UNIT IV - OBSERVED CHANGES AND ITS CAUSES

CLIMATE CHANGE AND CARBON CREDITS

What Are Carbon Credits?

Carbon credits are permits that allow the owner to emit a certain amount of carbon dioxide or other greenhouse gases (GHGs). One credit allows the emission of one ton of carbon dioxide or the equivalent of different greenhouse gases. Carbon credits are also known as carbon allowances.

The ultimate goal of the carbon credit system is to reduce the emission of GHGs into the atmosphere.

How Do Carbon Credits Work?

The United Nations allows countries a certain number of credits, and each nation is responsible for issuing, monitoring, and reporting its carbon credit status annually. Governments allow companies to emit a set amount of GHGs before needing to purchase credits.

If emissions exceed limits, they are required to buy credits. If a company purchases too many credits, it can sell the excess on a carbon exchange or marketplace. This system is commonly called a cap-and-trade program.

U.S. Carbon Credits

Cap-and-trade programs remain controversial in the United States, but 13 states have adopted such market-based approaches to reducing greenhouse gases, according to the Center for Climate and Energy Solutions. Eleven of them are Northeast states that banded together to jointly attack the problem through a program known as the Regional Greenhouse Gas Initiative (RGGI).

California's Cap-and-Trade Program

The state of California initiated a cap-and-trade program in 2013. The rules apply to the state's large electric power plants, industrial plants, and fuel distributors. The state claims that its program is the fourth largest in the world after those of the European Union, South Korea, and China.

The U.S. Clean Air Act

The United States has been regulating airborne emissions since the passage of the U.S. Clean Air Act of 1990. The act is credited as the world's first cap-and-trade program, although it calls its caps "allowances."

The program is credited by the Environmental Defense Fund for substantially reducing emissions of sulfur dioxide from coal-fired power plants, the cause of the notorious acid rain of the 1980s.

The Inflation Reduction Act

The Inflation Reduction Act is a landmark bill that was signed into law on Aug. 16, 2022. It aims to reduce the deficit, fight inflation, and reduce carbon emissions.

The legislation is very focused on cleaning up the environment. It rewards high-emitting companies that store their greenhouse gases underground or use them to build other products. The rewards include significantly expanded tax credits that have increased from $50 to $85 for each metric ton of captured carbon stored underground. They also include an increase from $35 to $60 for each ton of captured carbon that's used in other manufacturing processes or for oil recovery.

It's hoped that these more generous credits will convince investors to make a bigger effort at capturing carbon. The previous tax incentive, known as 45Q, was accused of only paying enough to make easy carbon capture projects worth pursuing.

Who Can Sell Carbon Credits?

Carbon credits can only be sold or purchased by businesses and governments. Carbon offsets, however, are carbon credits available on the voluntary carbon market. The voluntary carbon market enables entities participating in an emissions reduction project to sell credits that are not regulatory in nature. Anyone can purchase these credits.

Carbon credits are sold by governments to businesses, and can be resold on the regulated carbon credit market. Carbon offsets are sold on the voluntary carbon credit market by organizations, projects, or individuals to fund their green projects.

A diverse range of enterprises and individuals can sell these carbon offsets depending on their ability to participate in a carbon registry or sequestration program. For example, landowners may be able to sell carbon credits if they enroll their land into a project, whether it's reforestation, aforestation, or

other carbon removal initiatives, and use the funds to pay for their operations.

Why Companies Buy Carbon Credits

Companies buy carbon credits to legally emit more GHGs. They also purchase carbon offsets, which allow them to have a "net-zero carbon emission" rate.

There's growing public and institutional pressure for companies to make these net-zero commitments, given the urgency of the climate crisis. These are pledges that companies take to cut or offset the amount of carbon they emit throughout their operations.

Reductions in emissions are possible through changes in business practices for some companies, but a wholesale elimination of emissions isn't feasible for many firms. Carbon offsets fund emission-reduction activities such as tree-planting or nature conservation in lieu of completely eliminating their own emissions.

