Green Finance

EMISSION ECONOMICS

China's national carbon trading market, once it is launched in 2017, will be the largest of its kind and one of the most ambitious environmental programs in the world. The country's environmental veterans regard the project with both hope and skepticism.

By Simina Mistreanu

Environmental consultant Ding Ying has lived through the rise, fall and resurrection of China's experiments with emission trading.

Emissions trading started carving a significant niche in China in 2005, when the Kyoto Protocol took effect and led to the creation of the Clean Development Mechanism (CDM). This international mechanism allowed industrial nations to buy credits from poorer countries that were running emission-curbing projects.

Ding was among thousands of Chinese environmental consultants who trained in using the mechanism. With their help, Chinese companies incinerating HFC-23, a highly polluting gas produced as a byproduct of refrigerant HCFC-22, sold their credit to European buyers. Europe’s major power and steel plants started buying large quantities of these cheap credits. The market was worth billions of US dollars. But at the same time, HCFC-22 production in China was shooting up. After environmental groups started complaining that the emissions reductions generated more pollutants, the European Union banned such trading in 2011.

Chinese environmental consultants who were involved with the CDM saw their salaries reduced to a fraction of their previous level and, in some cases, to nothing. “The second phase of the Kyoto protocol was a failure, and suddenly there was no market,” Ding said. “We lost our jobs. Then we spent a year or two doing nothing or very limited projects. I think at least 80 percent of the employees left this sector.” In 2012, Ding set up a small consultancy firm. She was unsure about what was next.

Then things started looking up. In October 2011, China’s National Development and Reform Commission (NDRC) announced the establishment of carbon trading pilots. The new schemes would target the goal established in the 12th Five-Year Plan to use market mechanisms by 2020 to “control greenhouse gas at a low cost.” A national carbon market is scheduled to be built in 2017.

‘Let 100 Flowers Bloom’

Emissions trading schemes aim to compel enterprises to update equipment and improve operations so that they consume less and utilize cleaner energy. This should also lead to the reduction of other pollutants associated with burning fossil fuels, including sulfur dioxide, nitrogen oxides and the fine particulate matter PM 2.5. China set up pilot markets in 16 cities for trading sulfur dioxide in the early 1990s, a pollutant released in the burning of coal, which remains China’s primary energy source.

Seven carbon trading markets were established in the cities of Beijing, Shanghai, Tianjin, Shenzhen and the provinces of Hubei and Guangdong. The areas’ combined population exceeds 250 million and generates 26.7 percent of the country’s GDP. The first pilot scheme was launched in Shenzhen in June 2013, and the last one opened in Chongqing a year later. The pilots initially comprised about 2,000 enterprises, which traded 1.2 billion tons of carbon dioxide in the first year. That made it, collectively, the second largest carbon trading scheme in the world, after the EU’s Emission Trading System (ETS).

China’s chief negotiator on climate change, Xie Zhenhua, said during a talk in Warsaw in 2013 that he hoped the carbon pilots would “help upgrade industries.”

The seven pilots were actually modeled after the EU’s ETS. At the beginning of the reporting period, all enterprises receive free carbon allocations based on their historical energy consumption and industry profiles. At the end of the compliance period, the organizations need to return these credits. If their emissions exceeded the allocations, they can buy extra carbon credits from the emissions exchanges. Alternatively, they can buy local offsets known as Chinese Certified Emissions Reductions (CCERs), which are afforded to clean energy projects. These are usually limited to 5 or 10 percent of a company’s annual emissions. Enterprises that have surplus allocations can bank them or sell them at market price.
In the years following the pilots’ announcement, Ding approached China Energy Conservation and Environmental Protection Group (CECEP), a state-owned company, and proposed the establishment of a carbon assets management firm. The group agreed, and now Ding is the managing director of Bright Carbon Assets Management Co., Ltd, a public-private partnership firm that acts as a broker for the carbon markets, and also as an institutional investor with a fund of about US$7.3 million for emission reduction projects.

With an emissions cap of 4 to 5 billion tons of carbon dioxide, China ETS has the potential to be “the largest cap-and-trade program and the most consequential environmental program in the world,” Margolis said. But similar projects have achieved moderate success, with the EU’s ETS suffering from an oversupply of allowances and the depression of industry. Skeptics question whether China can really roll out a successful program in the span of only a few years, especially one on this scale.

Margolis, who has also worked as a consultant for environmental projects in the US, Canada and the EU, said China’s approach to rolling out big projects is different from that of Western countries. While in the West a public project would need to be foolproof and generally agreed upon before being launched, in China, policymakers and stakeholders “are both laying and touching the stones as they cross the stream,” he said, alluding to a quote from late leader Deng Xiaoping on the best way for reform.

