

# **India Carbon Credit Market Assessment, By Type [Government Compliance (California Cap-And-Trade, European Union ETS, The China National ETS, Others) and Voluntary/Third-Party Compliance, and Others], By End-user [Power & Energy Generation, Aerospace, Marine, Agriculture, Manufacturing Sector (Chemical Processing, Oil & Gas, Metallurgy, Others), Building & Construction, Automotive, Waste Management and Others], By Region, Opportunities and Forecast, FY2017-FY2031F**

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## **Abstracts**

India Carbon Credit Market size was valued at USD 9.33 billion in FY2023 which is expected to reach USD 72.85 billion in FY2031 with a CAGR of 29.29% for the forecast period between FY2024 and FY2031. India is witnessing the impact of the rise of greenhouse gases across industries which is posing threats to India's environment and leading to climatic change. The country is planning various strategies at the forefront to achieve climate goals by implementing principles from Nationally Determined Contributions (NDC). India is experiencing a massive market of oil and gas as it has a huge base of fuel consumption across various sectors. Capped oil wells which are mostly abandoned are prone to creating immense quantities of methane emissions. A type of carbon credit assists in incentivizing major oil companies to plug wells instead of selling or abandoning them which creates a huge platform to trade. There are various measures such as carbon capture and storage technologies, financial trading, etc., that are adopted to curb the associated problem like reducing carbon emissions, lowering carbon particulates from the atmosphere, etc. Carbon credits are having a positive

impact across India where many growing companies are adopting measures according to the regulations.

India, an active participating ally of various international treaties, is making huge contributions for sustainable development as stirred by the Paris Agreement. Ministry of Environment, Forest and Climate Change of India has stringently assigned its goals to combat climatic changes according to the commitment made by COP-26 (Conference of Parties 26). Some of its goals are to achieve 500GW of non-fossil energy capacity by 2030, reduction in total projected carbon emissions by one billion tones by 2030 and achieve the target of net zero emissions by 2070.

### Amendment of Compliances and Regulations in India

There are several sectors that fall under the regulation act of carbon credit such as major industrial operations, electricity productions, refining and processing of oils and natural gas. An emissions trading system (ETS) that operates on the principle of “cap-and-trade” governs the regulations of carbon credit market. Laws concerning carbon credits in India are a major challenge for the Indian government to implement across every operational sector. The (India) Energy Conservation Act, 2001 was recently amended through the Energy Conservation (Amendment) Act, 2022, which has legally come into action on and from January 1, 2023. This act has encouraged various government institutions under the Central including the Ministry of Power to regulate the carbon trading scheme and provide proper certification related to carbon credits.

Registered organizations that are entitled under Carbon Credit Trading Scheme are being issued Carbon Credit Certificates by authorized central government agencies. The registered certificates provided by Indian agencies are traded to achieve various commitments such as regulating organizations that release more amount of carbon than authorized, aiding other nations that aim to fulfil their targets, etc. Thus, the implementation of these regulations will play a pivotal role in monetizing carbon credits and simultaneously making India achieve its climatic goals.

### Importance of Carbon Credits in the Agricultural Sector

India has embarked on various initiatives that have socio-economic benefits and carries the potential in increasing carbon credits across various sectors. Carbon dioxide is considered a prominent nutrient for soil enrichment, where under the process of soil carbon sequestration the carbon dioxide present in the atmosphere is extracted and can be stored in a soil carbon pool. The extracted carbon dioxide from the atmosphere

ultimately reduces carbon levels in the air and utilization of captured carbon dioxide for soil enrichment provides a favorable situation for farmers. Farmers can earn additional revenue while participating in the carbon offset projects by selling the generated carbon credits. Institutions such as Farmer Producer Organizations (FPOs) provide a platform for farmers to become familiar with carbon abatement practices and trade their accumulated carbon credits.

According to the IPCC's 2000-2010 sectoral GHG emissions published report, the agricultural sector accounts for 5.0-5.8 gigatons of carbon dioxide produced per year including methane. The IPCC considers agriculture, a net-negative emissions sector which explicitly generates a huge potential for India as the land mass available for performing agriculture practices and low soil organic carbon. The enriching market of carbon credits is growing exponentially which encourages Indian farmers to make it worth and increase their earnings by participating in the soil carbon credit system. CoreCarbonX a carbon offsets organization headquartered in Telangana, has adopted various sustainable agriculture practices by collaborating with different farmer groups across India.

