

# **China Carbon Credit Market Assessment, By Type [Government Compliance and Voluntary/Third-Party Compliance], 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, 2016-2030F**

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## **Abstracts**

China Carbon Credit Market size was valued at USD 95.65 billion in 2022 which is expected to reach USD 328.37 billion in 2030 with a CAGR of 16.67% for the forecast period between 2023 and 2030.

China dominates the carbon credit market and seems to be the biggest supplier in the voluntary compliance market. In 2021, China's national emissions trading scheme (ETS) was fully operational. Under the scheme, the accountability for the country's emissions includes more than 2,000 major emitters, mostly operating in the power sector in 2019 and 2020. Around 40% equivalent to 4.5 billion tons of carbon dioxide annually fall under the operational ETS across China. Unlike the prevailing trading scheme of other nations, China's allocation of emissions allowances is based on emissions intensity rather than disclosing the absolute units.

In July 2021, trading of China's ETS fully commenced and is regulated firmly by the Shanghai Environment and Energy Exchange. The current regulated price for carbon ETS is equivalent to USD 9 per ton. China deliberately makes 95% of the wafer stage of the solar supply chain where the target of China is completely focused on carbon

neutral goals. The government is dedicated to scaling up 450 GW by 2030 by constructing large solar and wind farms in the remote Gobi Desert.

### China's Carbon Compliance Strategies

For dealing with the carbon market, ETS is substantially introduced so companies can legally circulate the carbon price through ETS allowances. In 2021 China's ETS has traded a total allowance of 412.05 million tons including various small offsets based under the trading scheme. China's ETS is divided into various sectors on a national level it has an emissions trading scheme (ETS), on a small scale it is categorized into regional pilot schemes and domestic offsets also known by CCERs. Apart from Shanghai Environment and Energy Exchange, the trading practices are also commenced on two different carbon market organizations: the Beijing Green Exchange which corresponds to the national trading platform for voluntary carbon credits along with domestic offsets (CCERs) which is operated under the national ETS. The second one is China Hubei Carbon Emissions Exchange, where an informal registry of transactions and holdings is instigated until a national ETS get interest and engaged in such practices.

Regional carbon regulations are also prevailing to some extent and large emitting companies in different sectors excluding power generation are regulated under these schemes. But with the development of national ETS, the maximum number of entitled companies are progressively shifting their mechanism from regional to national. Domestic offsets (CCERs) are also very prominent in China's trading scheme as under the national regulatory structure companies are obliged to 5% coverage with CCERs compliance.

The overall GHG emissions in the entire jurisdiction of China corresponds to 12,301 mega-tons (Mt) every year. Currently the national ETS is regulating mostly the power sector of China, but the efforts are being made to expand across the seven additional sectors such as chemical, petrochemical, nonferrous metals, etc., exclusively it will cover equivalent to 7 to 8 billion tons of emissions every year. A recent report stated that there are 2225 registered organizations already participated in the China ETS with different goals and commitments such as compared to 2020 by 2025 reducing carbon emissions by 18% levels per unit of GDP, achieving carbon neutrality by 2060, etc.

### China Carbon Offsets Projects

The importance of China Certified Emissions Reductions (CCER) schemes can be

realized as under the regulation the quantification and sale of carbon dioxide reductions which comprises multi-domain projects such as renewable energy, forestry, methane processing, waste landfill, etc. The CCER scheme was commissioned in 2012 and from 2013-2017 around 1047 projects were regulated extending the application in wind power, photovoltaics, and rural biogas utilization. From March 2017, they prohibited the registration of new projects under the CCER scheme because the volume of credit transactions was minimal along with lacking standards in carbon audits.

## Renewable Energy Credits

The majority of the investment, currently, by China in their compliance market includes the power industry, where the renewable energy credits hold prominent role in dealing with the carbon credit markets. The renewable energy sources such as wind, solar and hydropower facilities are substantially important as they represent the green tag energy, and the world is motivating towards implementing those renewable sources to reduce greenhouse gas including carbon dioxide. Renewable Energy Credits (RECs) are generated when a renewable source produces one MWh of electricity and transmit it to the definite grid. Usually there are four different ways under which the entities can buy or generates RECs. Buying 'unbundled' RECs, Power Purchase Agreements (PPAs), Options from energy suppliers, Self-generation are different RECs under the regulation. The generated RECs can be traded as a non-tangible energy commodity after the produced energy from renewable sources is fed into the grid.

In July 2017 China launched its Green Electricity Certificate (GEC) system under which impulses individuals and entities to purchase renewable energy voluntary. The massive onshore grids connected with the wind and solar-powered PV projects certified with Feed-in-Tariff (FiT) makes them eligible for participating in the GEC system. By September 2017, GEC trading scheme has already circulated 8 million certificates which corresponds to 8 billion kWh of on-grid solar and wind electricity which is equivalent to average five-month consumption of Beijing's residential living.

## Impact of COVID-19

The impulsion of China to meet the goal of carbon emissions reduction was substantially important but the beginning of COVID-19 outbreak has severely affected the country's economy. Because of the pandemic a rapid decrement in carbon prices occurred implying that the carbon market is negatively impacted. The decline in carbon prices was the accumulative result of investors' concerns about energy consumption and supply and demand curve of carbon. The ongoing energy model in China came into

troubled during the COVID-19 which significantly alters the carbon trading across the industries. Under the “Double Carbon” scheme, strategies were developed to ensure the stability of carbon trading markets and to compensate the effect of COVID-19.

### Impact of Russia-Ukraine War

The annexation of Russian on Ukraine has exacerbated economy of different nations as the sanctions on Russia's energy has consequently led to high price of available energy such as oil, gas, and coal. China which is a major importer of energy earlier imported enormous amount of oil and gas from Russia. The price of oil and gas might have fluctuated based on supply and demands but the electricity prices are stringently regulated which reduces the dependence on imported Russia's energy. The continuous efforts of China to build more renewable energy and to expand its solar and wind production capacity by 555 GW between 2020 and 2025 including another 53 GW of solar PV and wind capacity of 48 GW. But the dependency of China on additional energy imports like gas to reduce the usage of coal and China's attempts to carbon reduction goals has created agitation. on price rise of fuels. The banks in China are stopped giving credits and loans for continuing trade between Russia and China energy companies including giant Sinopec.

### Key Players Landscape and Outlook

Petroleum and other energy companies in China are putting their efforts towards achieving sustainable goals and are building strategies to circumvent it. China Petrochemical Corp, or Sinopec has targeted to capture and store 3 million tons of carbon dioxide and utilize 2 million tons every year by 2025. In 2018 Sinopec commenced a particular unit to implement technologies in capturing and storing carbon dioxide and make a huge investment in carbon-related assets. The new entity named Sinopec Carbon Industry Technology Co. Ltd. has substantially registered capital of USD 352.06 million with Sinopec Corp by making it a holder of 46% stake and 43% holdings with Sinopec's Nanjing Chemical Industries Corp. Sinopec has already commissioned country's largest carbon capture, utilization and storage (CCUS) operations in east China and targets to build two more plants of similar volume by 2025.

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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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