

# Research on the Status Quo and Development of China's Carbon Emission Trading Market

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**Abstract:** After the reform of state institutions in 2018, carbon emission management is affiliated to the Ministry of Ecology and Environment, which is beneficial to the linkage management of various emissions in the future, reducing the cost of policy coordination and communication, and improving the effectiveness of policy formulation. However, institutional reforms will result in carbon emission rights in the short term. The construction of the trading market has stagnated. At present, the national unified carbon market has not yet entered the substantive operation stage. The main trading mode of the eight carbon emission trading pilot provinces and cities is offline trading, and carbon spot is the main trading product. China's carbon market construction also has specific problems such as the establishment of regulatory institutions, the construction of institutional systems, the definition of market operations, and the operational level. It is recommended to establish a unified management system with clear responsibilities. The carbon market policy should be linked with industry policies, formulate a clear timetable for carbon market construction, strengthen capacity building, and effectively push the national unified carbon market into a mature operation stage.

**Keywords** Carbon emission rights, Carbon trading, Carbon finance, Carbon market, institutional setting

## INTRODUCTION

In December 2017, the National Development and Reform Commission issued the "National Carbon Emissions Trading Market Construction Plan (Power Generation Industry)" (hereinafter referred to as the "Plan"), marking the official launch of China's carbon emission trading market from the power industry [Jin, 2011]. The "Plan" pointed out that it takes one year to carry out infrastructure construction, that is, to complete the national unified data reporting system, registration system and trading system construction [Luo, et al., 2015]. The simulation operation is carried out in one year, that is, the power generation industry quota simulation transaction is carried out. It will take one year to deepen and improve the carbon market, including gradually expanding market coverage, enriching trading varieties and trading methods, and incorporating national certified voluntary emission reductions into the national carbon market. By 2020, the national unified carbon market will enter the operational phase. More than 1,700 power companies will be included in the carbon trading market from 2019 to 2020 [Huang, et al., 2015]. The Chinese carbon market is expected to have an initial quota of more than 3 billion tons, which will exceed the EU as the world's largest carbon market.

At present, more than a year has passed since the launch of the national carbon market. According to the "Plan", it should enter the simulation operation stage, but the infrastructure construction of the carbon market has yet to be implemented, and the

progress is behind schedule. There are many reasons for the backwardness of the construction of the carbon market [Wei, et al., 2017]. The most direct and important one is the institutional reform of the State Council that began in March 2018.

## CARBON MARKET CONSTRUCTION UNDER THE REFORM OF STATE INSTITUTIONS

### Overview of the institutional reform process

On March 13, 2018, the institutional reform plan of the State Council was submitted to the 13th National People's Congress for consideration. According to the plan, the number of ministerial and ministerial agencies of the State Council has decreased by eight, and the number of deputy ministerial agencies has decreased by seven. In addition to the General Office of the State Council, the State Council has set up 26 departments [Zou, 2018]. The competent authorities of the carbon market were adjusted. The former National Development and Reform Commission's Climate Change Division assumed the responsibility of building the national carbon market and responding to climate change and emission reduction. In this reform, the division belongs to the newly formed Ministry of Ecology and Environment, and the ecological environment. The Ministry of Environmental Protection replaces the Ministry of Environmental Protection and is fully responsible for environmental protection.

Since the promulgation of the "Deepening Party and State Institutional Reform Plan" in March 2018,

the Climate Division has gradually entered a substantive transfer work, including the National Climate Change Strategy Research and International Cooperation Center (hereinafter referred to as the "Climate Center"). The think tank of the National Development and Reform Commission, which specializes in climate change related issues, has also been transferred from the National Development and Reform Commission to the Ministry of Ecology and Environment. It was not until August 2018 that the Ministry of Ecology and Environment's "three-set" (fixed functions, fixed institutions, and fixed authorized strength) was promulgated and implemented, and the Climate Division and the Climate Center were able to work in succession.

### **The impact of institutional reform on the construction of carbon market**

In the short term, institutional reforms have caused stagnation in carbon market work. The carbon market construction work in the whole year of 2018 is slow, the data reporting system is the only system built, the details of the construction system of the registration system and the trading system have not been determined, the construction work has not yet begun, and the corresponding management measures have not yet been promulgated. This has put a lot of pressure on the construction of the carbon market in 2019.

In the long term, institutional reforms have concentrated environmental protection-related emission management responsibilities on the newly formed eco-environment department, which has centralized the previously dispersed management system, reduced management costs, improved management efficiency, and has a great push to build carbon market. Prior to the institutional reform, industrial enterprises were not only managed by the Ministry of Environmental Protection on the trading of sulfur dioxide emissions, but also by the National Development and Reform Commission on the management of carbon dioxide emissions trading. They were all emissions but different regulatory authorities, which made the company very confused and affected the market participation enthusiasm. After the institutional reform, the management of the two types of emissions is under the Ministry of Ecology and Environment, which is beneficial to the linkage management of various emissions in the future, reducing the cost of policy coordination and communication, and improving the effectiveness of policy formulation.

