China Carbon Market Monitor

PARTNERSHIP FOR MARKET READINESS

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The PMR China Carbon Market Monitor provides timely information across the seven Chinese pilot carbon markets. It also provides analysis of climate policy and market developments at the national level.

Highlights

- From June 18, 2013 to August 31, 2015, the secondary carbon market for the seven ETS pilots has accumulated a trading volume of 42.09 million tons, representing a trading value of US$200.48 million, and an average price of US$4.76/ton[1]. Five pilots have begun a second compliance period[2]: Beijing, Guangdong, Shanghai, Shenzhen, and Tianjin. Allowance trading for this period began as of March, notably about three months earlier than it did last year, likely because covered entities are more familiar with and prepared for ETS compliance.
- Since the publication of the first issue of this Monitor in April 2015, prices, on average, have decreased in all pilots except Hubei, to range from US$2.18/ton to US$7.93/ton compared with a range of US$2.94/ton to US$8.87/ton from January to April 2015[3]. One reason for this price decrease could be the uncertainty surrounding the expected transition from the pilots to a national ETS. Given the possibility that allowances could expire in 2017 if the pilots are discontinued, covered entities may want to sell their entire allowance surplus now instead of saving it for the future.
- As of August 31, 2015, 70 China Certified Emissions Reduction (CCER) projects have been registered by China's National Development and Reform Commission (NDRC) for a total of 20.64 million tons of emissions reduction credits issued. Seventy-four percent of these are pre-CDM projects. Moreover, a cumulative total of 11 million tons of CCERs have been traded on the trading platforms of the pilots (i.e., "exchanges"). For the first time since becoming available, CCERs were surrendered by enterprises covered for compliance in seven carbon markets.
- On July 29, 2015, the NDRC held a public hearing on the draft National Carbon Emissions Trading Management Regulations. When passed by the State Council, the legislation will provide the legal basis for the operation of the National Emissions Trading System (ETS). The hearing was seen as a good step toward securing State Council support and issuing a final regulation in 2016.
- President Xi Jinping announced on September 25, 2015 that China will launch its national ETS in 2017, signaling that the new market is a presidential commitment.

Contents

[1]This represents all trading among the pilots since trading began.

[2]The compliance period represents the time in which covered enterprises prepare to meet compliance obligations. For example, the second compliance year of the Chinese ETS pilots covers the calendar year from January 1, 2014 to December 31, 2014. Covered enterprises in different pilots are requested to surrender eligible allowances for their emissions from the previous year before a deadline, roughly by end of June or July. Therefore, the period between January and July 2015 is normally referred to as the second compliance period of the Chinese ETS pilots.

[3]This Decline has taken place between April 16 and August 31, 2015.

Figure 1. Cumulative Trading Volume in the 7 Pilots
(Million tons, June 18, 2013 - August 31, 2015)

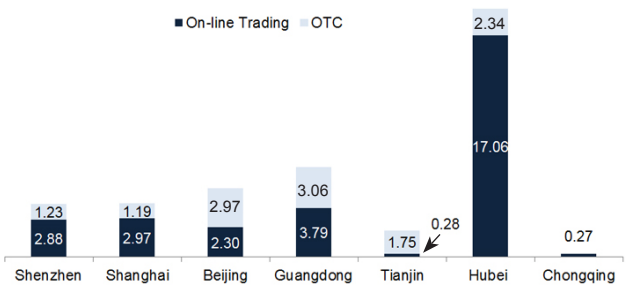


Figure 2. Cumulative Trading Value in the 7 Pilots
(Million US$, June 18, 2013 - August 31, 2015)

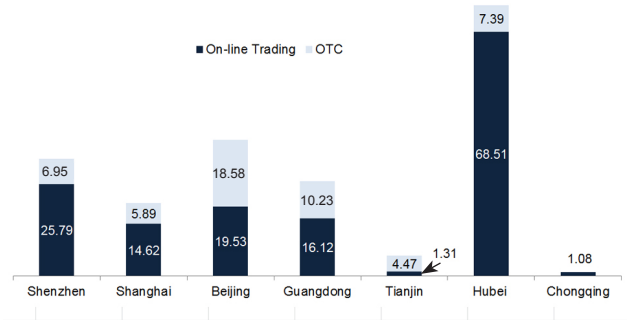


Figure 3. Daily Average Price of Online Trading (US$/ton)
(June 18, 2013 - August 31, 2015)

