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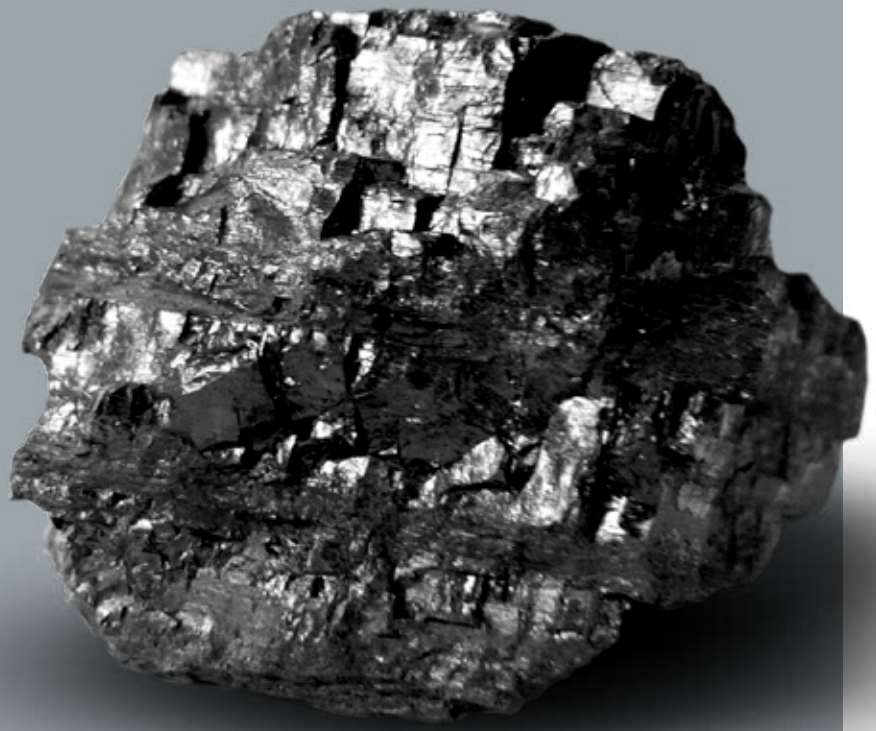

2017.

Abstract

This report summarises the results of the *2017 China Carbon Pricing Survey*. The survey elicited expectations about the future of China's carbon price from stakeholders in carbon markets in China between May and July 2017. The results of the survey give strong confidence that carbon price levels in China will rise over time, and that carbon pricing will increasingly affect investment decisions. China has announced that a national emissions trading system will start by 2017. However, on average, the survey respondents' expectation is that it could take until at least 2020 before the national ETS is fully functional. In the lead up to the national ETS, significant capacity building has been conducted, but much more is needed. A large majority of respondents prefer a strong legal basis for the ETS from its initial phase, with at least State Council regulation in place. ETS is expected to become the most important policy instrument to motivate companies to reduce GHG emissions in the coming decade. There is strong confidence that China will meet its target to peak emissions by 2030. Many expect that the peak in emissions will be reached significantly earlier.

Keywords

Carbon pricing, emissions trading, carbon market, public policy, stakeholder survey, China

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Executive summary

This report is a summary of results from the *2017 China Carbon Pricing Survey*, jointly conducted by China Carbon Forum (CCF), ICF and SinoCarbon, with inputs from the Dutch Emissions Authority, the Tsinghua University Center for China Carbon Market Research, and other experts.

The survey, undertaken from late March to early July 2017, obtained expectations about the future of China's carbon price from 260 stakeholders. The survey is a collective "best guess" by these stakeholders. It does not claim to be representative, but it does provide a clear indication of dominant stakeholder views about the likely future of carbon pricing in China. The project builds on similar surveys conducted in 2013 and 2015.

This survey report comes at a crucial time of global interest in China's climate action, as the USA announced in mid-2017 its intention to withdraw from the Paris Agreement, and an announcement of the start of a national ETS in China is expected still in late 2017.

China is about to launch the largest carbon market in the world

During 2013 and 2014, pilot carbon markets were launched in four municipalities (Beijing, Chongqing, Shanghai and Tianjin), two provinces (Guangdong and Hubei) and the special economic zone of Shenzhen. Each of the pilots have now completed either three or four compliance cycles, providing useful information for future policy decisions.

The *2013 and 2015 China Carbon Pricing Surveys* asked respondents for their expected carbon prices in the pilot regions for future years. Predictions can now be compared with real prices up to 2016. The actual average prices in 2016 were well below expectations. Respondents to the 2013 and 2015 survey expected that the prices in the pilots would gradually rise, while in fact they steadily decreased from 2014 to 2016.

Since President Xi Jinping announced in 2015 that China would launch a national ETS by 2017, preparations for China's national carbon market have intensified. Requirements for high-carbon emitting companies to report their historical emissions data were introduced, and that data has to be subject to an independent verification process. The government is in the process of establishing a legal basis for the ETS, now at the State Council level. A timeline for a formal law to be issued has not yet been provided, however. Capacity building for carbon market stakeholders has been underway for some time, and is increasing through the establishment of regional capacity building centres in a number of provinces.

The sectoral coverage at the beginning of the national ETS is not yet clear. Eight major sectors are required to report their emissions, and are expected to eventually be included in a national system. However, recent reports have suggested that as few as one to three industries may be covered in the system's opening phase. Draft allocation plans for three sectors (power, cement and aluminium) were released by media in May 2017. The plans specify benchmarks for each sector and the methodology for calculating allowance allocation. Even if only the power sector is included at the beginning of the national ETS, it will still be the largest in the world by a large margin - the emissions covered would be about twice as much as are currently covered under the EU ETS.

Government guidelines on green finance released in 2016 suggest that support may be provided for the development of a more diverse range of financial products in the carbon market however these are not expected to be introduced from the start of national ETS.

Respondents

The survey received 260 responses from professionals in a range of sectors, including industry (26%), consultancies (25%), academia (10%), financial industries (7%), trading platforms (7%) and NGOs (6%). Other respondents include those from research institutes, local and national levels of the Chinese government, and multilateral/bilateral development organizations. 83% of covered industry respondents expected to be included in the forthcoming national ETS, with 59% of them having participated in the pilots. It is likely that on average, the industry respondents which responded to the survey have more experience, are at a more advanced stage of preparation, and have more positive views towards the carbon market than those which didn't respond.

Expectations about the national carbon market

The Chinese government has recently reaffirmed at COP23 that the national ETS is still expected to be approved in 2017. However, when asked by when China's national ETS will be fully functional, only 47% of respondents expect this to happen by 2020 or earlier. A further 44% of respondents expect a fully functional carbon market between 2021 and 2025.

So far, the legal basis for the carbon market is not clear. A large majority of respondents (63%) believe that the legal basis for the national ETS should be a national law on climate change passed by the National People's Congress. About a third of respondents (32%) believe that a regulation by the State Council would be sufficient. These results suggest that if an actual law is not immediately possible, at the very least there should be regulation provided by the State Council at the beginning of the ETS.

About half of the respondents consider that trading in the national ETS should occur across several regional platforms, while 37% think that there should be one national platform. 14% of respondents think that there should be emissions trading exchanges in every province.

The majority of respondents (89%) believe that all or part of unused allowances should be bankable for companies previously covered by the pilot systems that will transfer to the national ETS. Respondents expect that companies will be able to transfer assets from the pilots into the national ETS without totally losing their value, however they also recognise the risk of full banking contributing to over-supply in the market. More than half of industry respondents were from companies that had participated in the pilot markets, and are therefore likely to be more in favour of banking into the national ETS.

Respondents from covered industries were asked whether they think that their organisation is adequately prepared to take part in an ETS. The areas in which respondents were least prepared included administrating allowances (44%) and carbon trading (41%).

Respondents expect carbon emissions trading to increasingly affect investment decisions in coming years. In 2017, 39% of those who expressed a view, expect investment decisions to be strongly or moderately affected, and by 2025 this figure rises to 84%.

Carbon emissions trading is expected to increasingly affect investment decisions

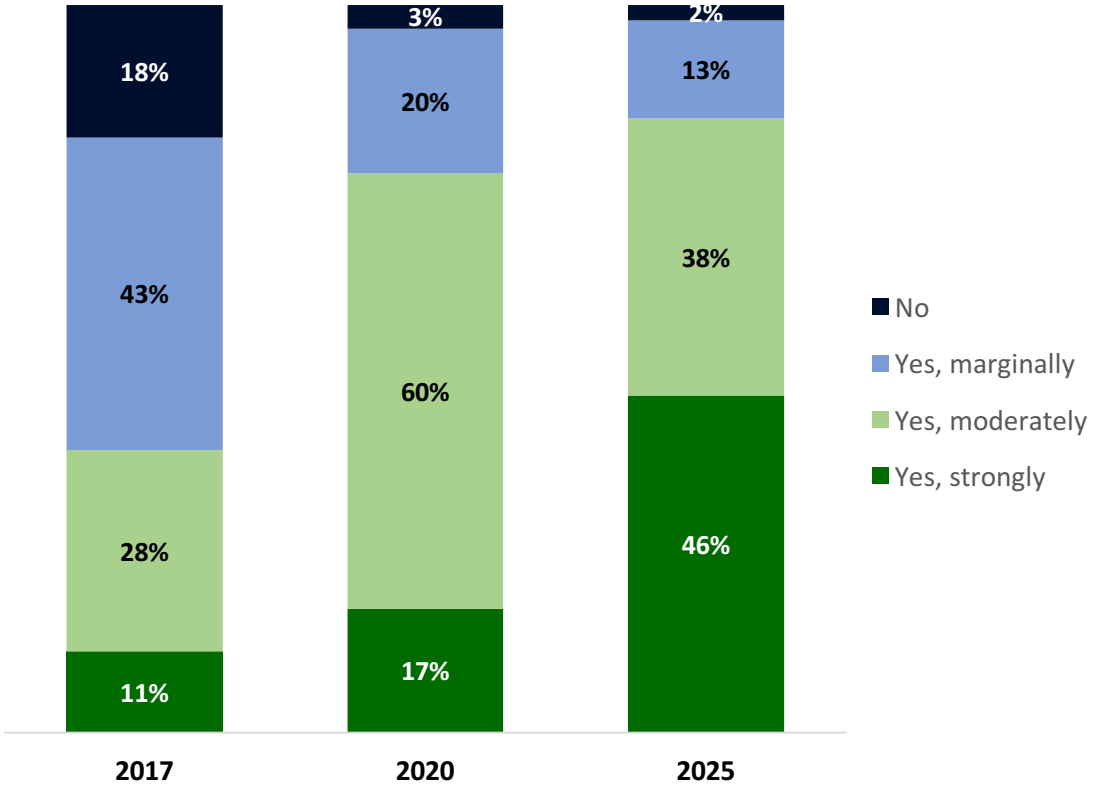

Figure 1 Q3-1: Do you expect the ETS in China to affect investment decisions in 2017? 2020? 2025? (N=252, 246, 231)

When asked if they expect China's national ETS to be linked with other existing trading systems around the world, 61% believe that linking will take place by 2030. Of those expecting international linkages, the vast majority expect a link with the EU ETS, and some expect a link with the Regional Greenhouse Gas Initiative (RGGI), South Korea and/or California.

Price expectations

The average price expectation in the national ETS is CNY 38/ton in 2017; CNY 51/t in 2018; CNY 74/t in 2020; CNY 108/t in 2025. However, the price levels remain highly uncertain, especially in the more distant future. The 20th and 80th percentiles for 2025 are CNY 50/t and CNY 200/t respectively. The future price expectations are much higher than at the time of the 2015 survey. At that time, average expectation was CNY 56/t in 2020, and CNY 70/t in 2025.

China's carbon price is expected to steadily rise

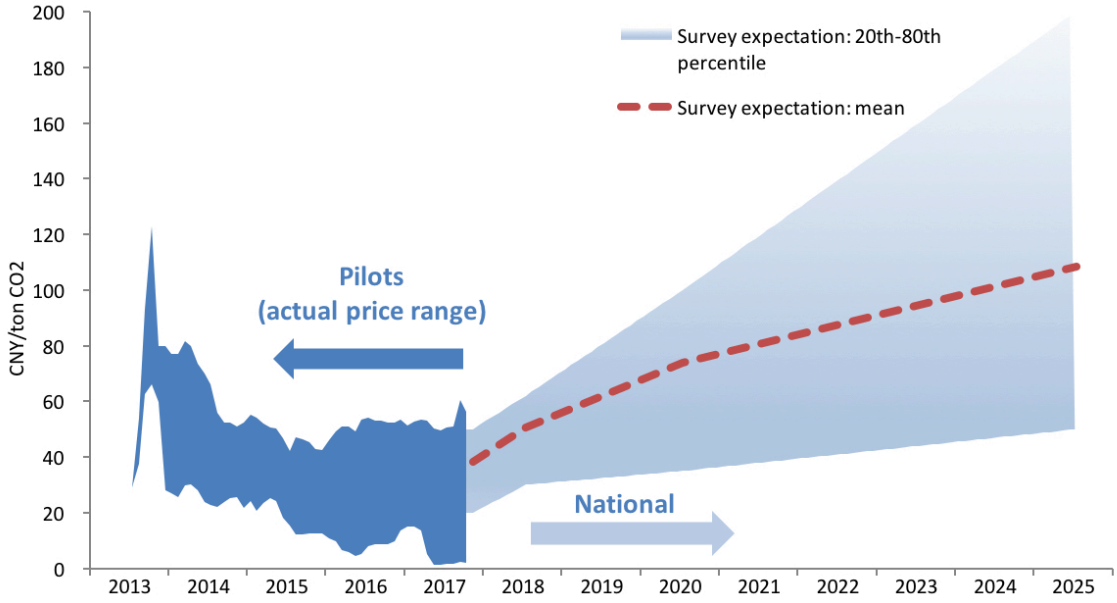

Figure 1 Range of prices in the pilot systems to-date, and estimated prices for the national system by survey respondents.

There were slight price variations between industry and non-industry respondents, with industry expecting higher prices after 2018. Other similar surveys conducted in Europe and Australia tended towards lower carbon price expectations from industry. However, our 2015 China survey also showed an industry tendency to expect higher prices.

Carbon pricing in the mix of policy instruments

Respondents were asked what they expect to be the most important policies to reduce GHG emissions in future years (Figure 3). The expectation is that, over time, the emphasis will shift towards ETS, environmental tax, information disclosure, and energy allowances trading.

