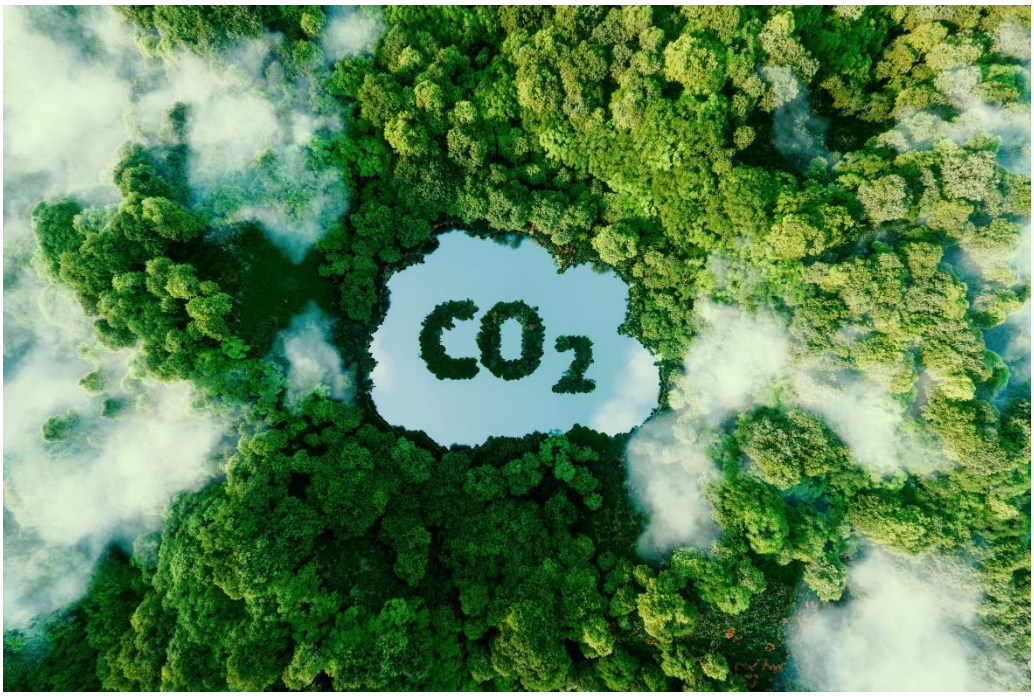
Carbon Credits For Sustainable Development



Background

For decades, climate change extreme weather has been one of the major challenges and impacts all lives. Changing climates are associated with widespread changes in weather patterns. Increased greenhouse gas (GHG) emissions in the atmosphere are warming the globe. The largest source of GHG is carbon dioxide created by burning fossil fuels-coal, oil and gas from human activities, e.g., electricity production, transportation, industry, and land forestry. While the growing awareness of the negative impact of GHG and Global Warming phenomena has been crucial to considerable attention from worldwide organisations to implement systems for carbon dioxide reduction. At the United Nations' Intergovernmental Panel on Climate Change (IPCC) in 1997, an agreement known as the Kyoto Protocol set quotas on the number of carbon emissions for all member countries in an endeavour to control GHG emissions internationally. This protocol developed an emission trading in the form of "Carbon Credits".

What are the carbon credits?

Carbon credits, also known as carbon offsets, are financial instruments that can offset emissions when a company uses electricity, fuel, or other forms of energy. Carbon credits are permits that allow the company to discharge a certain amount of carbon dioxide or other greenhouse gases. A carbon credit represents one ton of carbon dioxide or a corresponding amount of other greenhouse gases that the company is allowed to emit into the air. The ultimate goal of carbon credits is the reduction of carbon dioxide emissions and other greenhouse gases from industrial obligations in order to mitigate the effects of global warming.

How do carbon credits work?

Carbon credits are based on the "Cap-and-Trade" system aiming to reduce overall gas emissions. It gives any company an incentive to reduce GHG emissions (or be fined if they exceed their limit) and thereby obtain additional income by selling their surplus credits. If companies emit more gases over the set limit, they are fined. Meanwhile, companies that emit less carbon dioxide than the quotas may bank them for use later or sell the surplus carbon credits to other companies that exceed their permitted limit of carbon dioxide to reduce their emissions to prescribed levels. Over time the set limits are decreased until the company achieves net zero, which means that they are eliminating as many emissions as they produce.