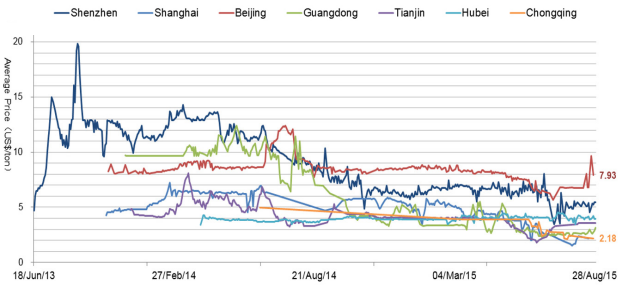
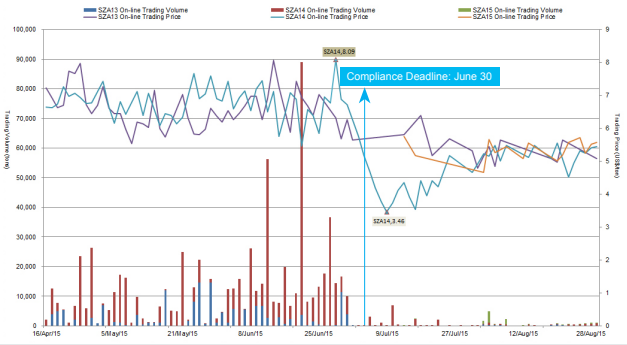


Figure 4. Shenzhen Carbon Markets: Onlin Trading
(April 16, 2015 - 31 August , 2015)



Pilot Carbon Markets

From June 18, 2013 to August 31, 2015 – the duration of the trading has been active in the Chinese pilot markets -- 42.09 million emissions allowances have been traded on the secondary market[4] across the seven ETS pilots. This accounts for a total value of US$200.48 million, with an average price of US$4.76/ton. Between June and July, six of the seven pilots (with Hubei being the exception) hit their respective lowest allowance prices ever. The price for 2014 vintage Shanghai Emissions Allowances (SHEA14) fell to US$1.53/ton on July 31, currently the lowest allowance price seen in all of the pilots. The lowest prices occurred at the end of the compliance period likely because covered entities expect that allowances will expire in 2017, and would thus like to sell their entire surplus instead of reserving it for the future.

This was the first year that all seven pilots enforced compliance. As of July 31 2015, all seven pilots have completed compliance checks, although Chongqing has not published its compliance rate. Compared with last year, overall performance has improved. Shanghai is the only pilot to achieve 100% compliance in both years. Beijing and Guangdong increased their compliance rates to 100% this year. Compliance in Shenzhen and Tianjin is above 99%; penalties against non-complying enterprises in these two pilots have not been announced. Hubei and Chongqing extended their compliance deadlines, after which Hubei's compliance rate reached 100%.

Below is a summary of activity in each of the seven pilots. In the first issue of this Monitor, analysis covered data through April 15, 2015. Unless otherwise stated, the data reported below cover the period from April 16 to August 31, 2015. Moreover, except for the Guangdong pilot, the data reported are for the secondary market, including online trading and over-the-counter transactions[5].

Shenzhen

Shenzhen Pilot: April 16 – August 31, 2015	
Total Volume	1,230,363 tons of SZA13, SZA14, SZA15[6]
% total volume from 7 pilots	6.17%
Total Value	US$ 7,380,611
% total value from 7 pilots	9.38%
Average price	US$6.00/ton

Highlights

- 60.04% of these trades (738,718 tons) took place online ("screen" trades) with the price ranging from US$3.46/ton to US$8.09/ton. The average price for online trading was US$6.41/ton.
- OTC transactions accounted for 491,645 allowances (39.96% of the total). OTC prices ranged from US$4.52/ton to US$7.18/ton, averaging US$5.38/ton. This was about 33.25% lower than the price for online trades.
- Overall, prices for Shenzhen allowances were relatively steady until the deadline for compliance, June 30, after which prices dropped by about 18.9% of SZA 13 and 29.76% of SZA 14, respectively as did volumes The highest price in 2015 was US$8.09/ton, which occurred on Jun 28, 2015, just prior to the deadline for compliance when entities were likely in demand for allowances to

[4] The secondary market does not include allowances that are auctioned by authorities in Guangdong (i.e., the primary market). As of August 31, 2015, 11 auctions have been held in Guangdong for a total auction volume of 14,561,885 GDEA, raising total revenue of US$12,384.12. Guangdong is the only pilot with a primary market.
[5] In China's pilot markets, all transactions—including OTC—must take place on trading platforms (i.e., exchanges). Therefore, the term "OTC" in this report refers to transactions that are brought to the exchanges for registration and clearing, once the two parties making the deal have agreed upon the price and volume of the trade.
[6] SZA15 only began to trade July 14, 2015, with very small trading volume.

meet their obligations.

- Shenzhen's compliance rate for 2014 was 99.7%. There were 636 covered entities, with two failing to meet their compliance requirements. The names of these two entities were published on the official website of the Shenzhen Emissions Exchange.

