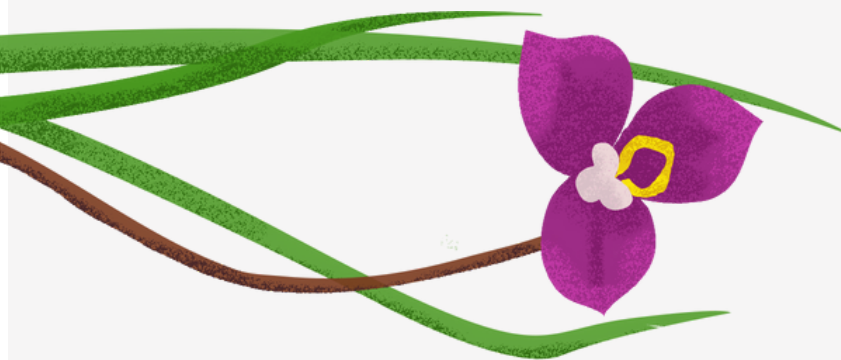
BUYING CARBON CREDITS TO REDUCE POLLUTION

1 carbon credit=1 ton CO₂



One seller might be a company that will offer to offset emissions through a project in the developing world, such as recovering methane from a swine farm to feed a power station that previously would use fossil fuel. So although the factory continues to emit gases, it would pay another group to reduce the equivalent of 250,000 tonnes of carbon dioxide emissions from the atmosphere for that year.

Another seller may have already invested in new low-emission machinery and have a surplus of allowances as a result. The factory could make up for its emissions by buying 250,000 tonnes of allowances from them. The cost of the seller's new machinery would be subsidized by the sale of allowances. Both the buyer and the seller would submit accounts for their emissions to prove that their allowances were met correctly.





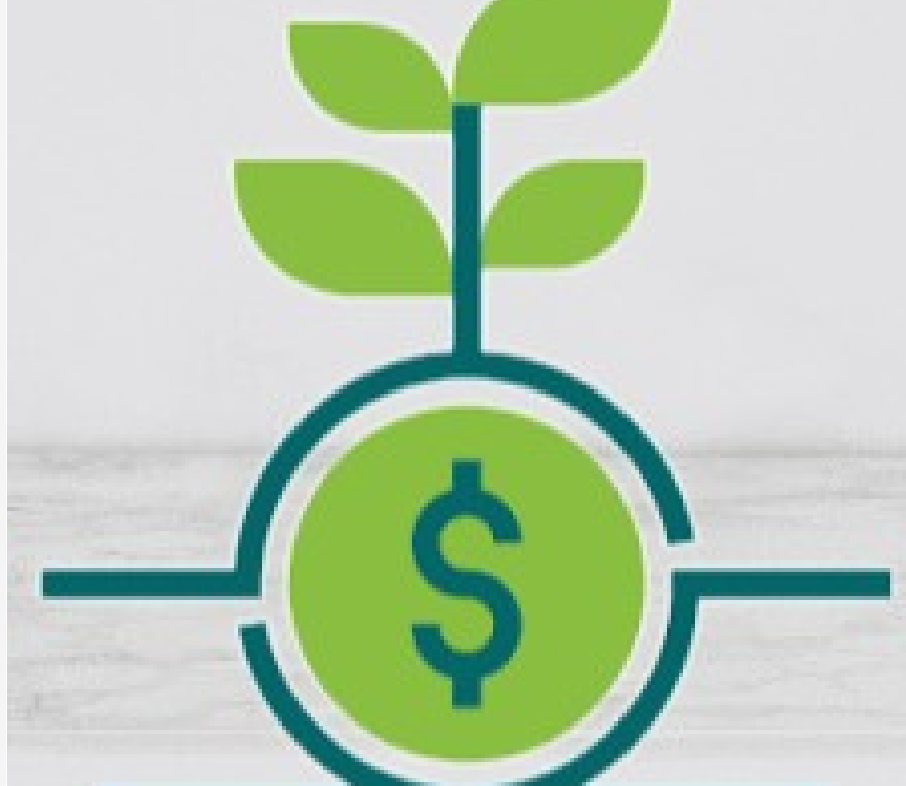
CARBON TAX

Carbon Tax, Difference between the two



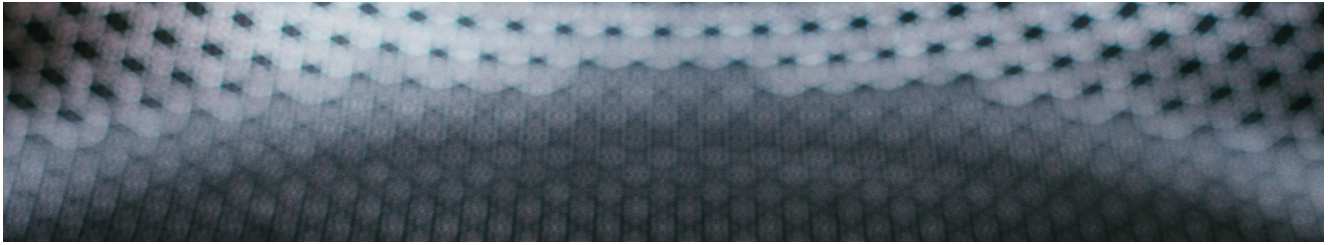


Carbon credit and carbon tax are two different things, but they both are very important. Let's understand them, their pros and cons.