Worldwide Carbon Credit Initiatives

The United Nations' Intergovernmental Panel on Climate Change (IPCC) developed a carbon credit proposal to reduce worldwide carbon emissions in a 1997 agreement known as the Kyoto Protocol. The agreement set binding emission reduction targets for the countries that signed it. Another agreement, the Marrakesh Accords, spells out the rules for how the system would work.

The Kyoto Protocol divided countries into industrialized and developing economies. Industrialized countries were collectively called Annex 1. They operated in their own emissions trading market. A country could sell its surplus credits to countries that didn't achieve their Kyoto-level goals through an Emissions Reduction Purchase Agreement (ERPA) if it emitted less than its target amount of hydrocarbons.

The separate Clean Development Mechanism for developing countries issued Certified Emission Reduction (CER) carbon credits. A developing nation could receive these credits for supporting sustainable development initiatives. The trading of CERs took place in a separate market.

The first commitment period of the Kyoto Protocol ended in 2012.

The U.S. had already dropped out in 2001.

The Paris Climate Agreement

The Kyoto Protocol was revised in 2012 in an agreement known as the Doha Amendment that was ratified as of October 2020, with 147 member nations having “deposited their instrument of acceptance.”

More than 190 nations signed the Paris Agreement of 2015, which set emission standards and allowed for emissions trading.

The U.S. dropped out in 2017 under President Donald Trump but subsequently rejoined the agreement in January 2021 under President Biden.

The Glasgow COP26 Climate Change Summit

Negotiators at the November 2021 summit inked a deal that saw nearly 200 countries implement Article 6 of the 2015 Paris Agreement. It allows nations to work toward their climate targets by purchasing offset credits that represent emission reductions by other countries. The hope is that the agreement encourages governments to invest in initiatives and technology that protect forests and build renewable energy technology infrastructure to combat climate change.

Brazil’s chief negotiator at the summit, Leonardo Cleaver de Athayde, stated that the forest-rich South American country planned to be a major trader of carbon credits. “It should spur investment and the development of carbon projects that could deliver significant emissions reductions,” he told Reuters.

Several other provisions in the accord aimed at reducing overall global emissions include a zero tax on bilateral trades of offsets between countries and canceling 2% of total credits. Additionally, 5% of revenues generated from offsets are placed in an adaptation fund for developing countries to help fight climate change. Negotiators also agreed to carry over credits that had been registered since 2013, allowing 320 million credits to enter the new market.

Who Gets Carbon Credit Money?

Carbon credits, the emission credits issued to companies by governments, can be sold on the carbon credit market to other companies. The money goes to the company that sold the credit. Money spent on carbon offsets goes to the project or entity sponsoring the carbon offset. Offsets are voluntary credits that represent one ton of emissions countered by the project's operations.

Is Carbon Credit Good or Bad?

The regulatory carbon credit program is a good initiative designed to incentivize businesses to reduce their emissions. Voluntary carbon offset programs are also a good idea, but they are not used to reduce emissions—they are used to offset emissions, which is good but not ideal.

How Much Is a Carbon Credit Worth?

The value of a carbon credit can vary significantly based on time and geography. It can also swing due to changes in regulations, policy, and demand for offsets. Carbon prices in California are expected to average $42 per metric ton in 2024 and $76 per ton in Europe, according to Bloomberg NEF, a commodities research service.

The Bottom Line

Carbon credits were devised as a mechanism to reduce greenhouse gas emissions by creating a market in which companies can trade in emissions permits. Companies receive a set number of carbon credits under the system that decline over time. They can sell any excess to other companies.

Carbon credits create a monetary incentive for companies to reduce their carbon emissions. Those that can't easily reduce emissions can still operate but at a higher financial cost. Proponents of the carbon credit system say that it leads to measurable, verifiable emission reductions.