

# **Global Carbon Credit (Compliance & Voluntary) Market: Analysis By Traded Value, By Traded Volume, By Segment (Europe, North America, UK ETS, New Zealand, South Korea, China, and CERs), By Project Category (Forestry and Land Use, Renewable Energy, Chemical Process/Industrial Manufacturing, Household/Community Devices, Waste Disposal, Energy Efficiency/ Fuel Switching, Agriculture, and Transportation), By Region Size and Trends with Impact of COVID-19 and Forecast up to 2028**

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## **Abstracts**

The global carbon credit market traded value was US\$978.56 billion in 2022. The market is expected to reach US\$2.68 trillion by 2028. On the other hand, the global carbon credit market traded volume reached 13.22 GtCO<sub>2</sub>e in 2022. The traded volume is expected to reach 19.57 GtCO<sub>2</sub>e by 2028. A carbon credit is a way to measure, value, and trade a verifiable and quantifiable amount of GHG emissions with one credit universally understood to mean one ton of carbon dioxide or equivalent (tCO<sub>2</sub>e). Article 6 of the Paris Agreement provides a framework for the use of carbon credits, which can increase demand for them. In addition, the Paris Agreement requires countries to regularly update and enhance their nationally determined contributions (NDCs), which can lead to increased demand for carbon credits as countries seek to meet more ambitious emissions reduction targets.

There is increasing regulatory and stakeholder pressure on global corporations to lower emissions. These trends are driving demand for carbon credits, giving rise to two sets of

markets, which could grow meaningfully in the coming decades. At present, the overall carbon market is mainly characterized by the degree of regulation, namely the regulated compliance carbon market (CCM) and the unregulated voluntary carbon market (VCM). The CCM is more mature and has historically generated stronger mitigation actions and incentives to decarbonize the economy than the VCM. CCM most commonly takes the form of an Emissions Trading System (ETS), which is also known as a cap and trade program, the largest of which is the European Union ETS. Article 6 of the Paris Agreement also contemplates an international market that allows for voluntary cooperation between two or more countries on emissions reductions. The global carbon credit market traded value is determined to grow at a CAGR of 18.23% during the forecast period of 2023-2028. At the same time, the carbon credit market traded volume is expected to grow at a CAGR of 6.78%.

#### Market Segmentation Analysis:

**By Type:** In the report, the global carbon credit market traded value and traded volume has been analyzed based on two types: Compliance Carbon Market (CCM) and Voluntary Carbon Market (VCM). The compliance market is significantly larger than the voluntary market today. The compliance carbon market is an important legislative tool for governments to bridge the gap between climate ambitions and policy actions. Paris Agreement & Broader Decarbonization Movement is the primary driver of compliance market demand. The growth of the compliance carbon market has been driven by higher carbon prices and the expansion of emissions coverage. Voluntary carbon market is expected to grow at a highest rate in the coming years. While compliance markets are currently limited to specific regions, voluntary carbon credits are significantly more fluid, unrestrained by boundaries set by nation-states or political unions. Moreover, interest in the voluntary carbon markets is expected to keep growing, boosted by an increasing number of companies worldwide taking on carbon neutrality goals and other climate commitments that involve the use of carbon offsets. The large majority of VCM demand comes from the CORSIA program and companies that have established a net zero or other aggressive decarbonization targets, and need to look beyond reducing the emissions of their own operations because it is either not practically possible or it is not cost effective to directly reduce Scope 1 and 2 emissions.

**By Segment:** The global compliance carbon market can be further segmented as Europe, North America, UK ETS, New Zealand, South Korea, China, and Certified Emission Reductions (CERs). In terms of market traded value and traded volume, Europe dominates the market. Europe has set itself an ambitious target to reduce emissions by 55% by 2030 (compared to 1990 levels). Once the shift from fossil fuels to

green power is complete, the onus of further emissions reductions would move to Europe's hard-to-decarbonize industry.

**By Project Category:** The voluntary carbon market are further segmented based on project categories, namely, Forestry and Land Use, Renewable Energy, Chemical Process/Industrial Manufacturing, Household/Community Devices, Waste Disposal, Energy Efficiency/ Fuel Switching, Agriculture, and Transportation. Wherein, forestry and land use held the highest share both in terms of value and volume. From 2020 to 2021 REDD+ (type of forestry and land use projects) volumes rose dramatically, including an increase in the avoided unplanned deforestation project type and an increase in avoided planned deforestation. Afforestation and Reforestation (ARR) projects have also seen tremendous growth in Asia and Latin America & the Caribbean between 2019-2022. The sharp increase in ARR projects in large part is due to developments in the Republic of China.

**By Region:** In the report, the global voluntary carbon market is divided into six regions: Asia, Latin America, Africa, North America, Europe, and Oceania. Asia accounted for the maximum share of the global market value in 2022. In July 2022, HKEX announced the Hong Kong International Carbon Market Council to develop Hong Kong as an international carbon market and a hub for Asia. The Hong Kong International Carbon Market Council would play a vital role in supporting the vision to build a carbon market, welcoming institutional and corporate participants from China, Asia, and around the world. Thus, the market is expected to grow in the coming years.