### Collaboration towards Excellence for Carbon Credits

There are various ways implemented by industries to prevent carbon emissions and greenhouse gases. A company can utilize the concept of carbon offsets as a preventative measure to lower its own carbon emissions. Tata Steel group, renowned geographically diversified steel producers with an annual crude steel capacity of 34 million tons per annum has collaborated with Carbon Clean, a giant leader in cost-effective carbon dioxide capture and separation technology. The alliance between them has helped in designing India's first carbon capture plant for a blast furnace. The skid-mounted unit is effective in capturing 5 tons of carbon dioxide per day directly from the blast furnace gas and further re-evaluating its onsite reuse in various applications. The process of carbon dioxide capturing has already assisted in decarbonizing the steel plants meanwhile also creating opportunities for Tata to enter the hydrogen economy.

In 2016, the partnership commenced between Tuticorin Alkali Chemical and Fertilizers Ltd. (TACFL), to develop and commission commercial carbon capture storage and utilization plant. Geographically located in the southern part of India (Chennai), the world's first low-cost, industrial-scale carbon capture and utilization (CCU) plant has achieved over 90% carbon capture rates since after the commencement of operation. The captured carbon is available at just USD 30/ton, which is much lower than the conventional power sector and TACFL can be further used for soda ash production.

## Impact of COVID-19

The peak of COVID-19 has affected various growing sectors in the Indian market. Consumption of oil and various non-renewable energy has declined rapidly which has led to a fall in carbon dioxide emissions by around 1% during March 2020. In March 2020, the era of national lockdown oil consumption fell around 18%. During the Covid outbreak crude oil production decreased by around 5.9% and the same kind of pattern was seen for natural gas production. A similar trend was observed for crude steel production which dropped down by around 22.7%.

With the simultaneous decline of production in various sectors during COVID upsurge, an estimation was evaluated that carbon dioxide emissions fell by 30 million tons of carbon dioxide (MtCO<sub>2</sub>, 1.4%), which substantially happened in four decades. During March 2020 the imposed lockdowns by the government created a steer that led to a fall in the carbon credit market, but by June the market showed a positive shift as everything began to restore and the production volume of companies rises to its usual state.

## Impact of Russia-Ukraine War

The annexation of Russia on Ukraine has created havoc as the predicted price of crude oil would skyrocket to as high as USD150 per barrel which subsequently affected many sectors. Global ban on the trade of Russian energy product has adversely affected India economy but most of the sectors were very optimistic that this impact couldn't last for longer. The conflict effect economically on the Indian market could be categorized into three types, direct: the straight impact affecting trade between India and both conflicted nation Russian and Ukraine, indirect: through global commodity and market variations, and macroeconomic: policy regulation and business alternatives to tackle the rapid market shifts. A strong resilience to various negative factors is reflected by India economy despite the extreme tumble in other markets. Refineries and carbon emission industries in India were on the same verge of volume production where the utilization of carbon credits doesn't get affected compared with the different industries.

## Key Players Landscape and Outlook

Start-ups and companies are heavily putting their investments on sustainability goals to reduce carbon footprint from the environment. The projects are accredited by accounting firms which verify the number of emission reductions and provide

certification to use carbon offsets. EKI Energy Services Ltd. (EKI) has strengthened their goal to combat global climatic issues and navigate the world to net-zero emissions. Proceeding with the sustainability mindset, they motivate the organizations to reduce their carbon footprint.

EKI has commissioned various strategies to reach its commitment to become net-zero by 2030 along with setting up a target to circulate up to 1 billion credits in the upcoming 5 years. One of the subsidiaries of EKI-GHG Reduction Technologies Private Limited located in Nashik, has already lined up in developing Improved Cook Stoves (ICS) with an immense manufacturing capacity of 1.2 million ICS every year. Till now the company has already dispensed more than 134,000 cookstoves and has a huge booking order of around Rs 130+ crores. EKI has a massive collaboration base with major energy companies across the globe. EKI has partnered with WOCE Solutions Pvt. Ltd., UK-based Inclusive Energy Ltd, First Source Energy India Pvt. Ltd, and implemented various carbon offset projects in the voluntary carbon market.

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\*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work

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