Market-based measures are expected to become the main policy instruments

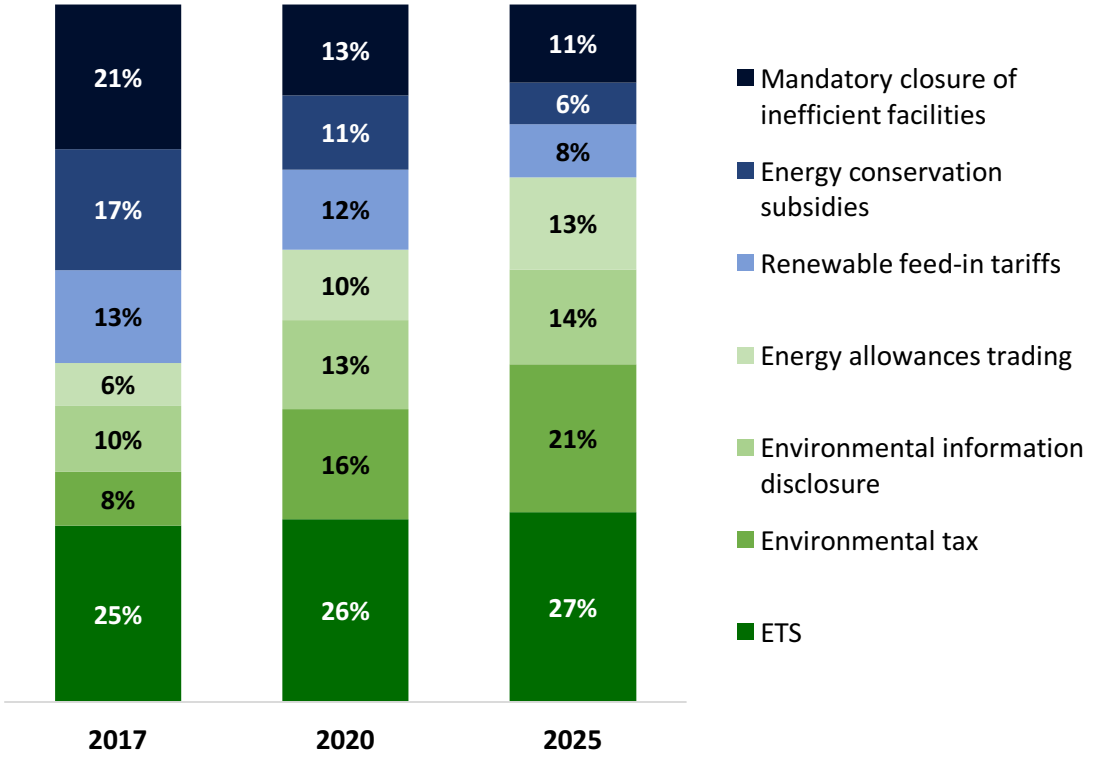

Figure 3 Q3-3: Which do you expect to be the most important policies in motivating companies to reduce GHG emissions in China at different points in time? (N=256, 253, 257)

China's emissions targets and peak emissions

While 63% of respondents expect that China will stick to an emissions intensity target for 2025, a majority expects that an absolute emissions target will be set for 2030. These results continue to support the possibility that, in the near future, China may shift its 2030 commitment from an emissions intensity target to an absolute emissions target.

90% of respondents expect China to achieve the carbon emissions peak by 2030, and 55% expect China's emissions to peak by 2025 or earlier.

China's emissions are expected to peak ahead of 2030

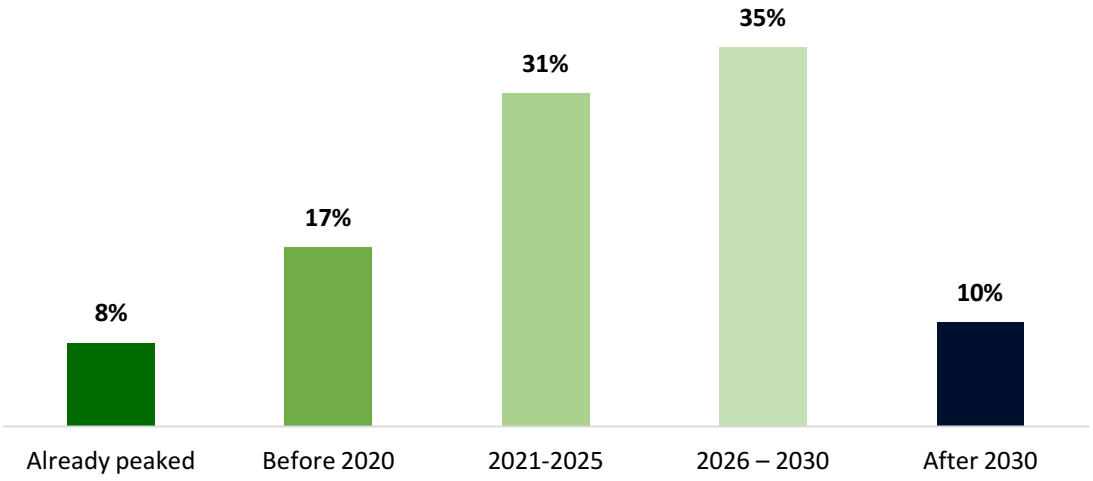

Figure 4 Q6-1: When do you expect China's emissions will peak? (N=259)

Survey introduction

This report presents the results from the *2017 China Carbon Pricing Survey*, jointly conducted by China Carbon Forum (CCF), ICF and SinoCarbon, with inputs from the Dutch Emissions Authority, the Tsinghua University Center for China Carbon Market Research, and other experts.

The project builds on similar surveys conducted in 2013 and 2015. Many of the questions asked were the same in each of the three surveys, and results were compared over time. Strong efforts were made to survey representatives from China's carbon-intensive industries, which are already subject to, or are soon expected to be subject to carbon pricing.

In addition to the survey itself, the project team conducted two industry stakeholder roundtables on ETS design, focused on allowance allocation and monitoring, reporting, verification and accreditation (MRVA). The roundtables involved industry representatives and sectoral associations, together with government experts on carbon market development. The aim of the roundtables was to, on the one hand, provide a channel for communication of industry opinions on ETS design to policymakers, and on the other, to expand the scope of public discourse on these important aspects of the national system. Links to the public reports from the two roundtables can be found on the China Carbon Forum website.

This survey report comes at a crucial time of global interest in China's climate action, as a national ETS is planned to start in late 2017. China's government has committed to specified emission reduction targets, to reduce the nation's carbon intensity of the economy by 40 to 45 percent from 2005 levels by 2020, and by 60 to 65 per cent by 2030.[1]

This survey gauges expectations by experts and market participants about the future of carbon pricing in China, and how it fits into China's broader climate change mitigation efforts. It quantifies expectations about market design decisions, relevant policies, carbon prices, and the impact on investment decisions. As such, it can make an important contribution to improving understanding for the markets and for policymakers, of how the prospects for carbon pricing are perceived in the industry and expert communities.

The expectations elicited in this report are best interpreted as an aggregation of "best guesses" by a subset of people who have knowledge and informed views about the factors that will affect the operation of China's carbon market. For industry respondents, the survey's sample may be biased towards market participants with a higher than average level of preparedness, given that less well-prepared companies may have less certainty regarding the carbon market, and therefore be less willing to complete a survey. There is no claim that the survey is representative of the views of all experts and industry on these questions, both because it is not possible to create a representative list of experts, and because of self-selection of those who chose to respond to the survey.

[1] Carbon intensity refers to the level of carbon emissions per unit of GDP (CO_2/CNY GDP).

The expectations about future carbon prices derived from surveys such as this one differ conceptually from forward prices in markets, which reflect market expectations but adjust them for risk and are subject to demand and supply of capital. They also differ conceptually from forecasts of prices that are based on quantitative analysis of underlying market factors, and assumptions about policy settings.

This report begins with an update on the status of carbon emissions trading in China to-date. It then outlines the key result from the survey, covering the experience of the pilot systems, expectations about the national system, the readiness of enterprises, the impact of carbon pricing on investment decisions, the role of ETS in relation to other policies, the prospect for linking China's carbon market with international ones, and expectations about the peaking of China's carbon emissions.

Update on carbon emissions trading in China

During 2013 and 2014, pilot carbon markets were launched in four municipalities (Beijing, Chongqing, Shanghai and Tianjin), two provinces (Guangdong and Hubei) and the special economic zone of Shenzhen. In the last two years, pilot regions have further developed their markets by expanding coverage, refining their allocation mechanisms, and introducing derivative products. For a summary of key policies issued for the pilots in 2016-17, see Appendix 1.

Since President Xi Jinping announced in 2015 that China would launch a national ETS by 2017, preparations for China's national carbon market have intensified. Requirements for high-carbon emitting companies to report their historical emissions data were introduced, and that data has to be subject to an independent verification process. The government has also begun the process of establishing a legal basis for the ETS, with the State Council having previously listed the ETS regulation in its work plan for 2016. A timeline for a formal law to be issued has not yet been provided, however. Since early 2016, the central government has issued several documents with information relevant to the operation of the national system, however many aspects of the national ETS are yet to be disclosed at the time of publication. Below we provide a summary update of progress to-date and the important policy decisions to made in the near future.

Recent highlights

Historical data reporting and verification has started

The sectoral coverage of the national ETS was defined in a notice issued by the National Development and Reform Commission (NDRC), in January 2016. In addition, provinces and municipalities were mandated to commence the process of historical data reporting, verification, examination and submission. In February 2016 and March 2017, China's most senior climate change official NDRC Deputy Director Zhang Yong hosted several teleconferences dedicated to arrangements and mobilizing all provincial DRCs regarding the development of the national ETS, and emphasizing the need to further advance preparatory work for the national ETS during the final stretch.

Uncertainty about legal framework

In the 2016 Legislative Work Plan issued by the General Office of the State Council in March 2016, regulation on ETS was listed in reserve for consideration as an administrative regulation. The regulation was not included in the legislation plan for 2017, however, leaving some uncertainty as to the legal basis of the ETS during its initial stage.

Uncertainty around sectoral coverage of national ETS

In an NDRC notice in May 2016, the sectoral coverage of National ETS was set to expand to include additional subsectors of the chemical industry, as well as of the iron and steel industry[2]. However,

[2] The "Notice on Further Normalization of Submission of the List of Enterprises to Participate in the National ETS" was issued on May 13th, 2016. The coverage was adjusted to include *basic chemicals, fertilizer, pesticides and synthetic*

the NDRC has since indicated that it intends to shrink the initial coverage from eight sectors to three or less, citing concerns relating to data quality for benchmarking development and the capacity of some relevant industries.[3]

National ETS capacity building centres established

Focusing on strengthening capacity building for the national ETS, NDRC has helped to establish capacity building centres in Shenzhen, Hubei, Beijing, Guangdong, Chongqing, Shanghai, Sichuan, and Tianjin since March 2016, which provided an important guarantee for the smooth start and operation of the national ETS in the future.

Exchange for CCERs founded in Sichuan

Sichuan United Environmental Exchange acquired national registration for a China Certified Emission Reductions (CCER) exchange on April 22nd, 2016, making it the eighth platform for CCER trading after the seven original pilot regions. The exchange is intended to allow Sichuan province to more effectively participate in the national ETS.[4]

Carbon finance received policy support from seven ministries

The People's Bank of China, Ministry of Finance, NDRC, Ministry of Environmental Protection, the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission (CSRC), and the China Insurance Regulatory Commission (CIRC), jointly issued "Guidelines for Building a Green Finance System" on August 31st, 2016. The guidelines proposed to explore carbon futures trading, to encourage an orderly development of carbon-based financial products and derivatives including carbon forwards, carbon swaps, carbon options, carbon leasing, carbon bonds, carbon asset securitization and carbon funds. The guidelines also suggested developing carbon-based financing tools, to widen the channels for green financing by enterprises.

Fujian ETS launched

The People's Government of Fujian Province issued "Interim Provisions for Fujian ETS" on September 22nd, 2016, generally following the framework of the national ETS, while exploring innovative approaches concerning the sectoral coverage and offset mechanism in accordance with Fujian's specific circumstances. The Fujian ETS was officially launched in December 2016, becoming the eighth fully-functioning carbon market in China, after the seven original pilot regions.

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material, while previously only *carbide, ammonia* and *methanol* were included. *Iron rolling* was added besides *crude steel production*.

[3] It is likely that benchmarking will be the default approach to allowances allocation, therefore requiring a higher quality of data than an approach using only historical emissions intensity.

[4] Chinese Certified Emission Reductions (CCER) is a domestic system of offset credits awarded to GHG emission reduction projects across China. Companies covered by ETS in China can use up to a maximum percentage of those offsets for annual compliance purposes. Its design and some of the methodologies are inspired by the UN's Clean Development Mechanisms (CDM).

State Council approved allowance allocation plan

The State Council officially approved the "National ETS Cap Setting and Allowance Allocation Plan" in December 2016. The quantity of emission allowances to be allocated is to be calculated based on either industry benchmarks or historical intensities. NDRC is to be drafting technical guidelines of allowance allocation for each industry in accordance with this plan, establishing criteria for the implementation of allowance allocation in provinces and municipalities.

CCER registration was suspended

On March 14th, 2017, NDRC suspended CCER project registration and credit issuance in order to further revise its Interim Measures for the Administration of Voluntary GHG Emissions Trading. Existing registered and issued projects were not impacted by the revision.

Draft allocation plan for three sectors released

In May 2017, draft allocation methods for power generation, electrolytic aluminium and cement were publicly released. A benchmarking approach was applied for all three sectors, while the specific formula for calculating allocation varies for each. The methodologies may be optimized and benchmarks may be adjusted based on feedback received prior to the launch of the national ETS.

Transaction data for China's carbon market

Pilots

As of September 30th, 2017, 197 million tons of allowances had been traded in the primary and secondary markets, with a value of CNY 4.5 billion. In 2016 alone, the trading volume and value reached 69 million tons and CNY 1.1 billion, an increase of 106% and 29% respectively (Figures 1 & 2).