Table 1. Shenzhen Secondary Carbon Market Data
(April 16 - August 31, 2015)

Time	Contract	Online Trading		OTC	
		Trading Volume (tons)	Trading Value (US$)	Trading Volume (tons)	Trading Value (US$)
April	SZA13	26,848	185,564	0	0
May		63,234	385,304	0	0
June		60,336	385,548	0	0
July		679	3,820	0	0
August		2,007	10,742	0	0
Sub-total		153,104	970,708	0	0
April	SZA14	72,885	497,825	15,000	80,444
May		113,082	741,768	71,500	394,968
June		367,746	2,375,436	385,145	2,080,774
July		16,469	65,939	0	0
August		6,640	34,721	20,000	90,323
Sub-total		576,822	3,715,689	4971,645	2,646,508
July	SZA15	2	11	0	0
August		8,790	47,695	0	0
Sub-total		8,792	47,706	0	0
Total		738,718	4,734,104	491,645	2,646,508

Shanghai

Shanghai Pilot: April 16 – August 31, 2015	
Total Volume	1,492,164
% total volume from 7 pilots	7.48%
Total Value	US$4,932,062
% total value from 7 pilots	6.27%
Average price	US$3.31/ton

Highlights

- About 61.85% of Shanghai trades (922,831 tons) took place online ("screen" trades) and prices ranged from US$1.53/ton to US$4.66/ton. The average price for online trading was US$3.25/ton.
- OTC transactions accounted for 569,333 allowances (38.15% of the total) and a total value of US$ 1,929,515.
- Shanghai is the only pilot to achieve 100% compliance in both years of operation.
- The Shanghai pilot carbon market was relatively active until the compliance deadline of June 30, after which daily trading volume dropped sharply.
- Mirroring the drop in trading, prices for SHEA14 plummeted to a historic low of US$1.53/ton on July 31, 63% below the launch price.

Beijing

Beijing Pilot: April 16 – August 31, 2015	
Total Volume	2,163,826 tons
% total volume from 7 pilots	10.85%
Total Value	US$14,051,805
% total value from 7 pilots	17.86%
Average price	US$6.49/ton

Highlights

- The compliance rate for the second compliance period was 100%.
- 983,076 tons of BEA (Beijing allowances) were traded online during this period, with a total trading value of

Figure 5. Shanghai Carbon Market: Online Trading
(April 16 - August 31, 2015)

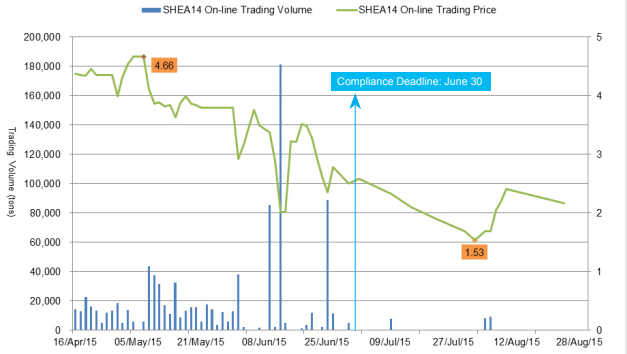


Figure 6. Beijing Carbon Market: Online Trading
(April 16 - August 31, 2015)

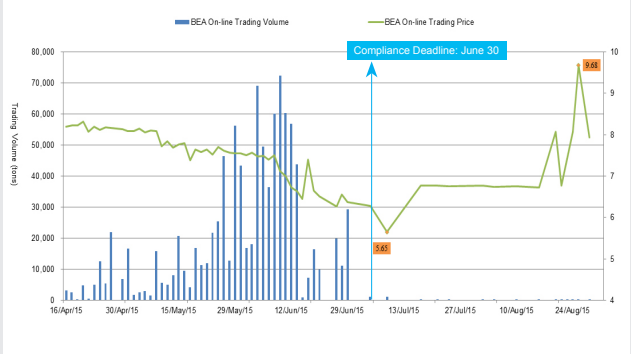


Table 2. Shanghai Secondary Carbon Market Data
(Apr. 16 - Aug 31, 2015)

Time	Contract	Online Trading		OTC	
		Trading Volume (tons)	Trading Value (US$)	Trading Volume (tons)	Trading Value (US$)
April	SHEA14	146,624	635,821	100,000	403,226
May		311,053	1,209,764	205,000	758,871
June		439,727	1,108,852	264,333	767,418
July		8,408	32,840	0	0
August		17,019	15,269	0	0
Total		922,831	3,002,547	569,333	1,929,515

Table 3. Beijing: Secondary Carbon Market Data
(April 16 - August 31, 2015)

Time	Contract	Online Trading		OTC	
		Trading Volume (tons)	Trading Value (US$)	Trading Volume (tons)	Trading Value (US$)
April	BEA	62,616	511,448	50,000	383,065
May		296,623	2,280,032	395,000	2,314,361
June		620,852	4,419,915	718,351	4,040,264
July		2,436	14,796	0	0
August		549	3,737	17,399	84,189
Total		983,076	7,229,927	1,180,750	6,821,878

US$7,229,927.