### **CHINA'S CARBON MARKET OPERATION CHARACTERISTICS ANALYSIS**

Although the domestic unified carbon market has not yet entered the actual operation stage, China has developed Certified Emission Reduction (CER) and Voluntary Emission Reduction (VER) projects as

early as 2005. The way to participate in the European and global carbon markets, as a seller of emission reductions, has obtained a lot of substantial benefits from the carbon market. In 2011, China launched its own local carbon trading market and, like the EU, embarked on a path of mandatory emission reduction. On October 29, 2011, the General Office of the National Development and Reform Commission issued the Notice of the General Office of the National Development and Reform Commission on Piloting the Carbon Emissions Trading, and agreed to carry out 7 provinces and municipalities including Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong and Shenzhen. On December 22, 2016, Fujian Province launched the carbon emission trading market and became the 8th carbon emission trading pilot area in China. In recent years, the operation of China's carbon market has been characterized by different carbon markets or other commodity markets around the world.

### **Eight local carbon pilot markets coexist**

Unlike other countries, before the establishment of a national unified carbon market, the Chinese government has selected several local provinces and cities to conduct carbon trading pilots, hoping to establish a successful and effective carbon market based on local pilot experience. Each pilot market is governed by local authorities based on local conditions. Adopting a local autonomy method can not only mobilize the enthusiasm of local participation in the carbon market, but also enable the carbon market to be in a state of full bloom, and then choose a better unified national market model. The rules between the pilot areas are similar, and there are some differences, which are the result of taking into account the local situation. Rules and regions develop differently, and market performance must be different.

### **Offline trading is the main trading mode**

From the data published by the current pilot carbon emissions trading, the main way of carbon trading is offline. There are two main reasons for this situation: First, online transaction costs are high, and trading enterprises are not willing to pay high fees for this, choosing the offline mode of bulk commodity trading. Second, there is great uncertainty in online trading, which makes it impossible to negotiate the transaction price and guarantee the full amount of purchase or sale online.

### **Carbon spot is the main trading product**

At present, the carbon market is a spot market transaction, whether it is a carbon allowance transaction or a CER transaction. The trading of carbon financial derivatives is very limited. In the pilot areas, Guangdong, Hubei and Shanghai have launched carbon forward products, of which Guangdong's carbon forward products are non-standard agreements for over-the-counter transactions,

which are more traditional long-term agreements. The carbon forward products of Hubei province and Shanghai are standardized agreements, which adopt the form and function of online trading very similar to futures. But these are experimental deals in local markets, not the norm. They account for a tiny fraction of carbon trading, and some last only a short time before regulatory problems put an end to them.

## **THE MAIN PROBLEMS IN CHINA'S CARBON MARKET**

### **Top design needs to be strengthened**

At present, the highest management body of China's carbon market is the national leading group for addressing climate change and energy conservation and emission reduction. The carbon market is both a policy tool and a commodity market. From the perspective of marketization and carbon futures, the supervision of the CSRC is indispensable. However, there are no CSRC leaders in the group, which will further develop the carbon market in the future. In terms of the implementation of specific regulatory work, the Ministry of Ecology and Environment is currently focusing on the construction of the carbon market. Based on its own functions, it can only develop the carbon spot trading market. From the experience of several internationally active carbon markets, the futures market is the main market for carbon trading. The futures market provides investors with long-term stable expectations, can enrich carbon trading varieties, and activate the carbon market. China has a long way to go to build an active and effective carbon market.

### **Low carbon industry and financial industry lack of interaction**

One of the indicators for the healthy development of the carbon market is the abundance of carbon financial products. At present, China's carbon financial products are very complete, and financial products in the capital market have similar product forms in the carbon market. However, as far as the frequency of occurrence of these carbon financial products is concerned, most of them are trials conducted by enterprises for their own propaganda, and have not yet become the norm. At present, most of the enterprises that perform in the carbon market are heavy-asset state-owned enterprises. The inherent thinking mode of these enterprises is to focus on management and light finance. It is essential to ensure that state-owned assets are not lost. Participation in the carbon financial market is exactly the opposite of the former. At the same time, financial practitioners and institutions are not aware of the operations of the carbon emissions industry, unable to price carbon assets, and the carbon market has not developed to the stage of pricing standards. It can be seen that the mutual understanding between the low-carbon industry and the financial industry has

greatly hindered the further development of carbon financial products, affecting the activity of the carbon market.

### **Data lack of transparency and accuracy**

Data related to the carbon market include corporate emissions data, corporate quota data, and corporate carbon asset trading data. Corporate emissions data is closely related to existing data quality and accounting methods. At present, in China's key emission industries, the power industry's process is relatively simple, the data statistics quality is good, and the accounting method is relatively easy, so the national unified carbon market is the first to start from the power industry. Other industries, such as petroleum, chemical, cement, steel, etc., due to complex process, it is difficult to set a unified accounting standard, which creates obstacles to the identification of the company's real carbon emissions data, further affecting the quota allocation method. In terms of enterprise quota allocation and transaction related data, the current eight carbon trading pilot provinces and cities have not been completely transparent. The number of free quotas of various key emission enterprises, the transaction of each transaction in the carbon market, and the transaction price of the certified emission reductions of the exchanges are not disclosed, which is very unfavorable for the healthy development of the carbon trading market.

