

Development and Issues of Carbon Emissions Trading System in Guangdong Province, China

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Abstract: Global warming continues to be a serious problem around the world. Under the United Nations framework convention on climate change (UNFCCC) and the Kyoto protocol, governments have adopted nationally appropriate measures to reduce CO² and other greenhouse gas emissions. In December 2017, China formally launched the national carbon emission trading system under the national carbon emission trading market construction plan (power generation industry) after the pilot implementation of the carbon trading right market in seven provinces, cities and regions. This paper summarizes the empirical measures and development status of domestic and foreign carbon emission trading right market, lists the development status of Guangzhou carbon emission right exchange in Guangdong province, as well as the shortcomings in carbon accounting, carbon emission data report, carbon quota and other issues, and gives suggestions in four aspects: upper design, establishment and perfection of carbon market infrastructure, capacity cultivation and innovation of carbon financial tools, with a view to the long-term development of low-carbon economy in Guangdong province and contributing valuable experience to the construction of national carbon market.

1. Introduction

Many industries such as electric power, steel and paper still have the disadvantages of high energy consumption, low production efficiency and extensive economy at the cost of low labor cost and environmental cost. This paper enumerates some of the carbon market in Guangdong province there are still some problems, such as the carbon market trading activity, carbon financial innovation tools are widely used and the proportion of carbon quotas issued and pricing, and so on. To sum up, Guangdong province needs to analyze and improve its own shortcomings by referring to the effective experience accumulated by international and domestic organizations. Meanwhile, it needs to further perfect and issue relevant local laws and regulations in accordance with international and national policies, and further explore and improve the relevant system of carbon trading emission right trading system. In addition, it should develop innovative carbon financial instruments in Guangdong province to closely link the local manufacturing industry, tertiary industry and financial industry, enhance the liquidity of carbon trading market, reduce financing cost and transaction cost, reduce investment risk, and provide a stable development environment for the low-carbon development of financial institutions, companies and individuals. Through the implementation of the above measures to expand the radiation-driven effect, let Guangdong

province strive to be a pioneer of low-carbon economy and green finance.

2. The Development of carbon emissions Trading Market in China

2.1. Policy Background

In 2011, the national development and reform commission issued a notice on the pilot work of carbon emission trading. The report of the 19th national congress of the communist party of China points out that it is necessary to accelerate the reform of the system of ecological civilization, launch the national carbon emission trading system on the basis of summarizing the experience and lessons of pilot areas, and promote the establishment and perfection of the national carbon emission trading market (Zhang, 2013). In December 2007, the construction program of the national carbon emission trading market (power generation industry) was published. Since the emission of the power industry has a large impact and complete statistical data, the national carbon emission trading system has been officially launched.

2.2. Development

Currently, there are nine carbon exchanges in China and Sichuan. Of the largest carbon trading and carbon trading are in Hubei province, respectively is 7.4 billion yuan and 330 million tons, with the Shanghai environmental energy together for a national carbon exchange system construction of the guide to lead role(Zhang, 2013). Guangdong still needs to learn from these two regions if it wants to become a stronger carbon trading market.

2.3. Transaction

Transaction members generally include members of institutions, natural persons, custodian, public welfare, etc. Economic members of Hubei carbon emission trading center require a registered capital of no less than 3 million yuan (Zeng, 2016). Shanghai transaction members require no less than 1 million yuan (Zhang, 2013). The exchange members in Guangzhou can carry out one or more businesses such as self-operation, economy, trusteeship and public welfare, which is flexible and convenient for multi-direction operation.

2.4. Trading Product

The nine major exchanges are dominated by spot trading of CCER and carbon emission quota, and Shanghai clearing house and Shanghai exchange also jointly launch Shanghai carbon quota forward. On April 27, 2017, China's first new carbon asset management tool for emission control enterprises -- quota spot forward trading and forward product trading CCER was realized in Hubei(Chen, 2019). Fujian province also launched forestry carbon sink emissions reduction and carbon spot forward trading. The realization of forward transaction is conducive to reducing the risk of insufficient supply of goods in the spot market, ensuring the reintegration and allocation of carbon assets, or becoming a financial instrument for enterprises to hedge.