- BEA traded online at the highest price among all seven pilots, reaching US$9.68/ton on August 25, 2015. Between April 16, 2015 and August 31, 2015, the online BEA trading price slowly declined, hitting a low of US$5.65/ton in mid-July before jumping suddenly to US$9.68/ton at the end of August.
- OTC trading volume were higher: 1,180,750 tons traded at a value of US$6,821,878. The average OTC trading price was US$5.78/ton, lower than the price for online trading.
- The Beijing pilot extended its compliance deadline by two weeks, after 15 covered entities failed to meet the deadline (their names publically disclosed). Following the new deadline, 100% of covered entities were in compliance.
- In its second compliance year, the Beijing pilot covered 128 (10%) more enterprises and allowed individual investors to participate in the market. These changes boosted liquidity.

Guangdong

Guangdong Pilot[7]: April 16 – August 31, 2015	
Total Volume	5,316,196
% total volume from 7 pilots	26.66%
Total Value	US$13,925,505
% total value from 7 pilots	17.70%
Average price	US$2.62/ton

Figure7. Guangdong Carbon Market: Online Trading
(April 16 - August 31, 2015)

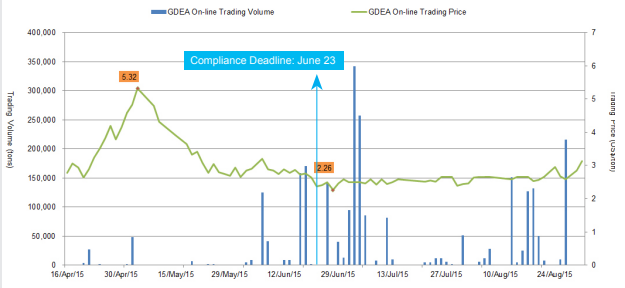


Table 4. Guangdong Secondary Carbon Market Data
(April 16 - August 31, 2015)

Time	Contract	Online Trading		OTC	
		Trading Volume (tons)	Trading Value (US$)	Trading Volume (tons)	Trading Value (US$)
April	GDEA	37,553	111,767	100,000	276,613
May		65,257	290,078	0	0
June		723,330	1,999,097	742,841	2,045,276
July		974,099	2,424,281	1,800,000	4,511,613
August		773,116	2,009,200	100,000	257,581
Total		2,573,355	6,834,423	2,742,841	7,091,082

[7] Including primary and secondary market data.

Table 5. Guangdong Vintage 2014 Allowance Auction Data
(September 26, 2014 - Jun 10,2015)

Date	Auction Reserve Price (US$/ton)	Available Quantity (million tons)	Transaction Volume (million tons)	Transaction Price (US$/ton)	Transaction Value (US$ million)
2014/9/26	4.03	2	2	4.19	8.39
2014/12/22	4.84	1	0.7	4.84	3.39
2015/3/27	5.65	1	0.42	5.65	2.38
2015/6/10	6.45	3	0.31	6.45	2.03

Highlights

- Online trading for the Guangdong pilot reached a total of 2,573,355 tons of GDEA, and US$6,835,290 in value. The daily average price rose to US$5.32/ton at the beginning of May, but dropped toward the end of the compliance period reaching US$2.26/ton by June 26, 2015. Since then, the average trading price has been stable.
- OTC trading reached 2,742,841 tons at a value of US$7,091,082, accounting for 51.59% of the total volume and 50.92% of the total value in Guangdong's secondary carbon market.
- Since December 16, 2013, 11 auctions have been held with a total auction volume of 14,561,885 GDEA, raising total revenue to US$123,841,202. However, between April and August 2015, only 1 auction took place (on Jun 10, 2015), during which 314,643 GDEA were sold at the price of US$6.45/ton.
- Guangdong increased its compliance rate to 100% by extending the deadline for compliance and issuing notification to stop the practice of internal adjustment.
- Relative to the same period last year, trading in the Guangdong pilot market was far more active. From June 23 (the compliance deadline) to August 31, 3,841,600 tons of GDEA were traded in the secondary market, of which 2,250,000 tons were traded OTC. This is roughly five times the amount traded in the same period last year. A number of reasons could be behind the stronger market performance: a switch from an allowance allocation system which requires purchasing to one which allows entities to bid for allowances, a better understanding by covered entities of the trading process, and provision of trading services provided by the local exchange.