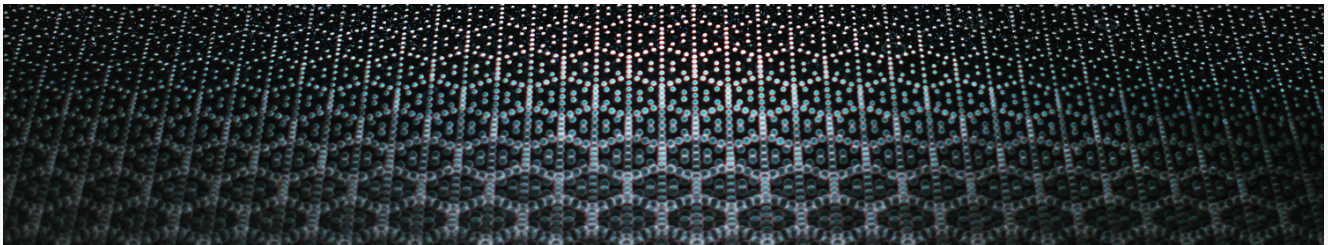


Carbon Credit: A carbon credit is a generic term for any tradable certificate or permits representing the right to emit one tonne of carbon dioxide or the equivalent amount of a different greenhouse gas that can be traded in the market.

Carbon Tax: A carbon tax is a tax levied on the carbon emissions required to produce goods and services. Carbon taxes are intended to make visible the "hidden" social costs of carbon emissions, which are otherwise felt only in indirect ways like more severe weather events.

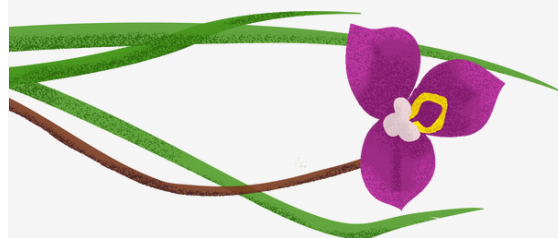


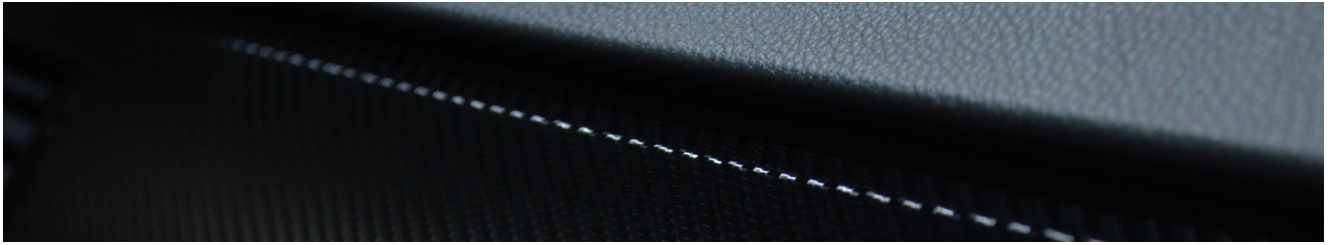
ADVANTAGES OF CARBON CREDITS



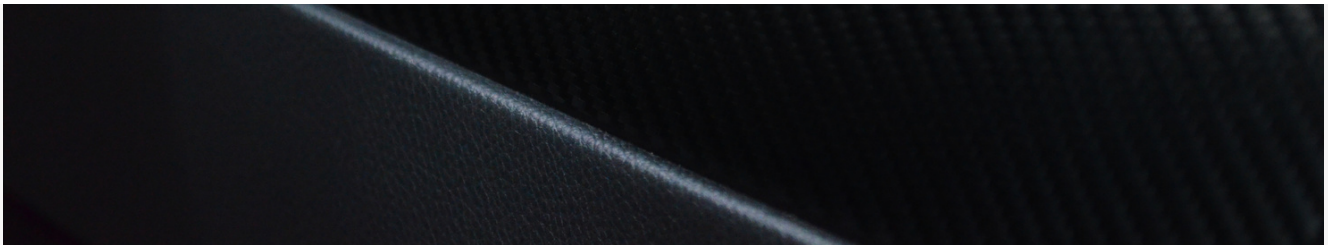
By treating emissions as a market commodity some proponents insist it becomes easier for businesses to understand and manage their activities, while economists and traders can attempt to predict future pricing using market theories. Thus the main advantages of a tradeable carbon credit over a carbon tax are argued to be:

- 1 The price may be more likely to be perceived as fair by those paying it. Investors in credits may have more control over their own costs.
- 2 The flexible mechanisms of the Kyoto Protocol help to ensure that all investment goes into genuinely sustainable carbon reduction schemes through an internationally agreed validation process.
- 3 Some proponents state that if correctly implemented a target level of emission reductions may somehow be achieved with more certainty, while under a tax the actual emissions might vary over time.
- 4 It may provide a framework for rewarding people or companies who plant trees or otherwise meet standards exclusively recognized as "green."