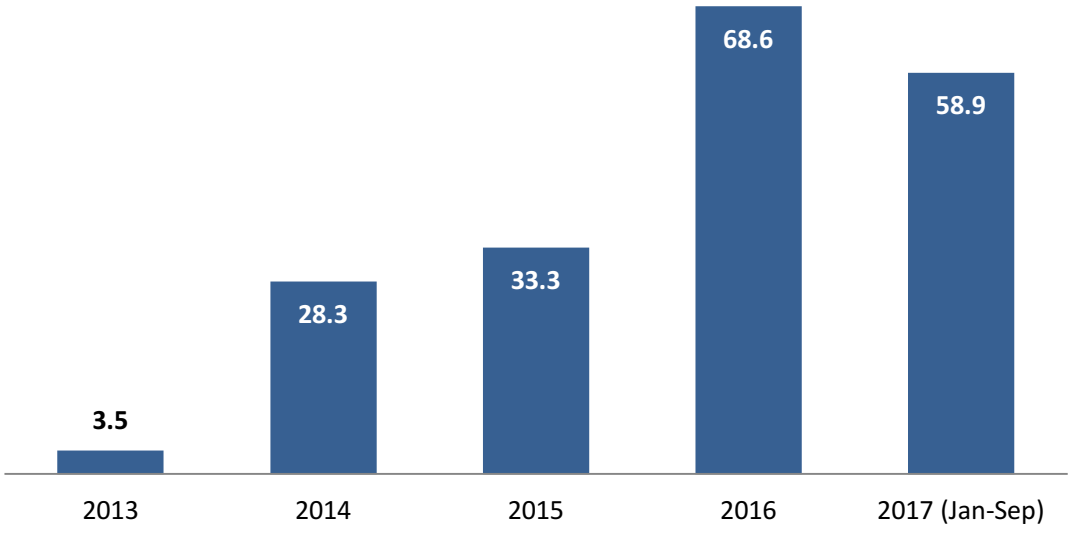

Figure 1 Trading volume of primary and secondary market in pilots (million tons).

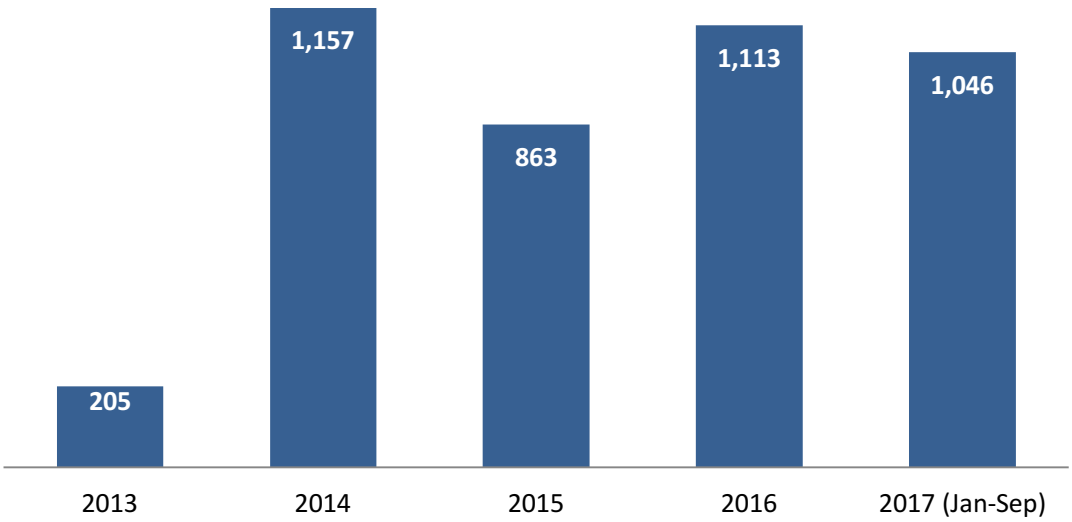

Figure 2 Trading value of primary and secondary market in pilots (million CNY).

Allowance prices stayed relatively stable during 2016-17

Beijing	The price in Beijing was above CNY 50/ton for most of the year.
Shenzhen	Shenzhen stayed around CNY 40/ton during the first half of 2016, then fluctuated between CNY 20-40/ton for the remainder of the year.
Shanghai	In 2016, the Shanghai price increased from CNY 10/ton to CNY 27/ton after completing the transition of allowances with 2013-2015 vintage to current allowances. This trend lasted until 2017, reaching nearly CNY 40/ton in Q1.
Fujian	Fujian's price has stayed around CNY 35/ton since its launch, and fell below CNY 30/ton during the compliance season of 2017.
Guangdong	Guangdong showed the most stable price trend, fluctuating between CNY 10-20/ton.
Hubei	Hubei encountered a price drop in mid-July, which was curbed to some extent after adjusting the daily falling limit to 1%. By the end of 2016, the price had returned to CNY 20/ton.
Chongqing and Tianjin	The prices in Chongqing and Tianjin stayed mostly between CNY 10-25/ton in 2016, except for several transactions with an exceptionally high price. However, Chongqing's price has dived sharply since March 2017, even touching CNY 1/ton.

Table 1 Price trends in pilot markets during 2016/17, ranked in order of price at the close of trading on September 11, 2017.

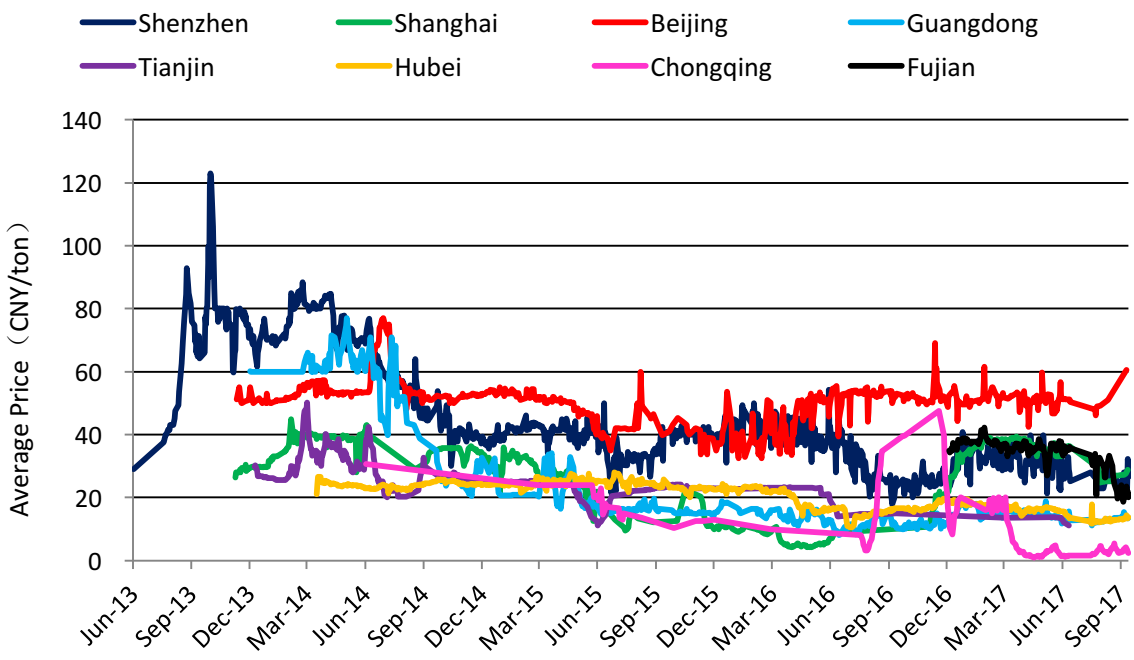

Figure 3 Daily average price of online trading (CNY/ton), 18th June, 2013 - 30th September, 2017.

CCERs

As of September 30th, 2017, 287 Certified Emission Reduction (CCER) projects had been issued, and a cumulative 118 million tons CO_2 had been traded. Between January and September of 2017, over 42 million were traded, already exceeding the level of 2016 (Figure 7). Only Beijing and Shanghai released online trading prices. The price ranges for Beijing and Shanghai were CNY 10-20/ton and CNY 20-25/ton respectively. For further detail on CCER trading to date, see Appendix 2.

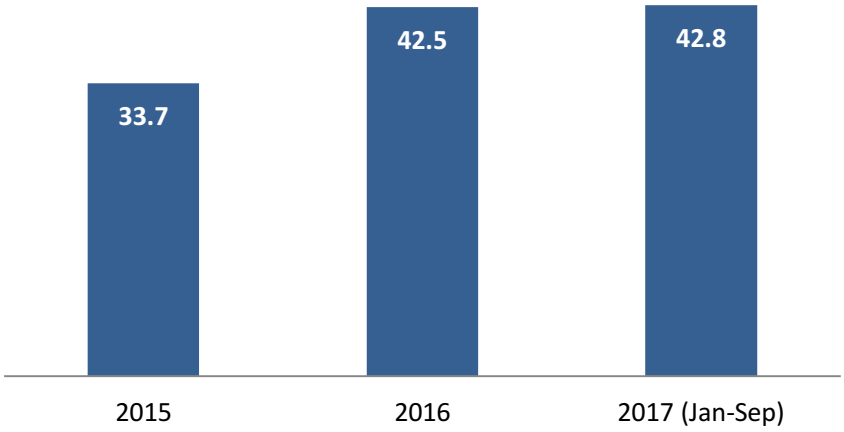

Figure 4 CCER trading volume (million tons).

Status of the national ETS

China's national ETS is planned to be launched in 2017, representing the largest emissions trading system in the world. Since its announcement, the preparatory work has progressed steadily. The detailed status of national ETS design to-date and NDRC's plan for 2017 and beyond are outlined in Figure 5. A more detailed description of the tasks underway can be found in Appendix 3.

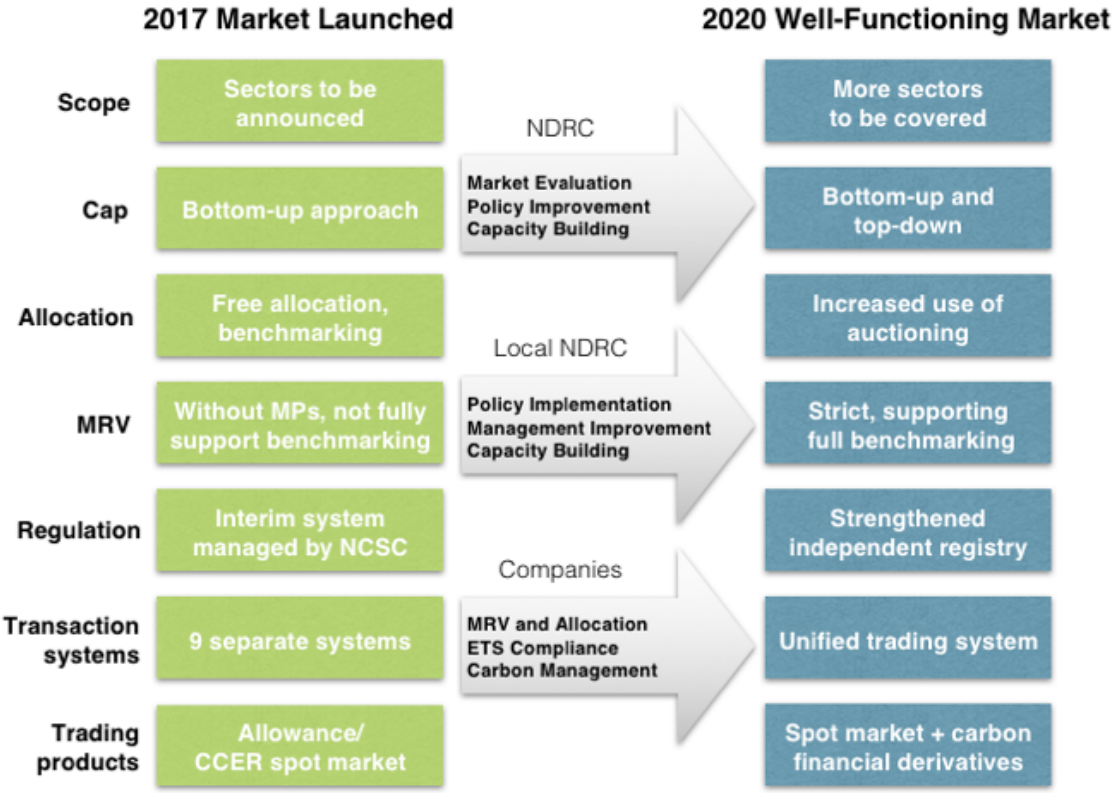

Figure 5 Status of national carbon market development process, as of November 2017.

Surveying China's carbon pricing stakeholders

The survey was conducted anonymously through a secure online survey platform, *Diaochapai*, from March 23 to July 9, 2017. Chinese language and English language versions were made available.

Those invited to participate in this survey were selected from CCF's database of contacts and ICF's database of contacts involved in China's carbon markets, as well as participants in the 2015 survey. [5] The survey was also made available to potential respondents through targeted social media channels, in particular WeChat.[6] 260 eligible responses were included in the analysis.

The 2013 survey was conducted before most of the pilot systems had begun operation in China, the 2015 survey provided a snapshot of the views after two years of pilot operation, and the 2017 survey comes as the country prepares to launch the national market. The number of respondents was comparable to the 2015 survey (304) and much higher than in 2013 (86).

The survey covers a significant number of China's expert community on carbon markets, with particularly strong representation from key designers, implementers and participants of China's ETS pilots and a future national ETS, such as academic experts, industry, carbon trading participants and consultancies. It provides a reasonable indication of views and expectations among China's carbon market community.

The Appendix to this report shows the exact wording of the survey questions, along with detailed survey statistics and some explanatory notes. Within this report, unless otherwise stated, percentages refer to the proportion of respondents to a particular question. Please refer to the Appendix to see the number of non-responses for each question.

[5] No responses were included from organisations involved in implementing or funding this project.

[6] Project partner SinoCarbon shared the survey with its WeChat channel, which at the time had over 7,600 subscribers. The survey was also shared in several WeChat groups, including one managed by ICF on EU-China ETS capacity building (over 200 members) and a popular group for carbon industry professionals, "中国碳圈" (500 members). The project team sought responses from those with a known role working on carbon market issues for their organisations, or their known expertise on the subject matter.

Survey respondents by groups

Of the 260 respondents, 26% of respondents identified as being from industry (most of which are to be covered by the ETS), with the highest representation from the power generation, chemicals and petrochemicals sectors. 83% of all covered industry respondents are from sectors intended to be covered by the forthcoming national ETS, with 59% of them having participated in the pilots. 25% are representatives of consultancies whose work relates to carbon pricing. These respondents have typically been involved in advising local and national governments on the establishment of ETS pilots as well as preparation for a national ETS. 10% of respondents work in academia; 7% work in the finance industry; 7% are from carbon trading platforms; 6% from NGOs; 5% from government research institutes; 3% are from industry associations; 3% from local government and 2% from central government. A further 5% of responses came from stakeholders in other sectors, including: multilateral development organisations, foreign governments, individual investors, education and the media.