Types of carbon credits

There are two main types of carbon credits: (i) Voluntary emissions reduction (VER) is a carbon offset that is exchanged in the over-the-counter or voluntary market. (ii) Certified emissions reduction (CER) relies on emission units (or credits) created through a regulatory framework to offset a project's emissions.

Carbon credit markets

Carbon credit markets are trading systems in which carbon credits are sold and bought. Carbon markets can be divided into three groups: (i) mandatory and voluntary, (ii) allocation and offset, and (iii) international and regional markets.

First, the mandatory market is regulated by the law or mandatory GHG reduction target, while the voluntary market is related to the voluntary climate actions of corporates and individuals without legal enforcement. Second, the allocation market is the market that trades emission allowances allocated by the government to industries. The offset market is associated with companies or projects with opportunities to finance carbon reduction to offset their GHG emissions. Third, the international market is the market that trades carbon credit trade across the countries, whereas, in the regional market, transactions are limited to the nation's inner boundary.

Thailand's carbon credit market is classified as voluntary, offset and regional markets. As businesses voluntarily control GHG emissions and have not been set quotas on the number of carbon emissions by the government. Furthermore, carbon credit trading is only in the country through Thailand Voluntary Emission Reduction Program (T-VER).

How much does a carbon credit cost?

There are several ways to value a carbon credit, whether using market dynamics and the cost of implementation or project delivery. Carbon credits have different prices depending on project type, size, location, demand and supply, and other determining factors. The price for carbon credits in 2022 generally ranges from USD 40 to 80 per metric ton of carbon dioxide equivalent (tCO_{2e}), rising from USD 12.70/tCO_{2e} in 2021. The Report of the High-Level Commission on Carbon Prices indicates that the carbon price is estimated to rise to USD 50-100/tCO_{2e} by 2030.[1] The increase in carbon credit resulted from increased demand for carbon from the United Nations' Paris Agreement, which set goals to keep the expected increase in global mean temperature to 2 degrees Celsius above pre-industrial levels and ideally 1.5 degrees.[2]

What to consider when purchasing carbon credits?

[1] World Bank, State and Trends of Carbon Pricing 2022, https://climatefocus.com/wp-content/uploads/2022/06/9781464818950.pdf

[2] Stern, N., Stiglitz, J., & Taylor, C. (2022). The economics of immense risk, urgent action and radical change: towards new approaches to the economics of climate change. *Journal of Economic Methodology*, *29*(3), 181-216.

There are several significant factors to consider when purchasing a carbon credit. First is the project category, including avoidance and removal projects. Avoidance projects avoid GHG emissions compared to a baseline scenario, such as a renewable energy project instead of fossil fuels. Meanwhile, removal projects eliminate GHG from the atmosphere and durably store them. They can be both technical and natural, for example, direct air capture and storage and planting of trees, respectively. Second, the project is certified with an internationally recognised standard, such as the Gold Standard and the Verified Carbon Standard (VCS).

Carbon credits and climate-change goals

In the 2015 Paris Agreement, nearly 200 countries endorsed the international goal of limiting the increase in average temperatures to 2.0 degrees Celsius above pre-industrial levels, and ideally 1.5 degrees. Achieving the 1.5 degrees Celsius target requires that global GHG emissions are cut by 50% of current levels by 2030 and reduced to net zero by 2050. This led to the number of companies with net-zero pledges fourfold, from 500 in 2019 to over 2,000 in 2022.[3]

To reach the global net-zero target, companies need to reduce their GHG emissions as much as possible. Nevertheless, there are limitations to GHG reduction. For example, reducing emissions using today's technologies is prohibitively expensive. Some businesses, such as the cement sector, cannot eliminate certain emissions sources. As a result of these limitations, the emissions-reduction pathway to a 1.5-degree warming target requires negative emissions, which are achieved by removing greenhouse gas from the atmosphere.