Tianjin

Tianjin Pilot: April 16 – August 31, 2015	
Total Volume	945,333 tons TJEA14 and TJEA15
% total volume from 7 pilots	4.74%
Total Value	US$2,132,147
% total value from 7 pilots	2.71%
Average price	US$2.25

Highlights

- Most days, online trading volume was below 1,000 tons.
- 931,033 tons was traded OTC, concentrated on the last few trading days of the 2014 compliance season. OTC

transactions also represented 98.5% of the total volume and 98% of the total value of the Tianjin carbon market in this reporting period.

- The Tianjin Climate Exchange was closed from August 13 to August 30, 2015 because of the explosion at a chemical storage facility in Tianjin.

Figure 8. Tianjin Carbon Market: Online Trading
(April 16 - August 31, 2015)

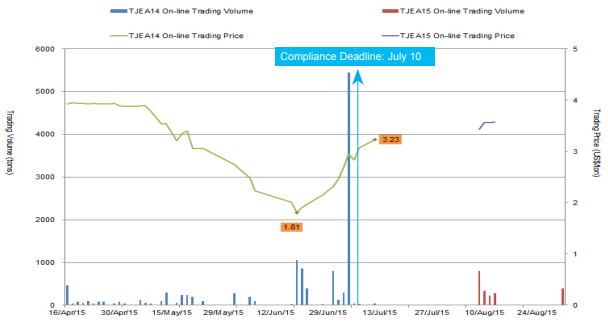


Table 6. Tianjin Secondary Carbon Market Data

(April 16 - August 31, 2015)

Time	Contract	Online Trading		OTC	
		Trading Volume (tons)	Trading Value (US$)	Trading Volume (tons)	Trading Value (US$)
April	TJEA14	1,060	4,164	0	
May		1,500	5,152	0	
June		3,740	7,757	0	
July		5,960	17,495	931,033	2,090,398
Sub-total		12,260	34568	931,033	2,090,398
July	TJEA15	0	0	0	0
August		2,040	7,181	0	0
Sub-total		2,040	7,181	0	0
Total		14,300	41,749	931,033	2,090,398

Hubei

Hubei Pilot: April 16 – August 31, 2015	
Total Volume	8,681,544 tons
% total volume from 7 pilots	45.53%
Total Value	US$35,936,238
% total value from 7 pilots	45.67%
Average price	US$4.14

Highlights

- Online trading of Hubei Emissions Allowances (HBEA) totaled 8,140,952 tons. This amounted to a total value of US$33,883,219 with an average price of US$4.16/ton. The daily average price was relatively stable, ranging from US$3.48/ton to US$4.52/ton.
- 540,592 tons of HBEA were traded OTC, with a value of US$2,053,019.
- Hubei extended its compliance deadline on June 29, 2015 and published the compliance rate on July 24, 2015. Compliance was 100% for 2014. Peak trading occurred late in the compliance period from July 3 to July 21.
- Compared with the other pilots, the Hubei carbon market continued to be liquid after the end of the 2014 compliance period, with an average daily trading volume of 85,694 tons.
- According to Hubei pilot regulation, if covered entities have surplus allowances that are not from the secondary market, these allowances will be cancelled by the Hubei DRC. This is probably the key driving force behind the relatively high trading volume in Hubei.

Figure 9. Hubei Carbon Markets: Online Trading
(April 16 - August 31, 2015)

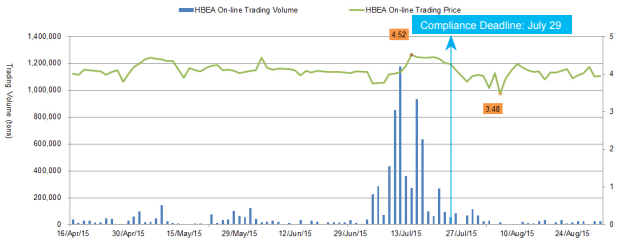


Table 6. Hubei Secondary Carbon Market Data

(April 16 - August 31, 2015)

Time	Contract	Online Trading		OTC	
		Trading Volume (tons)	Trading Value (US$)	Trading Volume (tons)	Trading Value (US$)
April	HBEA	269,822	1,089,845	100,000	364,032
May		783,251	3,317,777	40,000	145,613
June		526,799	2,153,698	0	0
July		6,224,157	25,989,594	400,592	1,543,373
August		336,923	1,332,306	0	0
Total		8,140,952	33,883,219	540,592	2,053,019

Chongqing

Chongqing Pilot: April 16 – August 31, 2015	
Total Volume	112,632 tons
% total volume from 7 pilots	0.56%
Total Value	US$320,585
% total value from 7 pilots	0.41%
Average price	US$2.85/ton

Highlights

- The first compliance period in the Chongqing pilot began May 25 and concluded July 23. Nearly all trading took place between June and July, and all trades were conducted online.
- Chongqing postponed the compliance deadline to provide covered enterprises more time for compliance preparation. The compliance rate for 2014 has not been released yet.