Survey respondents by group

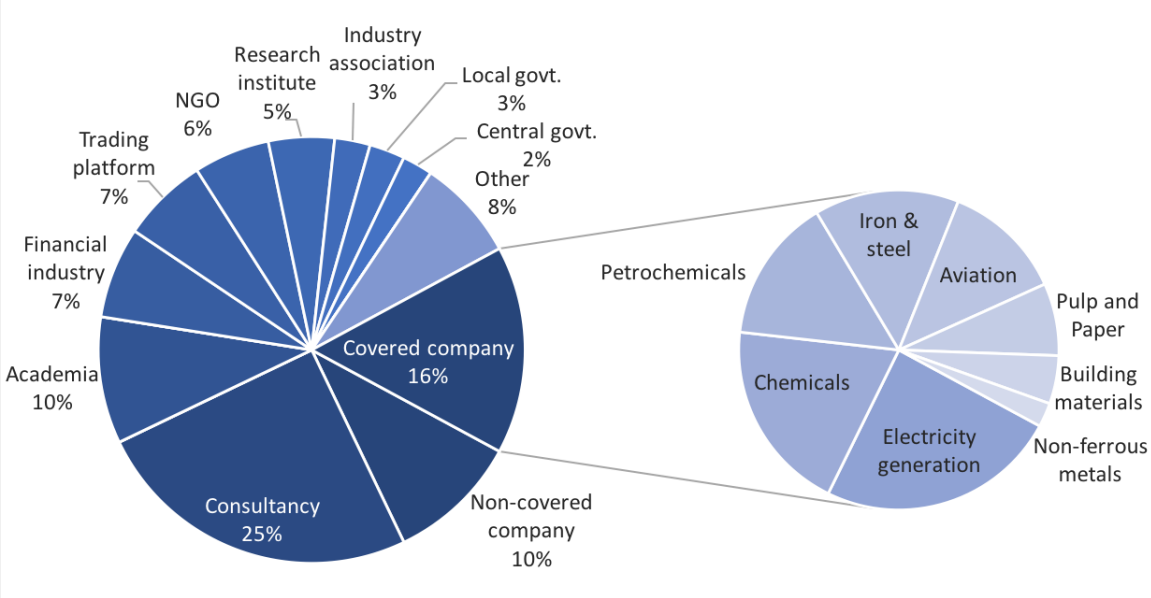

Figure 6 Q1-2 How would you classify your organization?
Note: total number of responses N=260. See Appendix for details.

245 (94%) respondents used the Chinese version of the survey, and 15 (6%) respondents used the English version. The ratio of Chinese respondents is higher than for the previous surveys (92% in 2015 and 51% in 2013), showing that China's carbon market is increasingly a domestic effort.

Industry responses

In total, 67 responses from industry were collected, 41 of which were from companies that are either already covered by an ETS, or will be covered by the national ETS. Of the responses from covered companies, 63% identified themselves as belonging to state-owned companies (both central and provincial government-owned).

Responses included companies operating under each of China's pilot ETS regions, with ten companies each operating under the Beijing and Guangdong systems, and good representation from the Tianjin, Shanghai and Hubei pilots. 11 of the 41 respondents (27%) are currently operating in an ETS outside of China, and almost of these are operating under the EU ETS. For these companies, working under more than one ETS jurisdiction may facilitate experience sharing, industry peer to peer learning, and eventual integration across systems.

About half of the covered companies reported emissions of over 1 million tce/year. Very few responses (4), came from small companies with emissions of under 10,000 tce/year, which is expected to be the threshold for inclusion in the national carbon market. Very large emitters are dominated by state-owned enterprises, both central (10) and local (5). Given that central government SOEs are among the largest emitters in China, this helps to provide a more accurate representation of participants in the national carbon market.

Industry respondents by size and ownership type

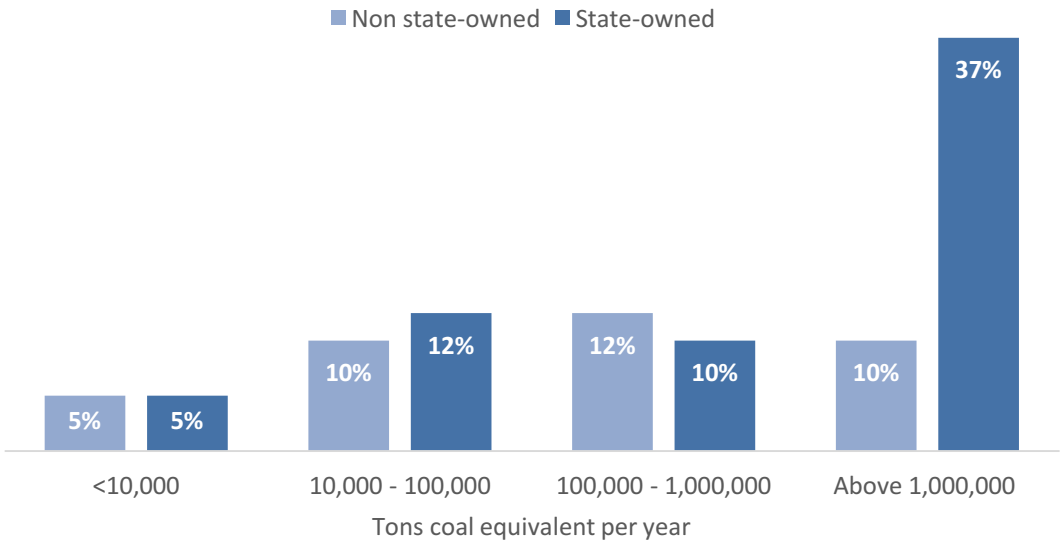

Figure 7 Q1-6 How much energy does your company annually consume in China? (by enterprise type) (N=41)

The industry response rate was lower than expected, despite strong efforts by the authors to reach out to industries which are currently or will soon be subject to a carbon trading system. The low response rate may be because of the policy uncertainty in the lead up to the national ETS – some industry representatives may not yet consider themselves to be in a position to provide expectations about carbon pricing. Some industry representatives may also have been reluctant for fear of disclosing business information without approvals.

Responses by region

37% of the respondents to the survey are from organisations located in Beijing. 61% were from provinces with pilot carbon markets, 30% from non-pilot regions, with the remaining 9% from organisations not based in mainland China.

The high level of responses from Beijing reflects the concentration of the policy-making, consultancy, NGO and expert communities in the capital city, and also because the project partners have stronger networks in Beijing. After Beijing, the highest number of respondents were from Guangdong (9%), Shanghai (8%) and Tianjin (5%), which are regions with well-established pilots, perhaps also reflecting the current capacity and level of readiness in these regions.

The concentration of responses from Beijing has reduced since the 2015 survey (down from 43%), reflecting a growing understanding and willingness to engage with carbon markets in non-pilot regions.

Survey respondents by region: increasingly widespread

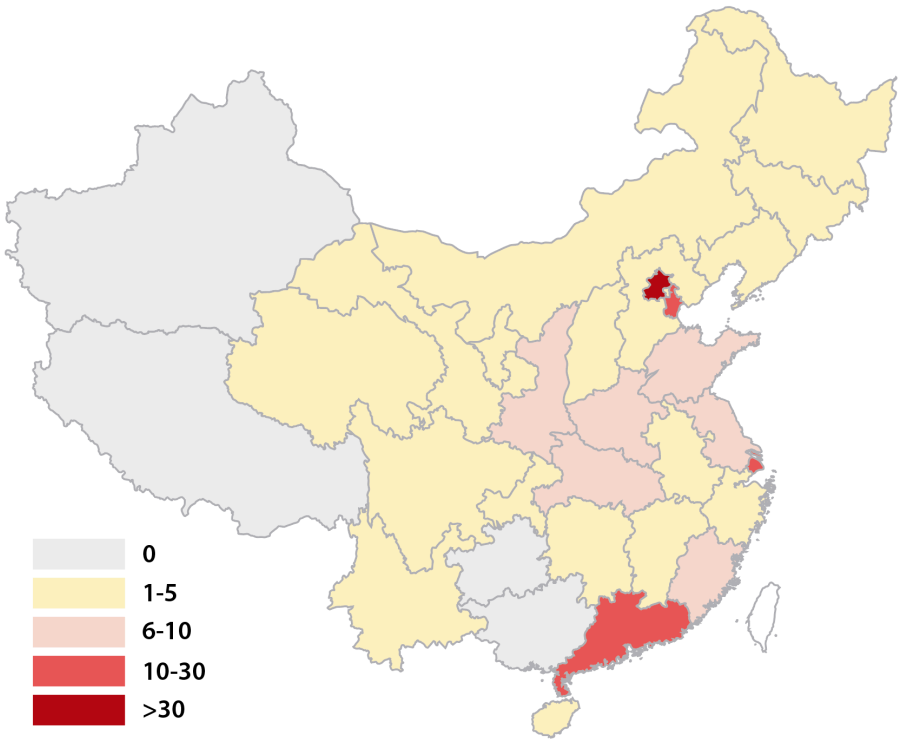

Figure 8 Q1-1 Where is your organization located? - Number of responses. (N=260)

The pilot emissions trading systems

Since the pilot carbon markets were launched in 2013 and 2014, they have each now completed either three or four compliance cycles, providing useful information for informing future policy decisions.

Prices in the pilot systems

Fluctuations in prices in the seven pilot systems are outlined in Figure 3 on page 7 above. Around the time of the survey, prices ranged from CNY 2/t in Chongqing to CNY 51/t in Beijing (at close on 31 October 2017).

The 2013 and 2015 China Carbon Pricing Surveys both asked respondents for their expected carbon prices in the pilot regions for future years. Predictions can now be compared with real prices to date. Respondents to the 2013 survey consistently underestimated prices in calendar year 2014, but overestimated prices beyond that. Similarly, respondents to the 2015 survey overestimated prices for each of the pilot regions in 2016. Trading data from the pilot regions shows that average prices for 2016 were significantly lower than those in 2014, helping to explain the shift. Figure 9 shows average prices in two of the largest pilot markets, Guangdong and Shanghai, compared with expectations in 2013.

In 2016, prices in the ETS pilots were lower than expected

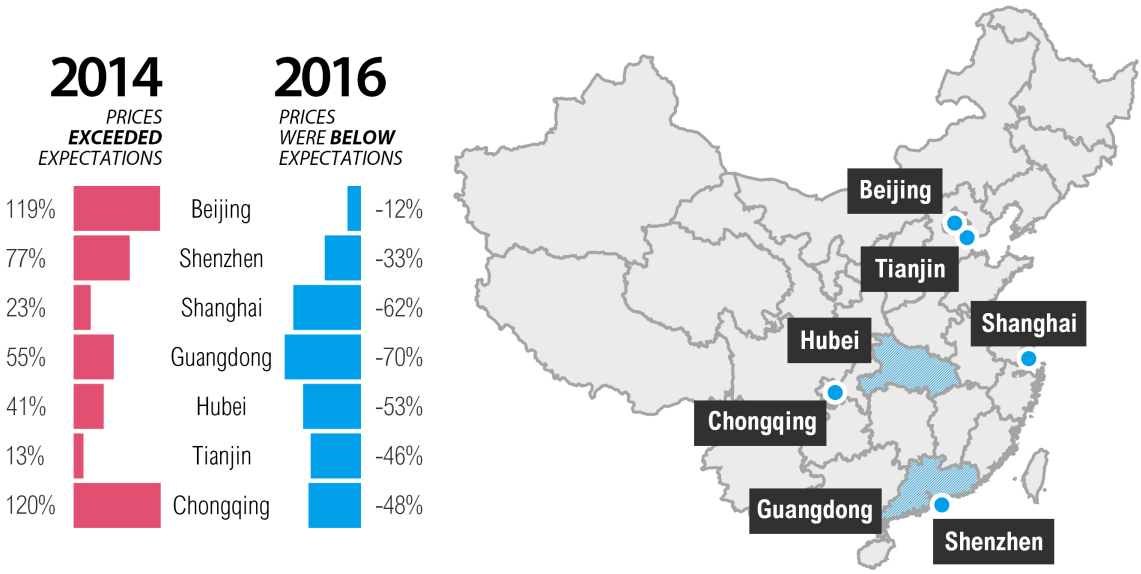

Figure 9 Difference between average prices China's pilot ETSs in 2014 and 2016 and expectations in the 2013 and 2015 China Carbon Pricing Surveys respectively. [Market price data: SinoCarbon]

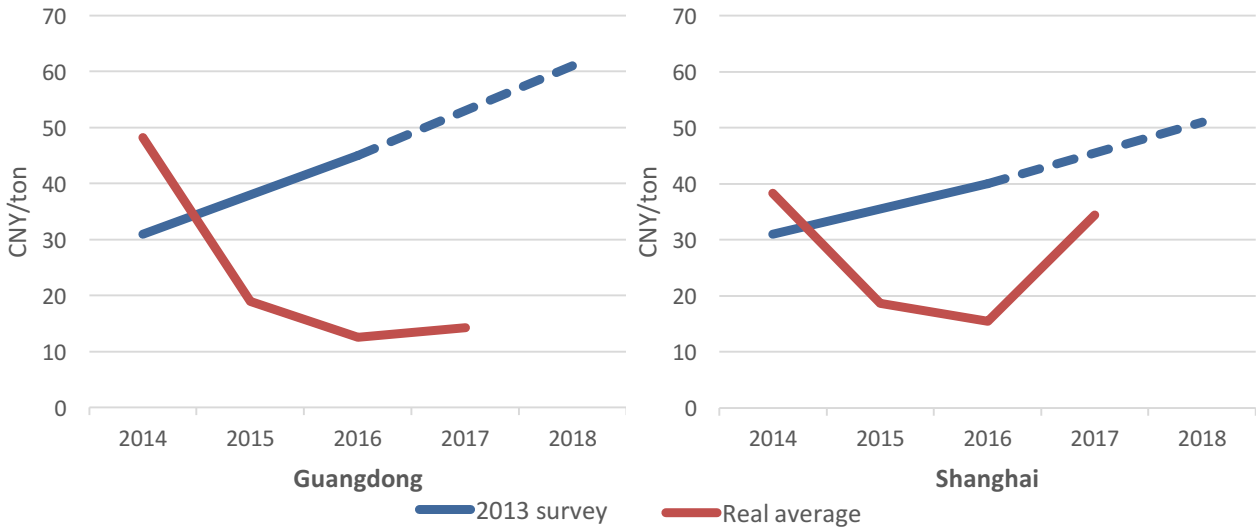

Figure 10 Average prices the Guangdong and Shanghai pilot ETSs compared with expectations in the 2013 China Carbon Pricing Survey. [Market price data: SinoCarbon]

About half of respondents to this year's survey expressed a view that carbon prices in the pilots at the time of the survey, during the summer of 2017, were lower than what they expected. Few considered current prices to be higher than expected: 11% overall, including 15% of industry respondents. This correlates well with the comparison of expectations and real prices displayed above. Seasonal factors, such as the compliance period, may affect market prices. However, during the period that the survey was conducted, prices in the pilot regions were relatively stable, except for Chongqing's which dropped from around CNY 16 to almost zero for much of the period.