Tianjin, Shenzhen, Guangdong and Hubei all stipulate that the proportion of carbon offset with CCER is less than 10% of the initial quota, while Chongqing stipulates that it shall not exceed 8%. Shanghai and Beijing emission control units can use CCER to offset carbon emission by less than 5% (Chen, 2019).

As the Beijing-Tianjin-Hebei region has the most serious environmental problems and involves a wide range of areas, Beijing's national certified emission reduction projects have priority in air

pollution control in the Beijing-Tianjin-Hebei region. Beijing requires companies to use CCER projects outside of Beijing to offset less than 2.5 percent, prompting companies to increase their emission reduction levels (Chen, 2019).

3. Current Situation and Problems in Guangdong province

Guangzhou Carbon Emission Rights Exchange, which became a pilot in 2012, is the first pilot to consider the paid allocation of quotas through government auction pricing and to cooperate with the secondary market pricing mechanism. By January 2019, the trading volume of the primary and secondary markets of Guangzhou carbon exchange reached 0.09 billion tons, and the total trading volume reached 780 million yuan (Chen, 2019). The market responded well, and many industries, such as electric power, achieved the target of emission control and discharge. From 2014 to 2018, the quota clearance and performance work were completed for four consecutive years.

3.1. Problems of Carbon Emission Trading Market in Guangdong

3.1.1. Insufficient punishment mechanism

Guangdong Province actively respond to a nation called on, a series of policy support Guangzhou low carbon economic development of the related documents, including the Guangzhou guidance on developing low carbon economy ", "Guangzhou" twelfth five-year "energy conservation planning", "Guangzhou thirteenth five-year plan for national economic and social development program (2016-2020) also pointed out that to foster stronger carbon trading and carbon financial markets. But currently issued the documents in the majority with guidance, the properties of low carbon economy in Guangdong province National People's Congress legislation of the legal system, the obligation fails to perform the actual penalties is small, so you need greater attention on the top-level design.

3.1.2. Regulatory Confusion Caused by Different Systems and Frameworks

The long-term development of carbon quota system and carbon trading system depends on the perfection of MRV system, although the regulations on carbon emission information reporting and verification of enterprises in Guangdong Province were introduced in 2014, there are still many problems in the existing MRV system in Guangdong province. For example, carbon emissions monitoring data is incomplete and inaccurate, enterprises on similar slag, dust, flying powder carbon oxidation rate and other measurement accuracy is low and high cost; the enterprise's carbon emission data for the CCER project is not actual emissions, the accounting of the data is measured from the project as a whole, not from the discharge equipment; different industries are under different commitment units Industry reporting guidelines, some large enterprises, such as iron and steel mills, have two or more carbon emission devices, such as steel smelting and self-owned power plants, so the definition of different industry guidelines reports, the differences in frameworks can lead to confusion in the monitoring and reporting of enterprises. In terms of verification, Guangdong province in the pre-verification education and training of the local municipal development and Reform Commission, assessment and evaluation verification agencies, after verification set up expert data inspection system, on-site pumping review and other dual insurance verification procedures(Li, 2010). The verification cost of the third-party verification agency in Guangdong province is mainly government funding, but the Beijing Shenzhen began to allow enterprises to entrust the Third-party verification agency to carry out verification, the verification agency's market-oriented pricing is conducive to reducing government costs.

3.1.3. Imperfect Quota System for Market Environment Improvement

Guangdong Provincial Development and Reform Commission issued the "Guangdong Province carbon emission quota allocation implementation Plan In 2018 ", the basic data are as follows, CCER and carbon Inclusion Certification emission reduction (PHCER) can be used to offset the actual carbon emissions of enterprises. The standard is that 10% of the actual carbon emissions of the companies in control of the platoon for 2017 and below can be used to help enterprises to reduce the quota work, and the voluntary emission reduction projects outside Guangdong province should not exceed the total CCER offsetting ratio of 30% (Chen, 2019). Quota issuance is mainly free distribution, government pricing will lead to inactive trading market, transaction prices can not reflect the actual carbon market price, from December 19, 2013 to March 18, 2019, Guangzhou Carbon quota prices from 60.17 to 21.07, December 2016, the price appears historical low value of 9.00.