Figure 10. CCER Projects by Type
(% of issuing projects)

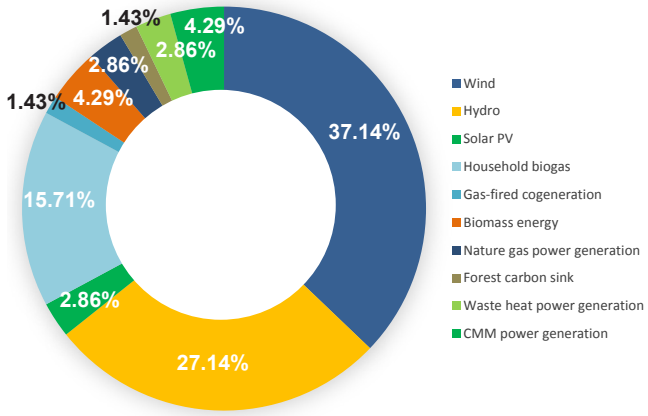
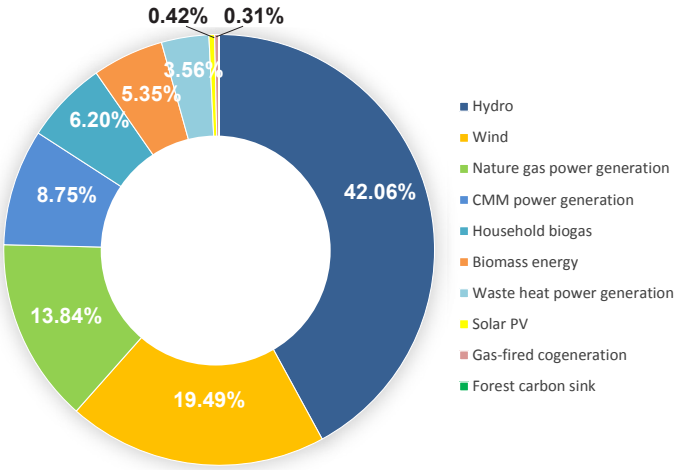


Figure 11. CCER Projects by Type
(% of credits issued)



CCER Market

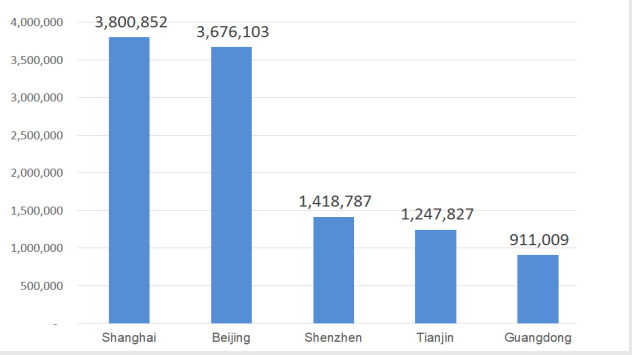
Following the compliance period in the seven pilot carbon markets, NDCR has slowed the pace of China Certified Emissions Reductions (CCER) issuance, likely in an attempt to better control the supply of CCERs. As of August 31, 991 CCER projects have been made available for comment, 178 have been registered, and 70 have been issued with 20.64 million tons of CCERs[8].

Among the 70 issued projects, there are 16 Type I projects 1.28 million CCER issued, 2 Type II projects expected total emissions reduction of 0.41 million tCO2e, and 52 Type III projects expected total emissions reduction of 18.95 million tCO2e[9]. Type III (Pre-CDM) projects currently dominate, but the proportion of this type of project is expected to decline as the number of Pre-CDM projects is limited in the future.

The CCER registry launched in January 2015 and CCER trading in the pilot markets began in March 2015 (Figure 12). As of August 31 a total 11,054,578 CCERs have been traded through the exchanges; about half of this volume took place on the Beijing and Shanghai Environment and Energy Exchanges. Among the seven pilots, only the Hubei and Chongqing pilot exchanges did not publish their CCER trading data.

Those CCER transactions involve mainly CCER project owners and investors, as well as entities covered by the ETS pilots. CCER trading usually takes place OTC, and investors are the major participants. Except for the Beijing market, CCER prices are not reported publically. The average CCER price in Beijing between April 16 and August 31 was US$3.12/ton.