In mid-2017, prices in the ETS pilots were lower than expected

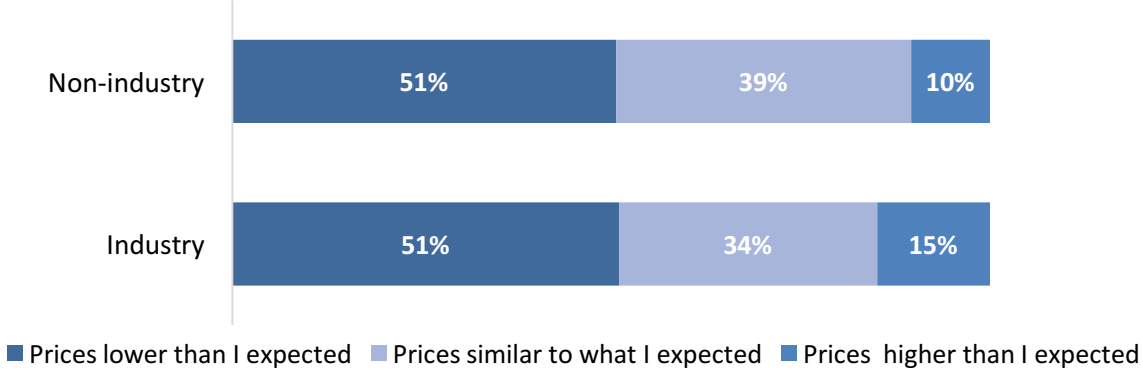

Figure 11 Q4-1 How do the current prices in ETS pilots compare with your expectations? (N=201)

Factors influencing prices

When asked what the main factors are influencing prices in the ETS pilots, a large majority of respondents (209 out of 260) identified 'cap setting and fee allocation' as the most important factor, whilst a majority (196 out of 260) also identified 'government regulation and intervention' as a factor. Other factors were also considered important, with 124 selecting 'information transparency', 117 selecting 'economic growth rate', and 70 choosing 'compliance period'. Contrary to the 2015 survey, government respondents now identify 'government regulation and intervention' as the most important factor in influencing prices.

Factors influencing prices by respondent group

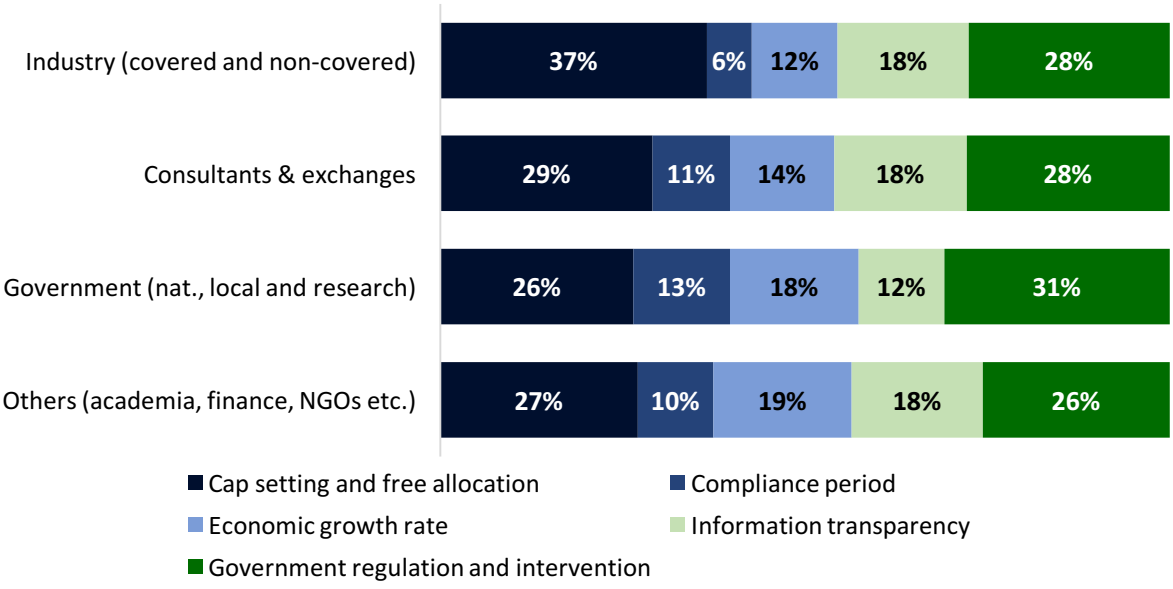

Figure 12 Q4-2 In your opinion, what are the main factors influencing prices in the ETS pilots? (N=259)

National emissions trading system

Since President Xi's announcement in September 2015, preparation for the launch of a national emissions trading system has been led by the Climate Change Department of the NDRC. The national ETS could become a key component of China's ambition to control its growing carbon emissions.

Start of national ETS

Despite the Chinese government's announcement that a national ETS would be established during 2017, when asked by when China's national ETS will be fully functional, only 47% of respondents expect this to occur by 2020 or earlier.[7] A further 44% of respondents expect a fully functional carbon market between 2021 and 2025. This uncertainty regarding short-term development of the market applies to both industry and non-industry respondents. At the same time, the fact that almost half of stakeholders surveyed expect a fully functional market by 2020, indicates a level of optimism about the market, despite the perception of slow progress this year.

Uncertainty remains over when the national ETS is expected to be fully functional

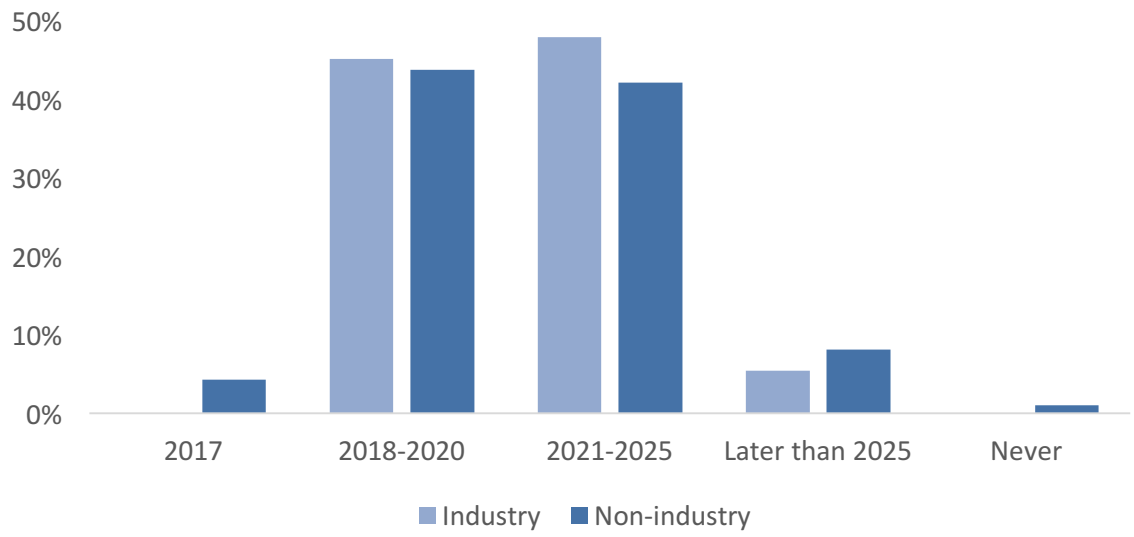

Figure 13 Q5-2 By when do you expect the China national ETS to be fully functional? (N=256)

When asked what they thought the intensity of trading would be in the ETS during the first compliance cycle, a large percentage of respondents who had a view said 'moderately active' (84%). A significant proportion of respondents (18%), were unsure on this point.

In the 2015 China Carbon Pricing Survey, 83% of respondents indicated that they thought a carbon tax would eventually be introduced in China. This year's survey did not ask this question. However, recent discussion has suggested that a carbon tax may be considered for sectors not covered by the ETS, or for companies falling under the entry threshold.

[7] Full text of question: "By when do you expect China national ETS to be fully functional? e.g. all key building blocks in place, including: legislation/law, cap and allocation management, complete MRVA system, registry, trading platforms, market oversight, etc."

Management of the national ETS

A large majority of respondents (63%) believe that the legal basis for the national ETS should be a National Law passed by the National People's Congress. Others (32%) believe that regulation by State Council would be sufficient, and very few believe regulation at the ministry level (4%) or a ministry-issued notice (1%) would suffice. These results suggest that if dedicated legislation is not possible, at the very least there should be regulation provided by the State Council at the beginning of the ETS. There was no significant deviation between industry and non-industry respondents on this question.

A strong legal basis is required for the national ETS

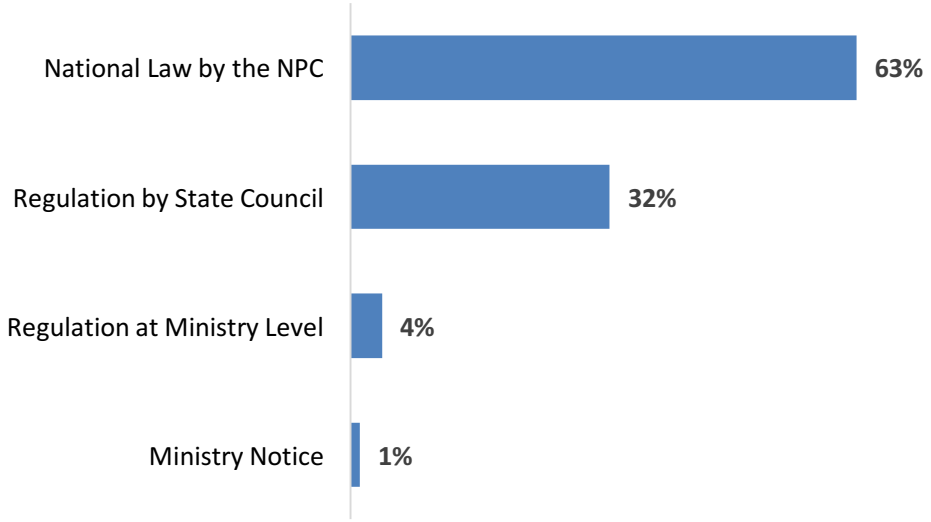

Figure 14 Q5-3 What legal basis do you think is necessary for the start of the national ETS in order to ensure compliance? (N=255)

Most respondents (85%) think that a rules-based flexibility mechanism, such as a stability reserve, is necessary.[8] This would help to limit the fluctuation of prices and to prevent systemic under and oversupply of allowances (hindering optimal price formation).

A rules-based flexibility mechanism is necessary

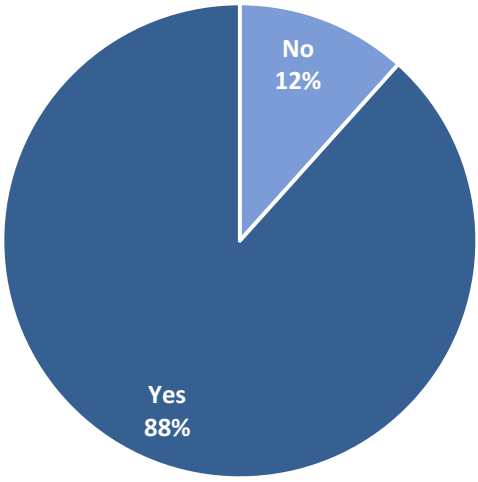

Figure 15 Q5-4 Do you think a rules-based flexibility mechanism, such as a stability reserve to keep prices from fluctuating too much, is necessary? (N=249)

Selected quotes: Do you think a rules-based flexibility mechanism, such as a stability reserve to keep prices from fluctuating too much, is necessary? Explain your answer:

- "With proper design, a stability reserve is not necessary. However, it is likely that the national ETS will feature such a mechanism. If one is created it would be best if the operating and trigger mechanisms were transparent such that participants are never surprised by when it is implemented nor by the resulting impact on the market." – NGO
- "State regulation is crucial in the early stages of the carbon market, as companies with ample quotas are not clear about the future policy direction, and are generally reluctant to sell. In the future, the uncertainty around national macroeconomic changes will also require considerable adjustments to be made." – Consultancy

[8] A rules-based flexibility mechanism refers to a method for managing prices in the carbon trading system. It could take the form of a market stability reserve, representing a portion of the total permits allowed under the cap, which could be used to influence the market price if prices exceed certain pre-defined thresholds.

84% of respondents think that a new entrants reserve is necessary.[9] While China's level of economic growth is slowing, this will be an important feature in market design to address new additions in capacity. At the micro level, new investment and production increases will always lead to new allocation needs. This has been witnessed in the EU for example, where Spain recorded low economic growth, but Spanish demand for new entrants' reserve allocations was high.

Initially, a new entrants reserve is necessary

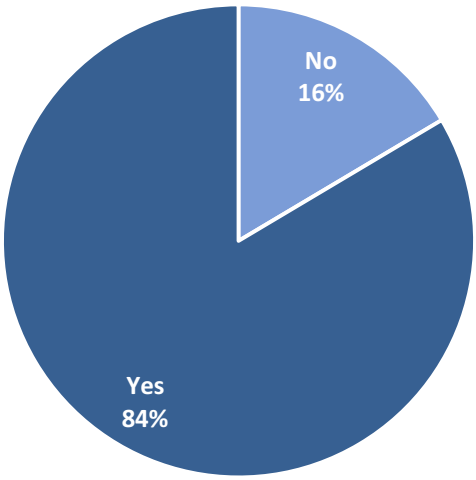

Figure 16 Q5-5 Do you think a New Entrants Reserve is necessary? (N=243)

Selected quotes: Do you think a New Entrants Reserve is necessary? Explain your answer:

- "While it is not necessary, it is likely that a new entrants reserve will be created, allowances from which will be accessed by new entrants." – NGO
- "Enterprise expansion and the establishment of new enterprises are necessary for normal economic development, and emissions reduction cannot be allowed to inhibit economic development, so it is necessary to arrange a reasonable allocation of quotas." – Academia
- "Be sure to control the total amount, otherwise someone will see the green light. Red lines must not be exceeded." – Sector association

[9] A New Entrants Reserve constitutes a special-purpose pool of emission allowances set aside for new companies entering the carbon market, and companies that increase capacity.

About half of the respondents consider that trading in the national ETS should occur across several regional platforms, while 37% think that there should be one national platform. 14% of respondents think that there should be emissions trading exchanges in every province. These results suggest that for the majority of stakeholders, centralising trading activity on a central platform is not a significant priority. The authors consider that this may reflect a prevailing attitude that so long as security is ensured, exchanges are connected to the registry, and there is a unified national market, companies are comfortable choosing from a range of trading platforms.