ADVANTAGES OF CARBON TAX



The advantages of a carbon tax are argued to be:

- 1 Possibly less complex, expensive, and time-consuming to implement. This advantage is especially great when applied to markets like gasoline or home heating oil.
- 2 Perhaps some reduced risk of certain types of cheating, though under both credits and taxes, emissions must be verified.
- 3 Reduced incentives for companies to delay efficiency improvements prior to the establishment of the baseline if credits are distributed in proportion to past emissions.
- 4 When credits are grandfathered, this puts new or growing companies at a disadvantage relative to more established companies.
- 5 Allows for more centralized handling of acquired gains.
- 6 The worth of carbon is stabilized by government regulation rather than market fluctuations. Poor market conditions and weak investor interest have a lessened impact on taxation as opposed to carbon trading.





CREATION OF CARBON CREDITS

How carbon credits are created





If you have read so far then you know that so far we have discussed what are carbon credits and how it works. Now let's dive into it a little bit more and let's know how carbon credits are created.



According to the supplementary principle within the Kyoto Protocol, internal abatement of emissions should take precedence before a country buys in carbon credits. However, it also established the Clean Development Mechanism (CDM) as a Flexible Mechanism by which capped entities could develop measurable and permanent emissions reductions voluntarily in sectors outside the cap.



HOW CARBON CREDITS ARE CREATED

1 carbon credit=1 ton CO₂



Many criticisms of carbon credits stem from the fact that establishing that emission of CO₂-equivalent greenhouse gas has truly been reduced involves a complex process. This process has evolved as the concept of a carbon project has been refined over the past 10 years.

The first step in determining whether or not a carbon project has legitimately led to the reduction of measurable and permanent emissions is understanding the CDM methodology process.

This is the process by which project sponsors submit, through a Designated Operational Entity (DOE), their concepts for emissions reduction creation. The CDM Executive Board, with the CDM Methodology Panel and their expert advisors,

review each project and decide how and if they do indeed result in reductions that are additional.

In recent years, software tools have been developed to aid in carbon credit creation, such as in relation to forest conservation, and solid waste or wastewater management.

Forests can be used to create credits, often involving the use of geospatial analytical systems to calculate the carbon offset of preserving an area forest or a reforestation initiative. REDD+ is one example of a forest carbon credit initiative. REDD+ carbon credits for individuals and businesses may be purchased through carbon offset retailers like Carbonfund.org Foundation.





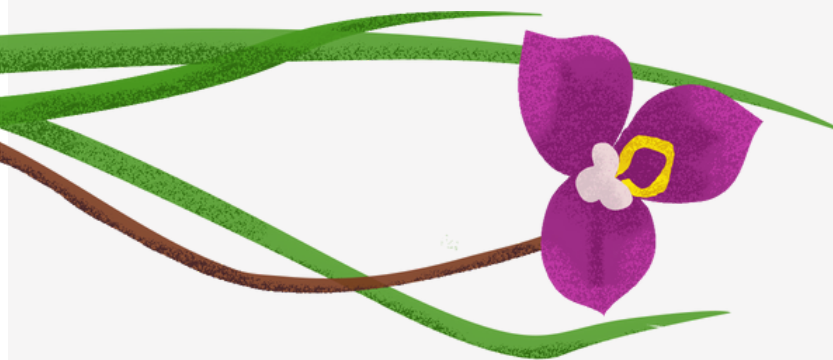
ADDITIONALITY

Additionality and it's importance



It is also important for any carbon credit (offset) to prove a concept called additionality. The concept of additionality addresses the question of whether the project would have happened in the absence of an intervention in the form of the price signal of carbon credits. Only projects with emissions below their baseline level, defined as emissions under a scenario without this price signal (other factors constant), represent a net environmental benefit.

Carbon projects that yield strong financial returns even in the absence of revenue from carbon credits, or that are compelled by regulations, or that represent common practice in an industry, are usually not considered additional. A full determination of additionality requires a careful investigation of proposed carbon offset projects. It is generally agreed that voluntary carbon offset projects must demonstrate additionality to ensure the legitimacy of the environmental stewardship claims resulting from the retirement of carbon credits (offsets).



THANK YOU



PLEASE JOIN OUR FREE NEWSLETTER AT
CARBONCREDITRESEARCH.COM

Email: customerservice@carboncreditresearch.com