[3] https://zerotracker.net/

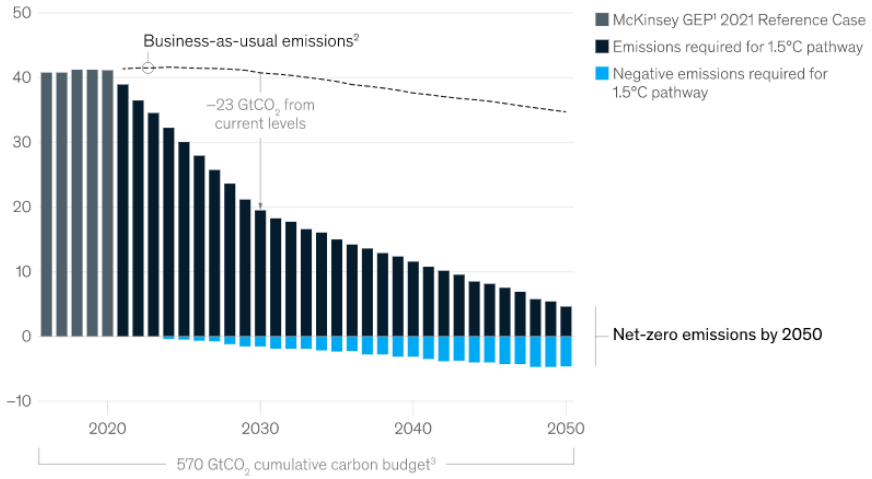


Figure 1 Global carbon-dioxide emissions, gigatons (GtCO2) per year
Source: McKinsey & Company

In recent decades, buying carbon credits has been one of the most active ways for a company to reduce carbon emissions which are non-removable. The voluntary market for carbon credits has grown rapidly in recent years. Regarding endeavour toward decarbonisation, global demand for voluntary carbon credits could continue to grow. According to the estimation of McKinsey & Company, the annual global demand for carbon credits could rise up to 1.5 to 2 gigatons of carbon dioxide ($GtCO_2$) by 2030 and up to 7 to 13 $GtCO_2$ by 2050. The market size in 2030 could be between $5 billion and $30 billion at the low end and more than $50 billion at the high end.

Voluntary carbon market trends

Most recently, at the COP27 U.N. climate summit in Egypt, the participating countries discussed the global standards for carbon offset trades. The COP agreement concerning the voluntary carbon markets standards and rules for the organisation is still ambiguous. As countries could yet decide on regulations for country-to-country offset trades. However, the voluntary carbon market is becoming more sophisticated and dynamic while the demand for carbon credits is predicted to keep growing due to corporate carbon neutrality and net zero targets. The carbon credit prices have also increased considerably, and this trend will continue in the near future. The projections from experts surveyed by the Taskforce on Scaling Voluntary Carbon Markets (TSVC) show that the volume and price of carbon offsets transacted are expected to jump over the coming decades to 3.6 $GtCO_2$ and $ 54/tCO_{2e} by 2050, respectively.

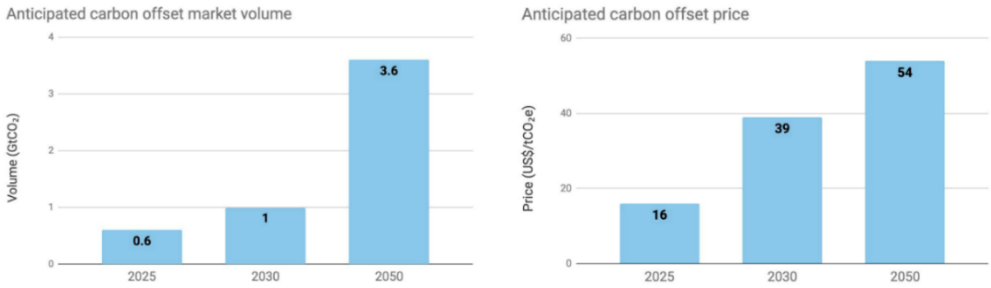


Figure 2 Anticipated carbon offset market volume and price
Source: Taskforce on Scaling Voluntary Carbon Markets

Trends of Thailand's carbon market

In Thailand, the Thailand Greenhouse Gas Management Organization (TGO) has developed the Thailand Voluntary Emission Trading System (Thailand V-ETS) to promote GHG reduction implementation under the domestic voluntary carbon market.[4] Recently, Thailand launched its first carbon credit exchange to achieve carbon neutrality by 2050 and combat climate change. The new carbon market, called the FTIX, is operated by the Federation of Thai Industries (FTI). A trading platform encourages private companies and government agencies to trade carbon credits and track their emissions on an online dashboard.