Varying views on trading platforms

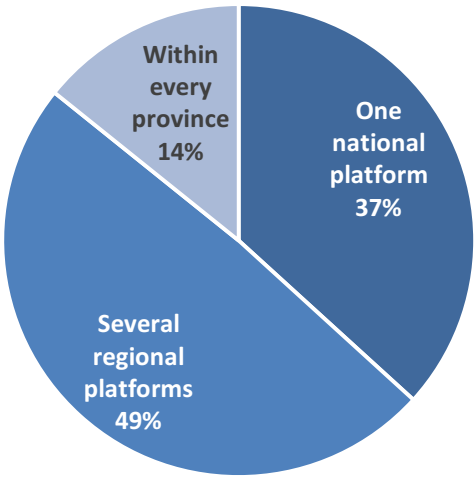

Figure 17 Q5-6 How many emissions trading exchanges should operate in the national ETS? (N=253)

Selected quotes: How many emissions trading exchanges should operate in the national ETS? Explain your answer:

- "In the context of the national ETS, while there will be one registry, there may be multiple exchanges. Initially, some of these will be authorized to only accommodate spot transactions while others will be allowed to pilot derivatives and risk hedging products. Over time, there may be a consolidation and it could be that a single exchange will emerge. Those exchanges that are not used to transact national ETS products will continue to be central players in the local ETS programs for so long as such programs exist." – NGO
- "It is certainly best to integrate it into a national platform, but in view of the significant difficulty of having one platform at the beginning of the trading system, it is recommended to establish regional platforms, the same as for the stock market." – Academia
- "Environmental impacts are cross-regional, and the depth of the market also needs to be cross-regional. During the initial stage, there should be a few regional platforms, and later market competition should be allowed to resolve the issue." – Non-covered company

The majority of the respondents (89%) expect some level of banking of permits from the pilot systems to the national ETS should be allowed.[10] Respondents expect that companies will be able to transfer assets from the pilots into the national system without totally losing their value, however there is also a recognition of the risk of full banking, with 49% in favour of partial banking. It should be noted that more than half of industry respondents were from companies that had participated in the pilot markets, and therefore likely to be more in favour of banking in to the national system.

Some level of banking should be allowed from the pilots to the national ETS

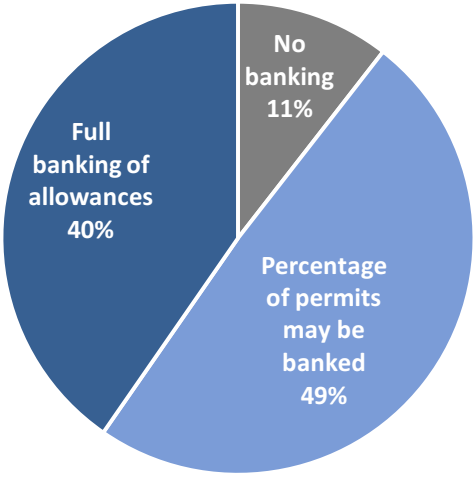

Figure 18 Q5-7 How should banking of permits from the pilot systems to the national ETS be managed? (N=228)

Selected quotes: How should banking of permits from the pilot systems to the national ETS be managed? Explain your answer:

- "Pilot quotas may have been excessive, and have some less than ideal aspects." – Central government
- "All pilot regions are over-allocated. If there is a full transfer it will be a disaster for the national system." – Carbon trading platform
- "How to carry forward these quotas will be one of the biggest obstacles to the establishment of the national carbon market. Since full banking would cause regional inequity, it is reasonable to carry out partial banking according to the situation of each pilot area." – Academia
- "The pilots cover different industries and different stages of development. Banking should be based on both the overall objective of carbon emissions reduction, as well as in accordance with the specific circumstances." – Government research institute
- "In order to maintain national market activity, it is necessary to control the banking of quotas. But given that enterprises bore some cost from carbon trading during the pilot stage, partial transfer of the quotas as compensation should be easy to accept." – Power sector market participant

[10] Banking means the holding of permits from one compliance period for the purpose of sale or surrender in a future compliance period.

The majority of respondents believe that enterprise level reporting would be most efficient (64%). However, a significant proportion consider that reporting should be conducted at the facility or product level (36%). Enterprise-level reporting would preclude benchmarking for allocation by product-type.

If reporting involves a high level of detail, in principle it will result in disaggregated and better quality data that can be used for benchmarking. Benchmarking is recognized as a fair incentive to top performers but it is usually perceived as a potential disadvantage for the lowest performers. Lower-level reporting would also imply a heavier reporting burden. Some companies may be reluctant to take on this burden without assistance from government.

Significant level of interest in facility and product-level reporting

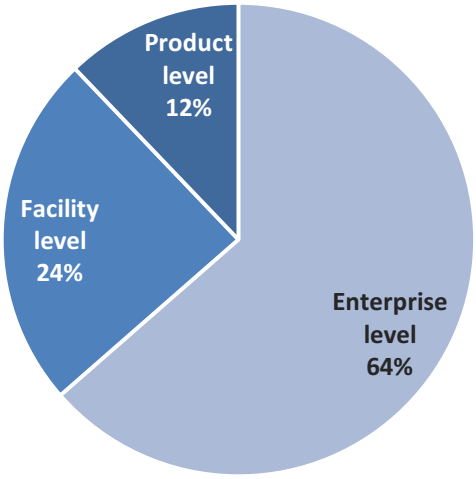

Figure 19 Q5-8 What should be the level of reporting? (N=247)

Prices in the national ETS

Respondents were asked what they expect the average carbon price to be at different points in time in a national ETS in China. The results indicate an expectation of steadily rising prices, but with significant variance over the levels.

The average price expectation in the national ETS is CNY 38/t in 2017; CNY 51/t in 2018; CNY 74/t in 2020; CNY 108/t in 2025. At the beginning of the ETS, the majority of respondents expect the carbon price to be between CNY 20/t and CNY 50/t, similar to the average price in most of the pilot markets. However, the price levels remain highly uncertain in the more distant future. The 20th and 80th percentiles for 2025 are CNY 50/t and CNY 200/t respectively. The future price expectations are significantly higher than at the time of the 2015 survey. At that time, average expectations for the same years were CNY 39, CNY 45, CNY 56 and CNY 70, respectively; the 80th percentile in 2025 was CNY 100/t.

37% of respondents provided no price estimates (down from 43% in 2015). High levels of uncertainty may lead many respondents to be reluctant to provide a quantified price expectation.

China's carbon price is expected to steadily rise

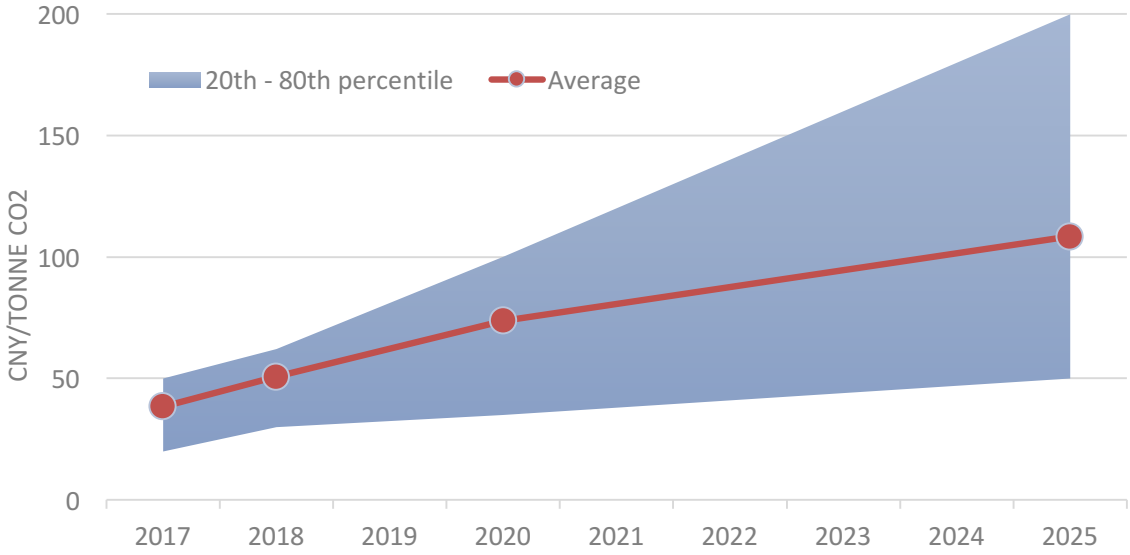

Figure 20 Q5-9 What do you expect the price in the national ETS to be in the coming years? (N=161,160,159,157)[11]

It is worth noting that the expected ETS price is not an accurate indicator of overall effort to reduce carbon emissions, because the ETS is complemented by non-pricing policies such as mandatory closure of inefficient facilities, incentives for energy saving, renewable energy feed-in tariffs, etc.

Long-term price expectations vary between industry and non-industry respondents, with industry expecting higher prices by 2020. The 2015 report also displayed an industry tendency to expect higher prices. This suggests that industry is convinced of a certain level of carbon price, while some experts are uncertain if high prices will be a reality. This may give government extra confidence that policy certainty is more important for industry than limitation of cost impacts.

For the national ETS, industry expects higher prices than other respondents

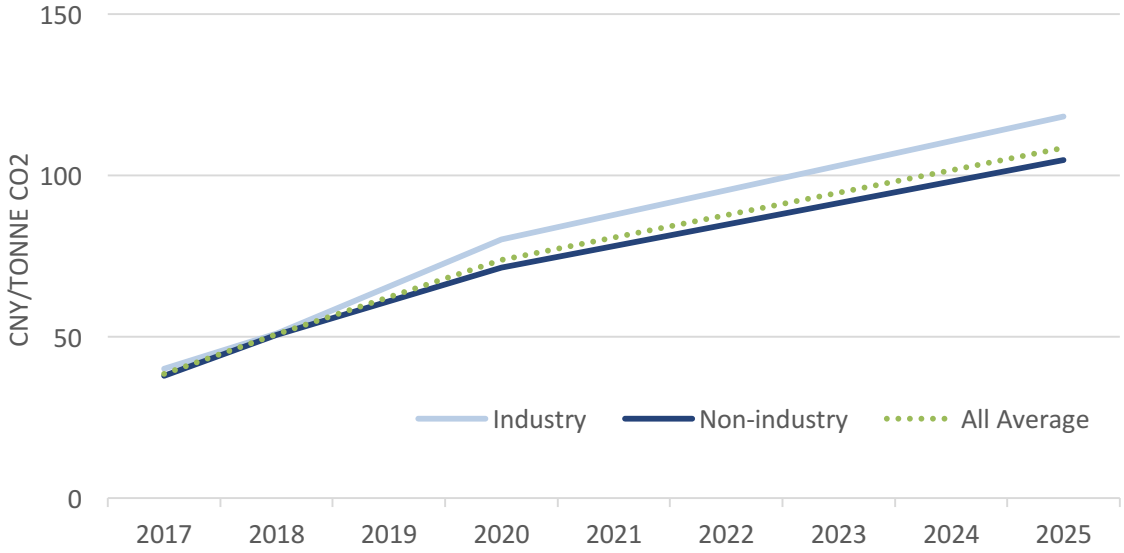

Figure 21 National ETS price expectations – industry vs. non-industry. (N=161,160,159,157)

[11] For responses to Q5-9, the authors removed some outlying responses. For 2017, four responses were removed (300, 463, 500, 1000 CNY/ton). For 2018, three responses were removed (500, 600, 2000 CNY/ton). For 2020, four responses were removed (529.35, 600, 1000, 2000 CNY/ton). For 2025, four responses were removed (595.52, 800, 2000, 20000 CNY/ton). The criteria for exclusion was at least five times the average price expectation for that year.

Selected quotes: What do you expect the price in the national ETS to be – Explain your answer:

- "Fostering market strength and the government's approach to quota adjustment is critical. Once there is a market, the factor of government interference will not be insignificant. Just like in the stock market, there is no legal support for a scientific approach to government allocation of quotas. Government notices, and the views within the leadership of various departments, are decisive in interfering with the rapid growth and maturation of the market." – Construction sector market participant
- "Initially the market will be over-allocated. By the end of 2017, prices may be lower than with the initial trades…Between 2020 and 2025 all sectors may be included, and each new sector may come with generous allocation. By 2020 derivatives may help to contain prices. As the cap bites, perhaps 2022 and later, prices may rise." – NGO
- "I estimate that the carbon market will flourish in the next three years. With the peak of greenhouse gas emissions in China around 2025-2030, the demand for carbon quotas may decline." – Carbon trading exchange
- "The first few sectors are basically industrial enterprises, with high cost of emission reduction" (estimates initially high and declining price) – Shandong market participant
- "Early in the market, you cannot rule out a lot of investors taking a gambling mentality, and the price could easily rise too fast. Later, with market regulation in place and investors tending to become more rational, the price will stabilise and then fall." – Carbon trading exchange

Readiness for emissions trading

Respondents from covered industry were asked whether they think that their organisation is adequately prepared to take part in an ETS. Of these 41 respondents, administrating allowances (44%) and carbon trading (41%) were outlined as the areas in which organisations were least prepared, as highlighted by respondents that selected either 'not prepared at all' or 'yes, marginally prepared'.

Among respondents, there was a reasonable level of preparedness for monitoring and reporting (88%) and for allocation data collection (71%). As described in the introduction, it is worth noting that this survey's sample may be biased towards industry participants with a higher than average level of preparedness.

More work is needed to prepare companies for carbon trading

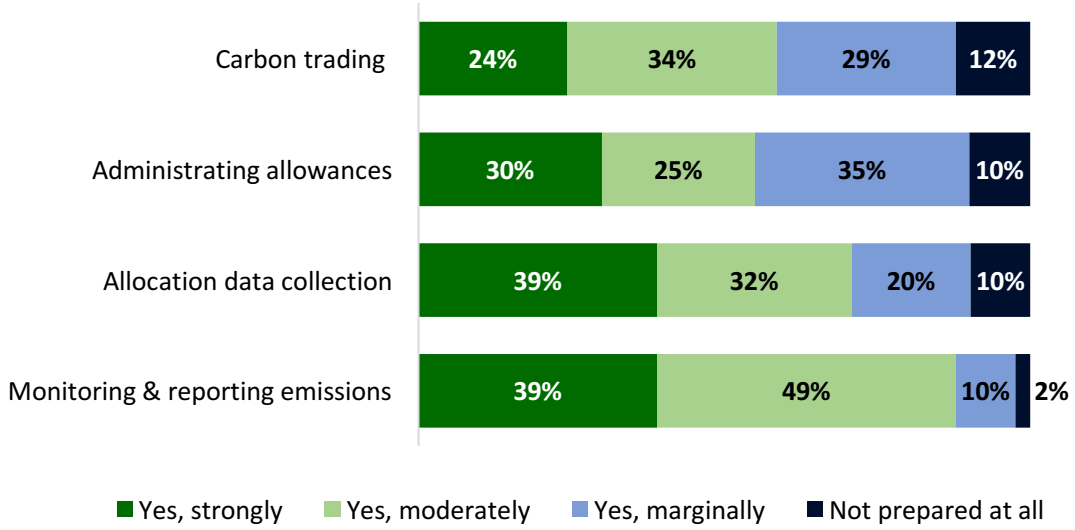

Figure 22 Q2-1 Do you think that your organization is prepared to perform tasks under an ETS? (N=41)

Following on from this, respondents were asked to identify in which areas they needed to receive further training before the national ETS starts. Needs for further capacity building are broad and diverse. The most frequently chosen priority areas include: 'corporate compliance strategy' and 'carbon finance'. This correlates well with the lower level of preparedness identified above for carbon trading and administrating allowances.