Figure 12. Geographical Distribution of CCER Trading (tons CO_2e)



[8] All data are from the China Certified Emissions Reduction Exchange Info-Platform.
[9] According to the Administrative Measures for the Operation and Management of CCER projects, all projects that were constructed after February 16, 2005 and belong to any of the following categories are eligible to apply for registration:
Type I: Voluntary emissions reduction projects that were developed using methodologies approved by the national authority;
Type II: Projects that were approved as CDM projects by the NDRC but not registered at the UN CDM Executive Board;
Type III: Projects that were approved as CDM projects by the NDRC and produced emissions reductions before being registered at the UN CDM Executive Board; and
Type IV: Projects that were registered at the UN CDM Executive Board but whose emissions reductions have not been issued.

Policy Updates and Analysis

A National ETS is a Presidential Priority

As part of a joint statement with President Barack Obama covering a number of climate related actions from both countries, President Xi Jinping announced on September 25, 2015 that China will launch its national ETS in 2017. While plans for the national scheme have been under way for some time, the announcement signals a presidential commitment and gives a clear deadline to NDRC. The national scheme will cover key industrial sectors such as iron and steel, power generation, chemicals, building materials and nonferrous metals.

Legislation Moves Forward to Promote Development of a National ETS

Formulating and passing a law to support a national carbon market should be the first priority for any government planning to develop a carbon market. Legislation provides legitimacy and specific rules for the establishment and operation of such a market. It defines the major participants, names the competent authority, specifies covered entities, and identifies independent third parties and their functions and obligations.

Unlike other countries where legislation is the beginning of formal rules and government action, in China, such legislation usually confirms existing government policies, programs, and measures. This is the case with China's carbon market, where a lot of work has already been done toward designing and implementing a nation-wide ETS but no national legislation exists.

This is changing. On July 29, 2015, the NDRC held a public hearing on the draft National Carbon Emissions Trading Management Regulations. The hearing provided an opportunity to discuss proposed administration of 1) the ETS Allowance Management Regulation and 2) the qualification of verification bodies. As part of the reform process, the Chinese government is devolving many of its licensing and administrative powers, and thus when requesting new permitting and licensing power, government agencies must prove they are necessary.

The hearing was an opportunity for the NDRC and a number of stakeholders to emphasize the importance of capable third-party verifiers as critical to a functioning carbon market. Stakeholders also used the hearing to explain the importance of issuing strong, early legislation for a robust carbon market.

While the NDRC and pilot markets have put great effort into building and demonstrating the efficacy of emissions trading, strong, legally binding regulations to guide a national ETS are still missing. The draft legislation could change this and is an important first step

The Central Leading Group for Comprehensively Deepening Reform, the high-level body Chinese President Xi Jinping established to formulate and implement far-reaching reform efforts, issued a mandate to the NDRC to issue a carbon market regulation There was not enough time, however, for the NDRC to submit the regulation to the State Council for consideration as legislation. Instead, in December 2014, the NDRC issued the Interim Administrative Measure on Carbon Emissions Trading (Interim Measures) to outline the design, roadmap, and requirements for a national ETS. The Interim Measures are a "ministry-level rule." Their authority is not sufficient to ensure strong support and enforcement from provincial government agencies that must also report to and get resources from minister-level provincial governors. Such rules do not enforce strong consequences for non-compliance, so enterprises take them less seriously. It is thus necessary to increase the level of the carbon market regulation issuing authority from ministry to State Council.

After review and approval by the State Council, the National Carbon Emissions Trading Management Regulations will provide the top-level and legally-binding regulation needed to underpin the national ETS. Such regulations will help to ensure openness, fairness, and compliance in the operation of the ETS.

The National Carbon Emissions Trading Management Regulations will be the core piece of legislation for the establishment of China's unified carbon market, as well as the foundation of the third-party verification and allowance allocation systems. The national ETS is expected to be in 2017. The State Council Legislative Affairs Office responsible for drafting legislation is seeking to put the regulation in its work plan for next year. Therefore, when this regulation is submitted to the State Council, it will signal that the national carbon market is approaching.

CCER Rules Change in the Seven Pilot Carbon Markets

Since April 2015, the Shenzhen and Tianjin pilots introduced new rules on CCER use joining the other 5 pilots who set specific restrictions on the eligibility criteria of CCER projects regarding project types and location. For the latest status of CCER rules adopted in various pilots, please refer to the Appendix.

In terms of project type, both large and small hydropower projects are eligible in Shanghai, while only small projects are accepted in the Hubei carbon market. As for the other pilots, hydropower projects of any size are ineligible as offsets. In addition, pre-CDM projects are not accepted in Beijing, Tianjin, Guangdong, and Chongqing.

