



Global Development And Environment Institute Tufts University

China Moves Forward with Carbon Markets

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After the United States declared its intention to withdraw from the Paris Agreement, China assumed a stronger leadership role on climate change policy, both domestically and internationally. At the 23rd Conference of the Parties of the U.N. Framework Convention on Climate Change held in Bonn, Germany in November 2017, China presented a summary of accomplishments of its pilot carbon trading markets in seven regions since 2011, and announced the launch of a comprehensive carbon trading market in 2017, giving a needed boost to international momentum in tackling climate change.

China's National Development and Reform Commission (NDRC) released the National Carbon Emission Rights Trading Market Construction Plan (Power Generation Industry) in Beijing on December 19th 2017, marking the start of China's nationwide carbon market. This is a key step in fulfilling China's commitment to the Paris Agreement, and advances the progress of the COP23—Fiji Momentum for Implementation—at the Bonn summit. It is also consistent with China's broader plan, articulated by the 19th Party Congress of China in October 2017, to include ecological factors in markets. Overall, it represents an important milestone in developing a “green economy” in China.

Performance of the Carbon Emission Trading Schemes Pilot Projects

In October 2011, China's National Development and Reform Commission (NDRC) approved pilot projects for carbon Emission Trading Schemes (ETS) in seven provinces: Beijing, Shanghai, Tianjin, Chongqing, Hubei, Guangdong and Shenzhen. Markets in Beijing, Shanghai, Guangdong, Shenzhen and Tianjin opened in 2013, and all seven carbon trading markets were open by 2014. The NDRC added Fujian province as a new carbon trading market on July 31, 2016.

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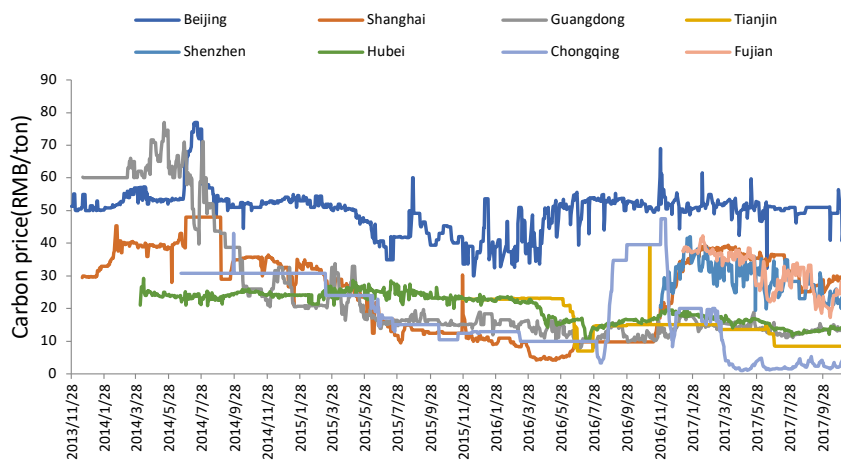
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By September 2017, the pilot trading programs covered a total of 197 million tons of carbon dioxide equivalent, with a total value of 4.5 billion yuan. According to the “China Carbon Market Research Report 2017” released by UNDP in February 2017, a total of 2391 emission enterprises and units are included in the programs.

Carbon prices in the eight pilot areas are significantly different. Each area has a predetermined carbon quota, establishing a fixed supply, so that carbon price fluctuations are dependent on varying demand. In late 2017, the price of carbon in Beijing was about 53 RMB/ton of carbon dioxide and in Shanghai it was 32 RMB/ton. The price in the Shenzhen market fluctuated greatly, and Chongqing had the lowest carbon price, falling below 10 RMB/ton in 2017 (see Figure 1).

Figure 1: Carbon prices in different provinces

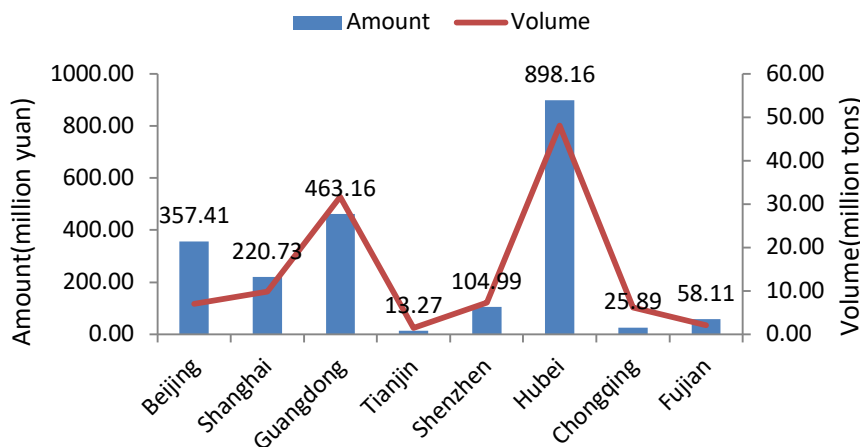


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Source: Carbon K line website. <http://k.tanjaoyi.com/>