While 88% of industry respondents felt prepared for monitoring and reporting and 71% for allocation data collection, 32% and 27% of respondents also claimed a need for training in these areas. This suggests that even in areas where companies are best prepared, there is significant need for additional training.

Capacity building is needed in many aspects

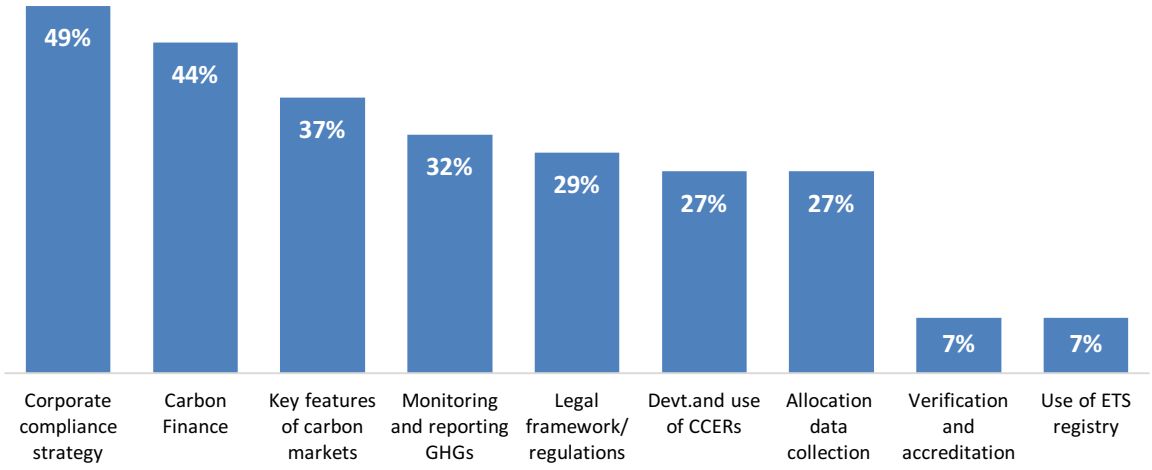

Figure 23 Q2-2 In which areas do you need to receive further training before the national ETS starts? (Select up to 3) (N=41)

The 41 industry respondents were asked whether they had formulated a dedicated team to handle ETS obligations. 76% of respondents had dedicated either an individual or a team. Teams ranged in size of up to 30 persons, with the average team consisting of 8 people. 15 companies had small teams (1-4 people), 9 had moderately sized teams (5-10 people), while 6 had large teams (>10 people).

Most companies have formed a team to handle ETS obligations

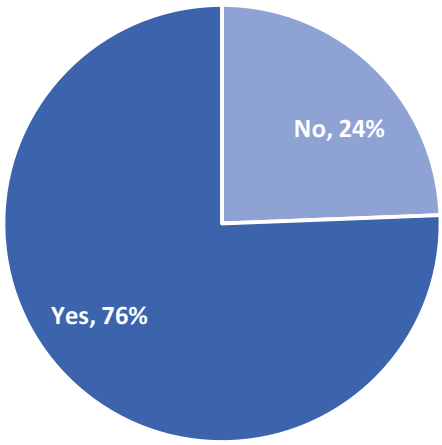

Figure 24 Q2-3 Has your company assigned a dedicated person (internal or external) or formed a dedicated team to handle your ETS obligations? (N=41)

Of these teams, most were comprised of either decision-making teams from different departments (45%) or had a dedicated department (42%). Only 13% of respondents had outsourced to an independent company.

Companies have different approaches to ensuring compliance with ETS obligations

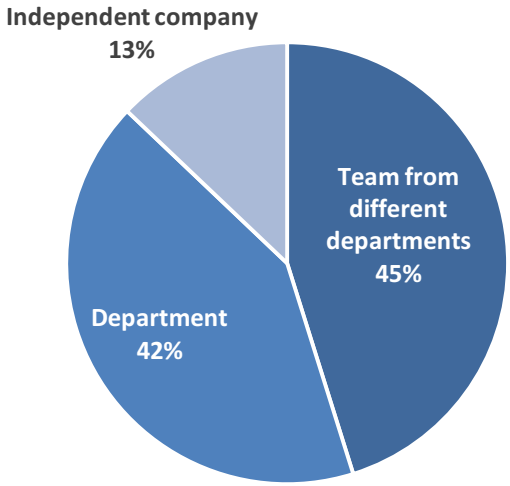

Figure 25 Q2-3 What is your team's organizational form? (N=41)

Of the 41 industry respondents, 33 (80%) of them have already begun participation in training. This suggests extremely high levels of confidence that the national ETS will be implemented in the very near future.

A large majority of industry organisations have already participated in ETS training

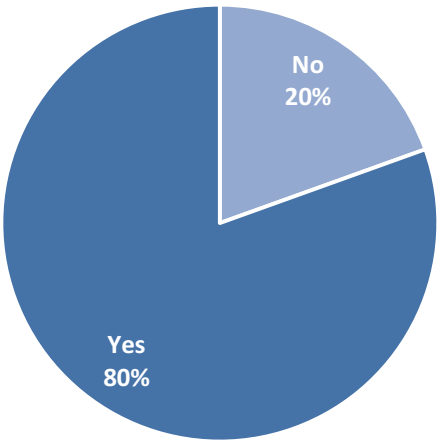

Figure 26 Q2-4 Has your company participated in training(s) on ETS? (N=41)

Of the 33 respondents that have already participated in ETS training, a majority (52%) of them produced over 1,000,000 TCE/year.

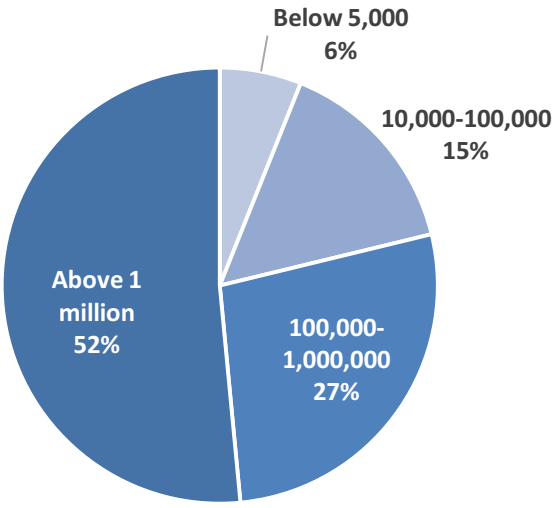

Figure 27 Companies that have participated in training(s) on ETS, by level of emissions (unit: tons of coal equivalent per year) (N=41)

Of the 41 ETS-covered companies, 80% of respondents (33 respondents) state that they have set an emission reduction target. This is similar to the response rate in 2015, however with a higher number of responses. This is an extremely promising figure, and suggests that for many companies, ETS is used as a driver for change, and/or they want to be fully prepared for its implementation.

It is notable that 39% of respondents' companies have undertaken internal distribution of allowances between subsidiary companies, whether it be an intra-company exchange of allowances via a trading desk (17%), or an allocation of allowances by headquarters (22%).

31% of respondents have implemented an internal/shadow carbon price. This percentage is expected to increase over time. Prices ranged from CNY 20 to CNY 670, with the lower prices seeming to mirror current spot prices, and the higher prices seen as having the potential to drive further low carbon investment decisions.

Impacts of carbon pricing on investment

Respondents were asked if they expected the price of carbon to affect investment decisions in 2017, 2020, and 2025. Respondents expect carbon pricing to increasingly affect investment decisions in the coming years. In 2017, 39% of those who expressed a view, expect investment decisions to be strongly or moderately affected. By 2025, this number rises to 84% of respondents. Only 2% of respondents who answered this question expect investment decisions to be unaffected by 2025. The responses also demonstrate a level of uncertainty for the medium-term, with significantly less respondents expecting a strong impact in 2020 than for the 2015 survey (17% down from 30%).

Carbon emissions trading is expected to increasingly affect investment decisions

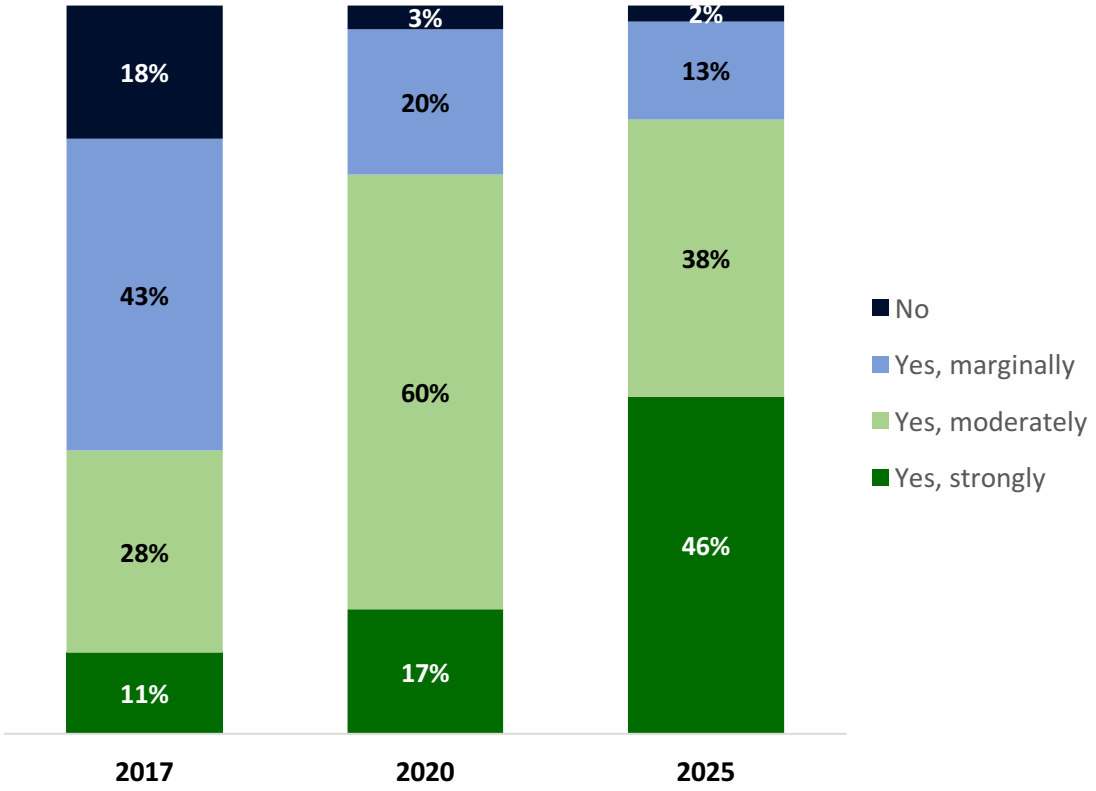

Figure 28 Q3-1 Do you expect the ETS in China to affect investment decisions in 2017? 2020? 2025? (N=252, 246, 231)

Selected quotes: Do you expect the price of carbon to affect investment decisions? Why?

Estimate increasing/strong trend in impact:

- "Because climate warming will become more and more serious, the control of CO_2 emissions will become more and more important." – Non-covered company
- "Only when business costs increase will it have an impact on corporate investment decisions. My forecast is based on a future increase in the proportion of allowances that will be auctioned [as opposed to free allocation today]." – Consultancy
- "Environmental problems need a combined effort. The market-oriented way of social growth will not change soon, and climate change is imminent. In addition, the carbon market industry is mature enough, so it will inevitably generate a strong constraint in the next 3 to 5 years." – Non-covered company
- "In 2017, awareness of carbon trading will still be spreading gradually to stakeholders across the country. By 2020, the ETS knowledge and infrastructure will be in place, and companies will be aware of the impact of carbon emissions at the enterprise level. By 2025, with the national policies on environmental protection and energy conservation for enterprises further tightening, carbon emissions will have a greater impact on companies." – Consultancy
- "The carbon emissions trading system is not yet perfected, and the impact on investment decisions is relatively small. With improvement over time, the impact of the system on investment decisions will increase." – Academia
- "There will be a transition period because there will be few enterprises included at the early stage of the market, the policy framework is still being perfected, and there is less experience. This will be followed by more stringent requirements on enterprises, so the impact on investment will become larger." – Consultancy
- "I have an optimistic outlook for the carbon trading system. The establishment of the national market in 2017 is bound to impact on investment decisions this year, while experience from the pilots suggests they have had a moderate influence on enterprises' investment decisions. When the carbon market gradually develops, is refined and matures, investment decisions will be closely related to the carbon trading system. I believe that investment in 2020 will be significantly affected." – Academia

Estimate minimal/uncertain impact:

- "Policy and technical indicators are not clear and are not directly linked to the scope of market activity. The application of cleaner production and the impact of zero-carbon energy may not be transferred to the relevant business areas." – Non-covered company
- "Investment institutions are taking a wait-and-see attitude to China's carbon market, and will gradually have an increasing effect on investment decisions over the next three years. But it is difficult to predict the development of China's carbon market in 2025." – Carbon trading exchange
- "Firstly, the coverage is narrow; secondly, the international situation will make carbon market have insufficient profitability." – China local government
- "The government is not strong enough, the economic situation is not good enough, the policy is not clear enough." – Consultancy

Carbon pricing in context

Respondents were asked what they expect will be the most important policies to reduce GHG emissions in China at different points in time (Figure 3). From now until 2025, the combined expectation of respondents is that the emphasis will clearly shift towards carbon emissions trading, environmental tax, environmental information disclosure and energy allowances trading.[12] This reflects a shift away from approaches such as the mandatory closure of inefficient facilities, to be replaced by a suite of more market-oriented policies. At the same time, respondents still predict a situation where there is a mix of policies in the long run.