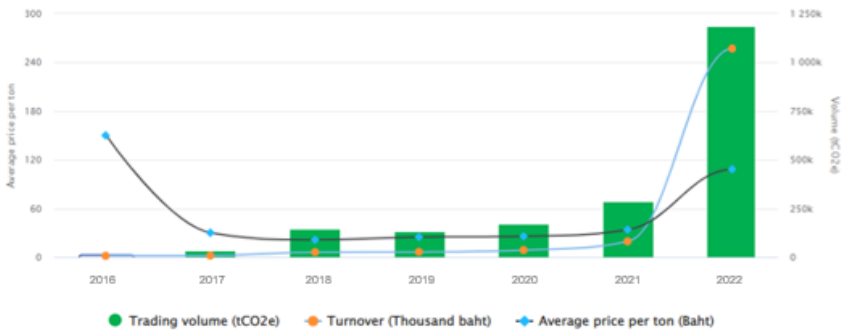


Figure 3 Trends in Thailand's voluntary carbon credit market
Source: TGO, http://carbonmarket.tgo.or.th/#vmenu_2

Thailand's voluntary carbon credit market trends to grow continuously. The turnover of carbon credits increased from 0.85 million baht when the project started in 2016 to 129 million baht in 2022, with a total trading volume of 1.19 million/tCO_{2e}, representing an average price of 108.22 baht per ton. The turnover and trading volume of carbon credits in 2022 increased by 13 and 4 times, respectively, compared to 2021. The significant increase in carbon credit trading

[4] http://carbonmarket.tgo.or.th/index.php?lang=TH&mod=Y29uY2VwdF92ZXRz

reflects the business's tendency to focus on offsetting GHG emissions and the trading opportunities for carbon credits in the market.

Conclusion

Offsetting carbon emissions through carbon credits is available to all businesses due to a simple and obvious solution. Specifically, companies that have adopted a sustainability development framework can be characterised by reducing their carbon footprint in a way that is most effective from the perspective of their business strategy. Thus, worldwide carbon emissions stay within permissible levels, and companies come up with ecologically sustainable business practices.

Article By : Dr. Narongdech Thakerngkiat, ESG Senior Analyst, Multi-Asset Department

Disclaimer and Disclosure of Risks

UOB Asset Management (Thailand) Company Limited (hereinafter the "Management Company") produces this document(s) for informative and general circulation purposes. The information contained herein is not intended as an offer or solicitation with respect to the purchase and/or sale of any investment products prescribed herein. Nothing herein shall be construed as recommendation or advice to anyone to engage in any transaction in connection with any kind of investment products of companies mentioned within. While every reasonable care has been taken to ensure accuracy and objectivity of the information herein, the Management Company and its employees shall not be held and will not be liable for any errors, inaccuracies, or omissions of any information, howsoever caused and for any particular purpose, or for any action taken based on views expressed or information in this document(s). The Management Company does not make any warranty, representation, or undertaking (express or implied) of any kind whatsoever with respect to the correctness, accuracy, adequacy, timeliness, or completeness of the information herein, and expressly disclaims and assumes no liability as to any errors, inaccuracies, or omissions. Any opinions, projections, and other forward-looking statements regarding future events or performance (including but not limited to information of countries, markets, or companies) are not necessarily indicative of, and may differ from, actual events or results. Past performance of the fund(s) or the Management Company does not guarantee future results. In addition, any extraordinary performance may be due to exceptional circumstances or factors. Investment units are not bank deposits and in no event shall the Management Company and/or its affiliates or selling agents be deemed as a guarantor of the return on such investment whatsoever. Investment in investment units is subject to certain risks (including but not limited to investment risk, foreign exchange risk, or other risks) and the investor may receive the amount of return either more or less than that of the money in which the investor initially invested and may possibly lose all income or principal amount invested. Before making any investment decision, the Investor should read the prospectus, warnings, and all relevant information. Any subscription or other transactions made by the investor shall be in compliance with the forms and procedures stipulated in the relevant fund prospectus. Should the investor require additional information, they may contact the Management Company or the selling agent(s) whom they have opened account with. The Management Company reserves all intellectual property rights for the information contained herein whereby no person shall disclose, duplicate, modify, reproduce, make reference, or use either in whole or in part, and in any form and by any means, without a prior written consent from the Management Company. The Management Company also reserves the rights to modify, alter, update, change, or add any terms in this document(s), at any time, without notice or reason, as it deems appropriate.

For more Information

UOB Asset Management (Thailand) Company Limited

23A, 25 Floor, Asia Centre Building, 173/27-30, 32-33

South Sathon Road, Thungmahamek, Sathon, Bangkok 10120, Thailand

Tel : (662) 786 2000 Fax : (662) 786 2377

Email: thuobamwealthservice@UOBgroup.com

Website : www.uobam.co.th

Please study product's features, conditions and relevant risks before making investment decision.