3.1.4. The Insufficient Financial innovation integrated with the trading system

At present, a series of carbon financial products and services are being planned and implemented in China, such as carbon emission quota secured loan, carbon emission right forward trading, quota entrusted management, carbon asset guaranteed overdraft, quota repurchase and so on. The pilot work of the carbon GSP system has also been carried out in the community and green tourism. According to the corresponding carbon emission reduction accounting standards, the carbon currency, which can be converted into commercial preferences and public services, is introduced to achieve the circulation of the public. Enterprises can also use the carbon currency to offset carbon emissions. But in civil engineering, transportation and other fields is not issuing free carbon quotas, with wide carbon trading system by the effective docking, lead to actual participation, little participation enthusiasm is not high, carbon currency liquidity weak and narrow range, and a series of problems.

4. Suggestions

4.1. Perfecting Legal System and Supervision

Better integrated into the national carbon emissions trading system and be leaders become the government and the national development and reform commission of Guangdong province must take account of the problem. In accordance with relevant laws and administrative regulations formulated by the state, the local government of Guangdong province should introduce legislation of the National People's Congress to enhance the legal rank, optimize and adjust the functional departments in combination with local rules and regulations, train carbon project certification experts or staff, and steadily promote the continuous growth of carbon trading volume. In terms of the expansion and review of trading subjects, the formulation, implementation, conflict prevention and punishment of trading rules, the diversity and flexibility of trading products, the all-round and multi-level coverage of trading supervision, and the accounting and taxation, all of these have put forward higher requirements for the formulation of trading rules. The formulation of laws with higher level, macro level and higher legal effect is conducive to more stable integration with the national carbon market.

4.2. Constructing Sound Systems

In order to better promote the orderly operation of the national carbon emission trading market, Guangdong province needs to build the following four systems under the leadership of Shanghai

and Hubei province, relying on the existing system.

4.3. Training Professional Talents

The national development and reform commission, the national bureau of statistics and the energy bureau of Guangzhou may jointly lead the establishment of the carbon market construction office in Guangzhou, coordinate the construction of carbon markets at all levels, including the government, enterprises and institutions, and formulate a long-term strategic plan for the development of carbon finance. GCN can cooperate with Shenzhen to establish a low-carbon growth enterprise board in the stock market, allowing to raise funds in the growth enterprise board, plan funds for CDM projects and carry out a number of financial services, such as custody, credit enhancement, trading, etc. Allow individual hobbyists and investment institutions to buy and sell shares in controlled enterprises.

At the individual level, Guangdong provincial development and reform commission can build a "low-carbon planning hall" in cooperation with Guangzhou science museum to raise people's awareness of low-carbon, promote mobile phone software with carbon footprint, or cooperate with common social software such as WeChat and Weibo.

4.4. Implementing the Application of Carbon Financial Instruments

The application of carbon financial instruments can be implemented from the following aspects. First, strengthen the participation of Guangdong commercial Banks in the carbon finance business in depth and breadth, and continue to support and increase the green credit work of commercial Banks for enterprises with low energy consumption, low emissions and low pollution. Second, innovate carbon financial products, deeply explore the trading value of carbon financial derivatives, develop insurance products related to carbon trading products, and bond financial instruments like CCER pledge loan to increase the market liquidity of carbon products. Third, work closely with third-party rating agencies to improve the reliability of qualification examination and asset evaluation in the investment, financing and loan of emission reduction projects. Finally, in the degree of carbon GSP, carbon quota distribution and carbon trading market system in the industry which is closely linked with the public, such as daily travel, community construction, relying on the existing WeChat, pay treasure to electronic payment means such as carbon currency daily commercialization and investment, and improve financial institutions, personal investment enthusiasts, the low carbon development of the enterprise participation and initiative, is conducive to the development of energy conservation and emissions reduction plan.

5. Conclusions

Different countries have taken corresponding emission reduction measures according to their national conditions. Although developing countries still focus on economic development, their energy conservation and emission reduction measures should be carried out simultaneously to ensure that they can promote economic development and protect the environment on which human beings live. Although the national carbon market has officially launched and operated, but carbon emissions data, a carbon trading platform system construction, system construction, policy implementation and so on various aspects still need to improve and solve the problem. The Guangdong provincial government and enterprises should ensure the stable and orderly development of top-level system design, infrastructure construction, capacity cultivation and carbon financial instruments, so as to make the local carbon trading market become one of the carbon trading markets with the most complete trading system and the most mature trading system in the

world.

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