

United States Carbon Credit Market Assessment, By Type [Government Compliance and Voluntary/Third-Party Compliance, and Others], By End-user [Power & Energy Generation, Aerospace, Marine, Agriculture, Manufacturing Sector, Building & Construction, Automotive, Waste Management and Others], By Region, Opportunities and Forecast, 2016-2030F

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Abstracts

The United States Carbon Credit Market size was valued at USD 107.44 billion in 2022 which is expected to reach USD 324.57 billion in 2030 with a CAGR of 14.82% for the forecast period between 2023 and 2030. The awareness of rising global warming has steered nations to evaluate various sustainable goals and implement them accordingly. The concerns of scientists at the United Nations' Intergovernmental Panel on Climate Change (IPCC) about the increasing levels of greenhouse gas (GHG) including carbon dioxide in the atmosphere are driving the governments to for fast solutions. In 2013 the state of California commenced its own cap-and-trade program. Under the developed program the included sectors are state's large electric power plants, fuel dispensers, and industrial operating plants. After the trading strategy of developed nations in European Union, South Korea, and China, California's program is considered as the fourth largest in the world.

The certified companies are assigned a set number of carbon credits which provide access to pollute up to a specified limit, meanwhile, the companies with unused carbon credits can trade with other companies that need those credits according to their emissions rate. According to various geographical and demographic regions, the size and volume of carbon credits vary distinctly under the voluntary carbon industry which exclusively comprises companies that purchase carbon offsets for corporate social

responsibility (CSR).

New Carbon Trading Scheme

The International Energy Agency stated a severe concern about global heating which substantially requires an annual investment of more than USD 4 trillion in clean energy projects by 2030. In the path of sustainable development goals, a new initiative was embarked on in 2022 by the name of energy transition accelerator that will be facilitated in collaboration with the Rockefeller Foundation and the Bezos Earth Fund which are headquartered in New York and Washington respectively. This joint venture can revitalize the climatic infrastructure of poor countries by investing trillions of dollars and creating a hope to transform their existing energy into a source of renewable energy.

The major eleven states (Delaware, Maine, Maryland, New Hampshire, New Jersey, New York, Massachusetts, Connecticut, Vermont, Rhode Island, and Virginia) in the Northeast and California region where over quarter of the United States population resides are prone to carbon dioxide emissions. Regional Greenhouse Gas Initiative (RGGI) program was successfully implemented in these growing states which become the first mandatory cap-and-trade program in the United States to restrict carbon dioxide emissions from various energy & power sectors. In August 2022, a new landmark bill the 'Inflation Reduction Act' was introduced and commissioned into the law whose purpose was to reduce the deficit, curb inflation and lower carbon emissions. The added legislation encourages companies to fight with climatic issues and embrace a provision to reward large-emitting companies that reuse greenhouse gas into their existing processes.

Compliance & Voluntary Carbon Offset

The carbon credit market is segregated into two categories: Compliance (Mandatory) schemes and Voluntary schemes. Compliance schemes are formed and comprehended by national or international organizations that are involved in carbon reduction mechanisms. Voluntary schemes are entirely different from compliance schemes as they function on an external basis without the use of compliance purposes.

Under the Kyoto Protocol, the first and largest carbon offset program was Clean Development Mechanism (CDM) that commensurate developed nations to achieve emissions reduction by putting their investments in developing nations. The year 2005 turned out to be accomplishing when voluntary carbon offset program began developing soon after the corporate institutions started recognizing the importance of CDM and its

extensive application.

Since 2012 emissions trading scheme (ETS) has been operating under the California Global Warming Solutions Act which covers entire jurisdictions of California where the accountable GHG emissions is equivalent to 425 million tones (Mt) per year. Various sectors are regulated under the California ETS according to different phase wise implementation. Numerous sectors are included in the first phase of operation such as massive industrial facilities (paper & pulp production, cement, iron & glass, etc.), carbon dioxide suppliers, and power generation. During the second phase of operations the sectors included are suppliers of natural gas, liquified natural gas, specific distillate oils, etc. The recent data reflects that under the California ETS there are around 330 registered entities which are practicing more than 550 operations.