“The leader will offer a vision, a general idea of how to get from point A to point B,” Margolis said. “Stakeholders will use trial and error to make sure that the objective is consistent with the situation on the ground. It is understood that the program will continue to evolve after launch.”

In the three years since the launch of the carbon pilots, their performance has fluctuated. But that doesn’t seem to have sidetracked Xi’s plan. Jiang Zhaoli, deputy director general of the NDRC Climate Change Department, announced in October that the allocations plan for carbon emissions trading on the national market has been submitted to the State Council and should be approved before the end of the year.

Thirty-one provinces, municipalities and autonomous regions will be included in the national scheme. Industry stakeholders expect most of the seven pilots to continue functioning. Moreover, the NDRC is preparing the launch of two other pilots, in Sichuan and Fujian provinces.

The current pilot administrators will help train some of the newcomers to adapt to the national market. For example, the Shanghai Environment and Energy Exchange will train 20 other cities that will be included in the national scheme, said Chairman Lin Hui.

Market Challenges

Despite the sense of anticipation created by China’s emissions trading experiment, the seven carbon pilots have not been without hic-
cups. The absence of reliable data, in particular, is a problem that has been acknowledged by officials.

While each pilot requires third-party verification of emissions reports, there's no established system for selecting, training and accrediting the verifiers. Some local governments assign the task to companies without relevant experience or that might be related to the government or the enterprises they are supposed to check on. In other situations, carbon ETS verifiers have evolved from state company departments that were previously accredited under the International Measuring, Reporting and Verification system but had applied it to other fields, not carbon emission.

One such example is the team run by Zhang Yi with the China Building Material Certification Group, which used to only check the quality and toxicity of building materials. Zhang's department was established in 2012 to verify the emissions reports of carbon-trading enterprises, mostly in Beijing, and write industry sector reports that the government uses to make further allocations.

The team of about 20 people, now led by Zhang, includes so many young people with experience abroad that Zhang's department is the only one that has a coffee machine—a habit they picked up overseas. They are enthusiastic about their work, but they also acknowledge theirs is an emerging field: the department brings in less than 1 percent of the group's income.

Without a solid verification system in place, countless enterprises are probably tinkerimg with their emissions reports, market stakeholders say. "(They release) fake data and fake reports," Ding said. "That's a problem. Just like fake products on Taobao."

Fake data reduces investors' trust in the market, Ding said. This is connected to another set of problems that still haunt China's carbon trading pilots: low prices and low liquidity.

The seven pilots have consistently had low liquidity, which is, caused, like in the case of the EU's ETS, by an initial over-allocation of credits.

Jiang of the NDRC has said an "ideal price" for carbon dioxide in China should be around US$29 to US$44 per ton. But the prices have stayed much lower than that. During the trading period of October 24 to October 28, the average price of carbon dioxide ranged from US$1.6 per ton on the Guangdong exchange to US$7.7 per ton on Beijing's. But the Chongqing, Tianjin and Shanghai carbon pilots saw no activity during that period. Carbon prices plummeted as low as below US$1 per ton on the Shanghai market in May.

If carbon prices remain low, trading carbon will have little to no effect on the emissions of large coal-fired power plants, said Charles Zhang, a strategic research engineer in the gas and power sector. "The 'grand five' won't have enough benefits from the cap-and-trade system to be motivated to update their equipment," he said.

Margolis of EDF said there are several measures Chinese officials could take to encourage higher carbon prices, including setting caps such that enterprises are incentivized to root out operational inefficiencies, implement new controls and switch fuels, and administrators that will refrain from introducing more supply in the face of rising prices.

But it remains to be seen how much the government will stay involved in the carbon market once it is set up. Stakeholders are split between saying that the government should leave the market entirely to market forces; and others who believe the government should intervene to adjust its course.

China's environmental enthusiasts hope that the national carbon market will bring improvements one way or another.

Maybe they will come from the top down. "I think the China ETS will be a game changer because to date it is the most comprehensive policy that holds many sectors under one scheme, and is quite scientific and results-oriented, compared to other policies in China," Ding said.

She said that once enterprises realize the Chinese government "is really serious about this," more will become involved in trading carbon, the prices and liquidity will shoot up, and the market will do well without government intervention.

Or maybe change will slowly grow from the bottom up. Zhang from the China Building Material Certification Group, said that sometimes when he visits enterprises, he sees people become aware for the first time of how their production mechanisms and operations influence energy consumption. The verifiers can share some figures from other companies in the sector and offer advice on emission reduction techniques.

"They'll be interested in why their figure is OK, or why it is bad," he said. "And that will lead to technology improvements." ★

Qu Chaonan contributed reporting.

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