### **The mechanism from the pilot market to the national unified market is undecided**

Where will the eight local pilot carbon markets currently operating in China go after the national carbon market is unified? This is a subject that the industry has been studying. For the current electricity emission enterprises in the pilot areas, the most pressing question is whether the carbon quotas retained in the pilot market can continue to be circulated in the national unified market, or is it written off by local authorities? In the short term, this is a problem that the power industry needs to consider. In the long term, heavy polluting industries in all pilot areas need to be considered. From the perspective of policy formulation, the degree of economic development, quota allocation rules, and trading rules vary from place to place. The national carbon market must abide by the same rules, which undoubtedly requires balance and coordination of interests. It takes time to find a method that is scientific and reasonable and acceptable to all parties.

### **Management capacity building remains weak**

Since the institutional reforms in March 2018, the local climate authorities have moved from the National Development and Reform Commission to the Ecological Environment Bureau. However, the transfer of functions does not necessarily accompany the transfer of personnel. It is reported that some of

the former local development and reform commissions responsible for climate work were diverted to other departments of the NDRC, and the newly formed eco-environment bureau needs to recruit new personnel responsible for climate work. These personnel did not engaged in related work, which means that a new round of capacity building is imminent. From the perspective of enterprises, many key carbon emission enterprises with branches in the pilot areas have not set up special carbon asset management companies. Even the most important state-owned power companies that are most in need of carbon asset management have not established carbon asset companies. Inadequate market preparation will pose a major obstacle to the future development of enterprises participating in the carbon market.

### **RELATED RECOMMENDATIONS**

#### **Establish a unified management system with clear responsibilities**

From the long-term development of the carbon market, it is necessary to have a perfect spot and futures market, accompanied by a wealth of carbon financial products, which requires "one bank and two committees" (People's Bank of China, China Banking Regulatory Commission and China Securities Supervision and Administration Committee) actively participate in the carbon market. At present, China's carbon market is in charge of the ministry of ecology and environment, and participation in the "one bank and committees" is low. If a coordination mechanism between the ministry of ecology and environment and the "one bank and committees" on the construction of the carbon market can be established in the top-level design of the carbon market, it will guarantee the efficient development of the carbon market in the future.

#### **Carbon market policies should be linked with industry policies**

The carbon market is a market that accommodates various high-emission industries, and the mandatory inclusion of high-emission industries undoubtedly causes operational pressure on them. In order to ensure the enthusiasm of enterprises in high-emission industries to participate in the carbon market, the department in charge of carbon market must take into account the policy characteristics of each industry and formulate policies in line with the actual situation of enterprises. For example, the electricity price control policy of the power generation industry requires the competent authorities to adopt the mode of free quota allocation.

#### **Establish a clear timetable for building a carbon market**

China's carbon market has been slow to build, lagging far behind industry expectations. It is

suggested that the competent authorities of the carbon market formulate and promulgate a clear timetable for the construction of the carbon market, including the official running time of the national carbon market for the power industry, the time when other industries participate in the national carbon market, the unified time of the local pilot carbon market and the national carbon market, the introduction time of carbon futures, and the start time of the verification of emission reduction market. Only by setting a clear timetable can we force all sectors and market players to step up efforts to promote the carbon market, form stable market expectations, and promote the introduction of various policies and development of the carbon trading market.

#### **Strengthen capacity building**

From a regional perspective, most of China's provinces have no experience of participating in the carbon market. Even the pilot provinces and cities of carbon trading have very few trading volumes and few exchanges. It is suggested to increase carbon market training for local governments, industries and enterprises to prepare for the unified market. From the perspective of major emitters, the national carbon market initially only included the power industry, and the timing of other industries to join has not been determined. The lack of clear policy signals has led companies to take a wait-and-see approach to the carbon market. It is suggested that enterprises in other key emission industries accelerate their understanding of the carbon market, establish relevant management systems as soon as possible, and establish professional teams for carbon trading so as to better participate in the carbon market in the future.

### **CONCLUSIONS**

This paper studies the current situation and development of China's carbon emission trading market. The analysis shows that the national unified carbon market has not entered the actual operation stage, and the main trading mode of the eight pilot provinces and cities is offline trading, and the main trading product is carbon spot. China's carbon market construction also has specific problems such as the establishment of regulatory institutions, the construction of institutional systems, the definition of market operations, and the operational level. It is suggested to establish a unified management system with clear responsibilities, link carbon market policies with industry policies, formulate a clear timetable for the construction of carbon market, strengthen capacity building, and effectively push the national unified carbon market into a mature operation stage.

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