Technologies Rendering Carbon Dioxide Prevention

Industries are instigating various technologies to tackle climatic changes. Carbon capture refers to the phenomenon of capturing carbon after it is released from various outlets and restricting carbon to enter the atmosphere. Different industrial sectors such as fertilizer manufacturing, natural gas processing, coal gasification, high-powered electricity generation, etc. are practicing the carbon capture process. The captured carbon can be further utilized in numerous ways either by the same industries or selling it to other companies according to the requirement.

Carbon capture, utilization, and storage (CCUS) a carbon capture technology that is gaining attention across the large-scale industries in the United States. This technology is very effective in reducing carbon emissions from heavy operating equipment, particularly from heavy industries such as chemicals, cement, steel, energy, and power. The captured carbon if not being utilized in the same industries is further compressed and moved through pipelines, ships, and other modes. However, sometimes the transfer is not feasible, then it can be drained or injected deep down geographical locations such as to depleted oil and gas reservoirs or saline aquifers.

Impact of COVID-19

During the COVID-19 outbreak the Emissions Trading System (ETS) across United States was significantly affected, and the value of carbon price fluctuated drastically. The impact of pandemic can also be realized as carbon prices have undergone remarkable structural changes. KraneShares Global Carbon Strategy (KRCN) ETF which offers an extensive coverage of cap-and-trade carbon allowances in Northern

America including California Carbon Allowances (CCA), Regional Greenhouse Gas Initiative (RGGI) etc. An evaluation of the carbon credit bubble behavior in the ETF prices of KRBN in Northern America was instigated during the COVID-19.

The COVID-19 outbreak has forced various profitable organizations to come to halt but in some time carbon credit markets reflects remarkable resilience. Initially the carbon markets had lower demand which led to fall of price and then with the consumption began to return the market rises to its normal functioning. Increasing demand for voluntary carbon credits forced the carbon market to accelerate its volatility and achieve a net zero target.

Impact of Russia-Ukraine War

The annexation of Russia on Ukraine has drastically affected various sectors and was also responsible for ongoing climate crises. The evaluation made by Climate Focus in November 2022 stated that the first seven months of conflict had released around 100 million tons of carbon dioxide. Climate Focus also stated report that fires and explosives accounted for around 25 million tons of carbon dioxide emissions and the leaking of methane gas from the Nord Stream Gas pipelines added another 15 million tons of carbon dioxide release.

The expectations from the invasion are increased as experts believe that the demand of fossil fuel will rise exponentially and parallelly carbon emissions which forced the companies to purchase more carbon credits to balance their emissions. Turbulency from the war led to unexpected consequences such as energy price sparks, exacerbated gas supply and massive disturbance to conventional energy flow. Accounting every parameter, emission from natural gas decreases by 1.6% or 118 Mt.

Key Players Landscape and Outlook

Companies are showing interest in achieving sustainability goals to lower or remove carbon emissions from the surroundings. The projects are accredited by accounting firms which verify the number of emission reductions and provide certification to use carbon offsets. The various minor activities such as electricity consumption, traveling, etc., can also be responsible for harming the planet by leaving carbon footprint. For instance, Cool Effect evaluates the generation of carbon footprint of the average American people is 17 tons. They provide carbon offsets for different sectors from minor daily practices to huge emitter industries. While traveling one can purchase carbon offset flights which are voluntary programs that enable commuters to requite the amount

of carbon dioxide utilized by the flight operations.

With definite pricing transparency the dollar invested is utilized for over 90% directly to carbon-related projects. The offering of Blue Carbon project assists in planting 6 million mangrove trees which targets to protect the shorelines and eradicate around 184,006 tons of emissions every year. The direct capture system (DC) embarks on an effective way of consuming solar power without any connection to regional power grid and targets every household in poor rural communities.

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