From June 2013¹ to November 2017, the total carbon volume trading on line was about 110 million tons and the transaction value was about RMB 2100 million. Hubei and Guangdong were the most active markets in terms of volume, followed by Beijing, Shanghai and Shenzhen, while the Tianjin and Chongqing markets were not very active. (See Figure 2.)

Figure 2: Volume of carbon trading (RMB)



The pilot carbon markets have encouraged decentralized management and initiative in energy conservation and emission. Many enterprises included in the pilot carbon markets have realized that carbon emission management can be linked with profitability, cash flow and business investment. As a result,

Source: Carbon K line website. <http://k.tanjaoyi.com/>

¹ Daily data is available from June 2013 at the website <http://k.tanjaoyi.com/>

enterprises have increased R&D investment to control pollution emissions, thereby helping to achieve the regional emission reduction targets.

The Global Context for China's Carbon Trading Program

In the past decade, the amount of emissions covered by the trading schemes has tripled worldwide, but still covers only 15 percent of global carbon emissions. The European Union scheme has been only partly successful due to the free distribution of permits, insufficient scale, and volatile carbon prices. Although the initial stage of China's carbon market is only for the power generation industry, its expected trading volume will still be twice that of the existing carbon market in the EU. China's carbon market will soon be expanded from the initially covered enterprises to other firms, non-governmental organizations, and financial institutions including the power industry, other high-emission industries like the chemical and steel industries, as well as tourism, agriculture, financial institutions, national parks, and non-profit organizations. This will introduce carbon pricing more widely within the economic system, stimulate low-carbon investment, encourage "green" production methods and lifestyle. This in turn will effectively intensify supply-side structural reform in China and promote carbon-saving patterns of economic growth.

China's initiative will significantly enlarge the size of carbon markets globally, and contribute to improving carbon market performance, thus reducing the global cost of responding to climate change. At the Bonn climate summit, China's initiatives for carbon market, green finance and South-South Cooperation were widely supported by participating countries.

Carbon trading can also introduce into the market the previously underestimated value of forest, vegetation and soils that absorb CO₂. In an expanded carbon market, low-income regions can take advantage of the trading scheme to develop low-carbon and green agriculture/agroforestry farming patterns that can fully reflect the value of forests, vegetation and soils as carbon sinks. This is consistent with the "two mountain theory."² It also complements an increased focus at the global level on the importance of forests, soils, and wetlands in carbon management.

China's launch of a national carbon trading market, therefore, is not only a significant economic policy tool for China to fulfill its responsibilities to mitigate climate change, but is also an important part of the process for China to implement market mechanisms in ecological environment management and extend the systems of payment for resource use and ecological compensation.

² The "two mountain theory" suggests that the economic and ecological systems can work in harmony. It was proposed by President Xi in Zhejiang Province in 2005 and emphasized in the 19th Party Congress on poverty alleviation and environmental protection.

Improving the Performance of China's Carbon Market

As China becomes the world's largest carbon trading market, its performance can benefit from international cooperation and learning from the experience of other carbon markets. Based on the experiences of mature markets such as the European Union, California, and Quebec, China needs to design the carbon trading market in terms of its economic characteristics, industrial development and regional differences. To have successful carbon trading markets, China must account for heterogeneities of marginal abatement costs and the size of the trading market.

The eight pilot projects contributed to carbon emissions in China, but the trading volume is still small compared with the total potential carbon market in China. The current trading scheme is based on heterogeneous marginal abatement costs in the electric power industry. There is a need to further develop carbon markets in stages: first, the trading market should be extended within the electric power industry; once the market operation of the power industry is mature, it should be expanded to industries such as the chemical and steel industries, which are high-emission, high-pollution and resource-based. Next, carbon markets should be developed in other industrial, agricultural, and service industries, and the overall domestic carbon market should be integrated. Another important step will be to align China's carbon market with the EU and other mature international carbon markets. There is also significant potential for developing regional cooperation markets as part of China's "The Belt and Road Initiative."

Acknowledgements

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