There has been an increase in participation in Latin American carbon markets due to the expansion of voluntary carbon markets, and ambitious climate goals established globally by governments and private actors, with the hydrocarbon industry leading the energy transition efforts in the region. In the coming years, governments would incentivize low-carbon technologies, such as carbon capture, utilization, and storage (CCUS), to increase the supply of high-quality credits in the region.

#### Market Dynamics:

**Growth Drivers:** The global carbon credit market has been growing over the past few years, due to factors such as the rising carbon emission, increasing corporate efforts in carbon offsetting, increase in adoption of net zero targets, increasing demand for natural climate solutions, establishment of CORSIA, etc. Strong price actions across the world's most liquid carbon markets put a spotlight on carbon as a barometer for global climate policy actions and as an emerging asset class. High carbon prices are required

for carbon removal forestry projects; for blue hydrogen to reach cost parity with grey hydrogen; to decarbonize the hard-to-abate sectors such as steel and cement. The longer nations defer taking action, the higher and faster carbon prices would have to rise to achieve the current climate objectives.

**Challenges:** However, some challenges are impeding the growth of the market such as as insufficient governance, no standard measurement of quality, etc. Since the lack of governance and unified standards make it difficult for market participants to verify the quality of a given carbon credit, it became a hurdle for market growth.

**Trends:** The market is projected to grow at a fast pace during the forecast period, due to various market trends like increasing the number of VCM platforms, increasing corporate efforts in carbon offsetting, carbon as a new investment asset class, article 6 agreement redefining global carbon offset markets, etc. The emergence of carbon credit rating agencies would help to address one of the biggest hurdles in the VCM- the ability of market actors to assess “quality”. Similar to credit rating agencies, these companies use a standardized set of criteria and methodologies to compare credits across different project types. At present, quality is being grouped bluntly using project categories, i.e. removal vs. avoidance, or reforestation vs. renewable energy, when in reality, high and poor-quality credits exist in every category. There is little correlation between price and quality in the current markets and that needs to change for the market to scale and for VCM to deliver its intended climate-positive outcomes.

Moreover, increasing the nationally determined contributions (NDC) net-zero target is also expected to further contribute to the demand for carbon credit. For instance, EU Member States agreed on a 2030 domestic emissions target of at least 55% net reduction below 1990 levels and achieving the goal of emissions neutrality by 2050. On the other hand, South Korea pledged to reduce 2030 emissions by 40% below 2018 levels and achieve carbon neutrality by 2050. According to a report by the Energy & Climate Intelligence Unit and Oxford Net Zero (Taking Stock: A global assessment of net zero targets), 21% of world's largest public companies have committed to a net zero target. Increase in adoption of net zero targets are also contributing to the market growth.

#### Impact Analysis of COVID-19 and Way Forward:

The economic impact of the COVID-19 pandemic had the potential to shock carbon markets around the world. However, markets demonstrated remarkable resilience, first reacting rationally to lower demand through price decreases, and then returning to near-

normal functioning. Compared to after the global financial crisis, ETSs have weathered the shock without major effects.

The global voluntary carbon market has experienced positive growth during the pandemic. In 2020, airlines rolled back their purchases to match lower emissions, whereas broader corporate demand for voluntary carbon offsets was increasing. Then, as the year progressed, so did the number of carbon-neutral pledges from individual companies like Amazon and Microsoft. In the post-COVID era, factors such as government support to reduce greenhouse gas emissions are anticipated to drive market growth.

#### Competitive Landscape:

The key initiatives/ Emission Trading Systems (ETS) of the global carbon credit market are:

EU ETS

California Cap-and-Trade Program

Regional Greenhouse Gas Initiative (RGGI)

Korea Emissions Trading System

UK ETS

China National ETS

The European Union Emissions Trading System (EU ETS) represents the central pillar of the EU's policy to combat climate change and a key tool for reducing, on a cost-effective basis, GHG emissions from the regulated sectors. The system covered 36% of the total emissions of the European Economic Area (EEA) in 2020–21, encompassing activities from the power sector, manufacturing industry, and aviation (including flights from the EEA to the United Kingdom).

The Regional Greenhouse Gas Initiative (RGGI) is the first mandatory GHG ETS in the US and covers emissions from the power sector. The system started operating in 2009 with 10 states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New

Hampshire, New Jersey, New York, Rhode Island, and Vermont).

The UK Emissions Trading Scheme (UK ETS) started in January 2021. Many design elements of the new system mirror those in phase 4 of the EU ETS, in which the UK had participated since 2005. The UK ETS covers energy-intensive industries, the power sector, and aviation within the UK and European Economic Area (EEA), together making up about one-third of the UK's GHG emissions.



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