All pilots except for Chongqing and Shanghai impose restrictions on location. Beijing, Shenzhen, and Hubei prefer CCER projects that originate from designated "cooperation areas," in order to promote both market liquidity and participation from non-pilot areas.

The Hubei pilot also announced additional rules, allowing enterprises covered to submit future CCERs[10] for compliance. The measure can effectively promote containing price risks and advance earnings for project developers and investors, as well as reducing compliance cost. However, there is a risk that future CCERs probably could be denied for issuance by NDRC.

Notes on the sources and methodology used in this report

1. Among the seven carbon emissions trading pilots, only Guangdong has used auctioning to distribute part of the allowances to regulated entities (i.e., the primary market). Therefore, the China Carbon Market Monitor only reports on allowances changing hands once they have already been distributed through free allocation or auctions (i.e., through the secondary market). In the seven carbon emissions trading pilots, such transactions can only take place on the officially designated trading platforms (i.e., the "exchanges") with participants trading either online on an anonymous basis, or OTC where traders agree on a quantity and a price for the allowances, and then register and clear the deal with the trading platform.

2. Online trading information (i.e., daily trading volume, value, and average price) is publicly available for all seven pilot markets.

[10] Future CCERs mean CCERs from project that has been registered, but emission reduction credits have not yet been issued by NDRC.

However, the availability and modality of publication of OTC trading data varies: Shanghai and Tianjin publicly report data for all OTC transactions; Guangdong, Beijing, and Shenzhen publicly report OTC transactions on an aggregated basis, and thus values are determined using online trading data; in Hubei, daily OTC transaction data was not released but monthly data were available on the official website of the Hubei Emissions Exchange.

3. As of August 31, 2015 data on the CCER project pipeline, registration, and issuance is officially publicized by China Certified Emission Reduction Exchange Info-Platform, which is the official website for CCER project information. Data on CCER trades come from public announcements made in the press and by market players in the respective markets.

4. Availability of allowances for trading is determined by the respective pilots' allocation plans. Shanghai allocated allowances for three years (2013, 2014, and 2015) at once. Shenzhen and Tianjin allocate allowance vintages every year. Beijing and Guangdong allocate allowances each year but do not distinguish between vintages. For the purposes of this report, BEA and GDEA, therefore, correspond to all Beijing Emissions Allowances and Guangdong Emissions Allowances from 2013 to 2014. Chongqing allocated allowances for 2013, but does not intend to distinguish between vintage years. CQEA-1 is the Chongqing Emissions Allowance valid for the whole pilot phase, from May 28, 2014 to December 31, 2015. Hubei allocated allowances for 2014, but will not use vintages; therefore, HBEA is the corresponding Hubei Emissions Allowance for the pilot phase,

Appendix: Comparison of Off-Set Rules in Seven Pilot Carbon Markets

Pilot	Type of Offset Credit	Rules of Use	Location Restriction	Time and Types Restriction
Shenzhen	CCER	No more than 10% of the annual verified emissions	——	CCERs must come from existing or planned renewable and new energy projects, clean traffic projects, marine carbon sequestration project, forestry carbon sequestration project, agricultural emissions reduction project
Shanghai	CCER	No more than 5% of the allocated allowances	CCERs from the projects in the covered entity boundary cannot be used	CCERs generated after January 1, 2013
Beijing	CCER; validated emission reductions from energy conservation projects and forestry carbon sequestration projects	No more than 5% of the the allocated allowances	Up to 50% of the annual CCER quota may come from projects located outside of Beijing, with priority to projects located in cooperation areas, including Hebei Province and Tianjin City	CCERs must come from projects that began operation after January 1, 2013; excluding CCERs from HFCs, N2O, SF6, and hydropower projects
Guangdong	CCER	No more than 10% of the annual verified emissions	At least 70% of CCERs should come from projects located in Guangdong Province	At least 50% of the reductions from a particular project must be in CO_2 and CH_4 emissions; exclude CCERs from hydro power, fossil fuel (coal, oil, an gas) power generation, heating and waste energy projects; exclude CCERs from pre-CDM projects
Tianjin	CCER	No more than 10% of the annual verified emissions	CCERs from Beijing, Tianjin and Hebei should be given priority. CCERs from the projects located in the covered entity boundary of Tianjin and other pilot province and cities cannot be used	CCERs from pre-CDM projects and hydro power projects are not allowed.
Hubei	CCER	No more than 10% of the allocated allowances	100% of CCERs should come from projects located in Hubei Province	CCERs can only be from small hydro power projects.
Chongqing	CCER	No more than 8% of the the annual emissions	——	CCERs must be sourced from projects operational after December 31, 2010 (except forestry carbon projects); exclude hydropower projects.