Interestingly, ETS is already seen as a motivator for GHG reduction in 2017, suggesting that the policy can have a positive impact even if the carbon price signal is not yet at a high level.

Market-oriented policy instruments are expected to become more important over time

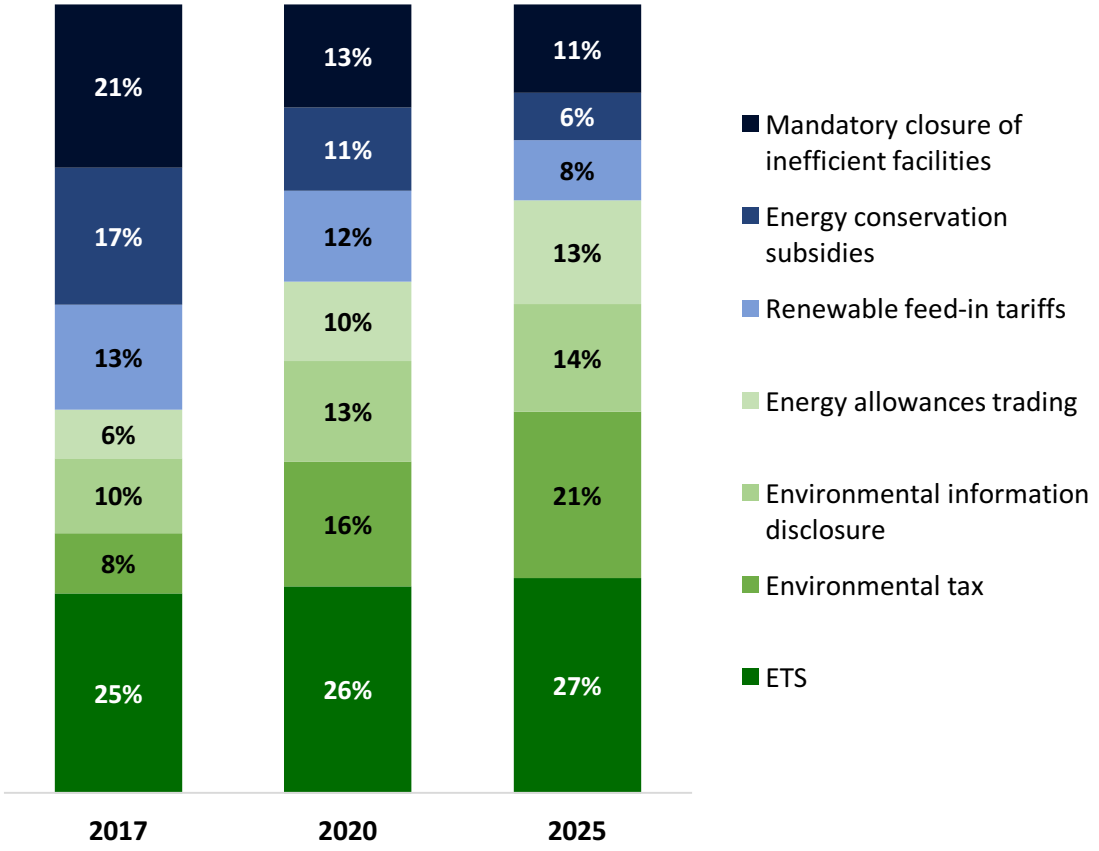

Figure 29 Q3-3 Which do you expect to be the most important policies in motivating companies to reduce GHG emissions in China at different points in time? (Select up to 3 for each year) (N=256, 253, 257)

[12] Energy allowances trading is a new policy introduced by the Chinese government, first in four pilot regions to be expanded nationally if successful. It will allocate energy-consumption quotas to companies, who will have to eliminate outdated capacity or buy extra quotas if they exceed the limit.

Selected quotes: Which do you expect to be the most important policies in motivating companies to reduce GHG emissions in China in 2017/2020/2025? Others – please specify:

- "The development of renewable energy companies should be supported by policies and subsidies, if necessary. Firstly, some polluting enterprises should be closed and then a scientific approach to controlling pollution and protecting the environment should be established. For example, our company is a start-up and faces difficulties developing in the current system. We particularly need policy support to develop the company and prevent forged and fake technology." – Non-covered company
- "Subsidies can reduce carbon emission in the short term, while information disclosure can have a long-term influence. This influence will be strong, but not necessarily seen in the short term." – Multilateral organisation
- "Offering subsidies is a short-term approach, while in the long term there is a need to establish market norms." – Consultancy
- "Institutional development is the foundation. In the short-term strong controls should be implemented." – Financial sector

Linking China's national ETS with other systems

In principle, ETSs in different jurisdictions can be linked with each other, by making permits from one system eligible in another. Barring any restrictions on permit trade, this would result in the same price applying in the linked ETS's, and in cross-border financial flows for permits. Advantages are greater overall cost effectiveness, because of harmonisation of marginal mitigation costs; being able to differentiate targets between jurisdictions without sacrificing cost effectiveness; and greater market depth. But linking requires harmonisation of rules, mutual acceptance of the system caps, permits issuance, and reliable emissions accounting and enforcement in all participating jurisdictions.

Respondents were asked if they expect China's national ETS to be linked with existing ETS's around the world by 2025, by 2030, or after 2030. Some expect international linking by 2025 (31%), and a majority (61%) expect linking will occur by 2030. While this reflects the fact that about one third of stakeholders remain optimistic of international linking in the short-to-medium term, two thirds see it as a longer-term proposition, if at all. The expectations for linking by 2025 are slightly more optimistic than in the 2015 survey (up from 27%), but not as optimistic as the 2013 survey (down from 69%). Expectations for 2030 are also higher than they were in 2015 (60% up from 52%). This suggests that there was a dip in confidence around 2015, that may have in part been counteracted by the momentum of the Paris Agreement and ongoing work to link carbon markets in North America.

A majority expects that China will be linked with other systems by 2030

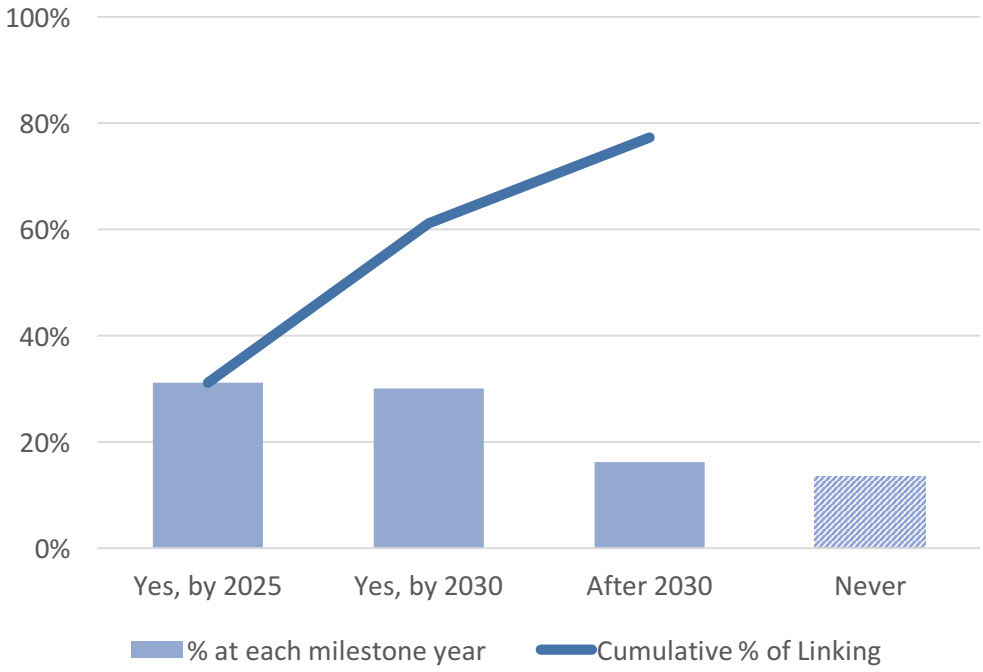

Figure 30 Q6-3 Do you expect that China's national ETS will be linked with any other systems by the year 2025 or 2030? (N=260)

Of those expecting international linkages, 84% expect a link with the EU ETS (65% overall), while significant minorities foresee linkages with the Regional Greenhouse Gas Initiative (RGGI) in the United States, South Korea and California.

The EU ETS is seen as the most likely carbon market for linking with China

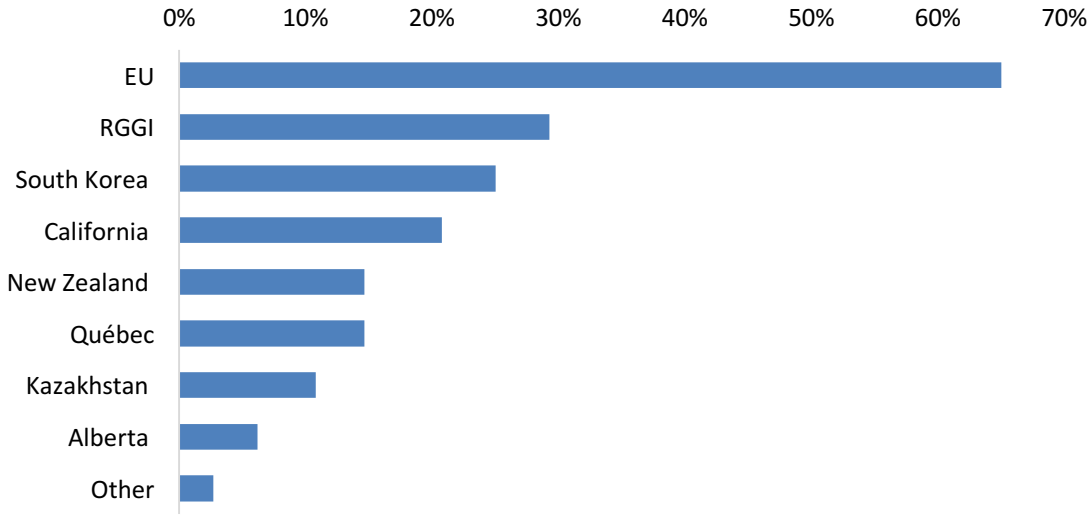

Figure 31 Q6-3 If Yes, which ones? (N=201)

China's national emissions targets and peak emissions

In 2009 China set a national target for 2020 for emissions intensity (CO_2 emissions per unit of GDP). The goal is to reduce emissions intensity by 40 to 45% over 2005. An intensity target means that the absolute amount of "allowable" emissions increases if GDP is higher, and decreases if GDP is lower. In June 2015, China announced a further target to reduce emissions intensity by 60 to 65% by 2030 (again compared to 2005 levels).

Respondents were asked what form of target they expect to apply in 2025 and 2030, if any. While the majority thinks that China will stick to an emissions intensity target for 2025 (63%), the share of respondents that expect an absolute target by that year has doubled since 2015 (34% up from 17%). Expectations for a 2030 absolute target remain at 65%, the same as in 2015. It seems that there is a growing consensus that China may upgrade its current emissions intensity commitment to an absolute target in coming years.

Absolute target expected for 2030

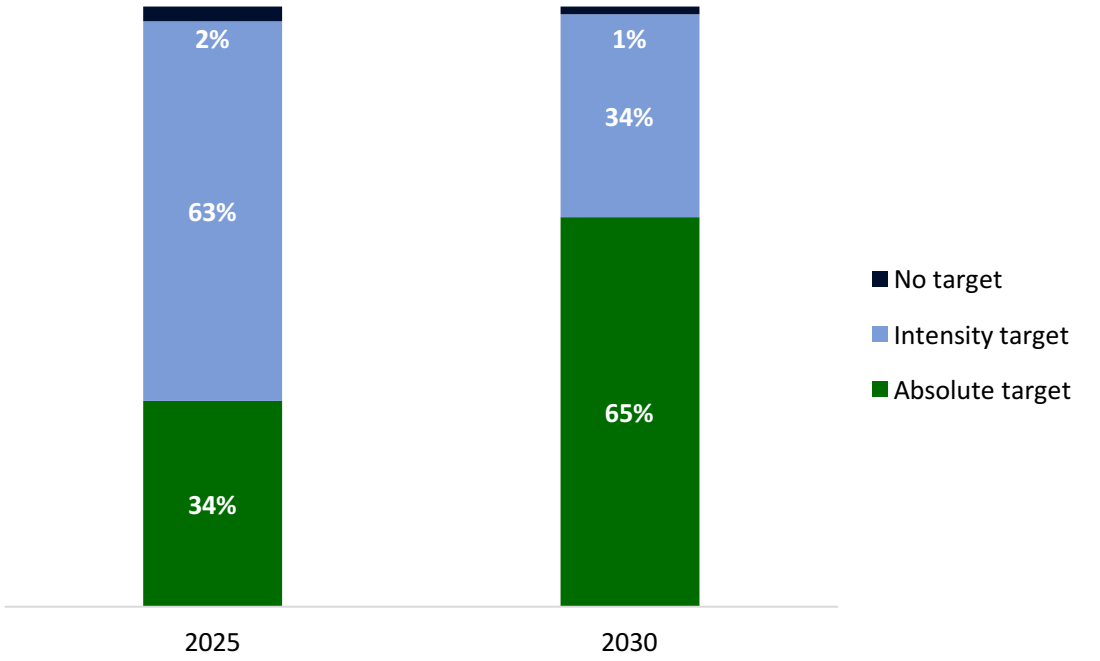

Figure 32 Q6-2 Do you expect that China will take on an emissions target for 2025/2030; if so what type? (N=248, 242)

Selected quotes: Do you expect that China will take on a GHG emissions target for 2025 [2030] and, if so, what type? Explain your answer:

- "China is a developing country with high energy consumption, and carbon emission are difficult to reduce significantly in a short period. So the best way is to set a goal that can meet China's specific national conditions regarding emissions reduction." – Central government
- "Pre-2025, there may be a bottom-up, intensity-derived cap which is the result of the summation of emissions, then allocation, that are associated with each enterprise and, by extension, each province. Post 2025, there may be an absolute cap. Again, this may be bottom up but may also reflect mandated reductions." - NGO

China committed to peak its absolute greenhouse gas emissions by 2030 or earlier as part of its commitments to the Paris Agreement. 90% of respondents expect China to achieve the carbon emissions peak by 2030 (up from 82% in 2015), and 55% expect China's emissions to peak by 2025 or earlier (up from 39%). 8% of respondents are now of the view that China's CO_2 emissions have in fact already peaked.

China's emissions are expected to peak ahead of 2030

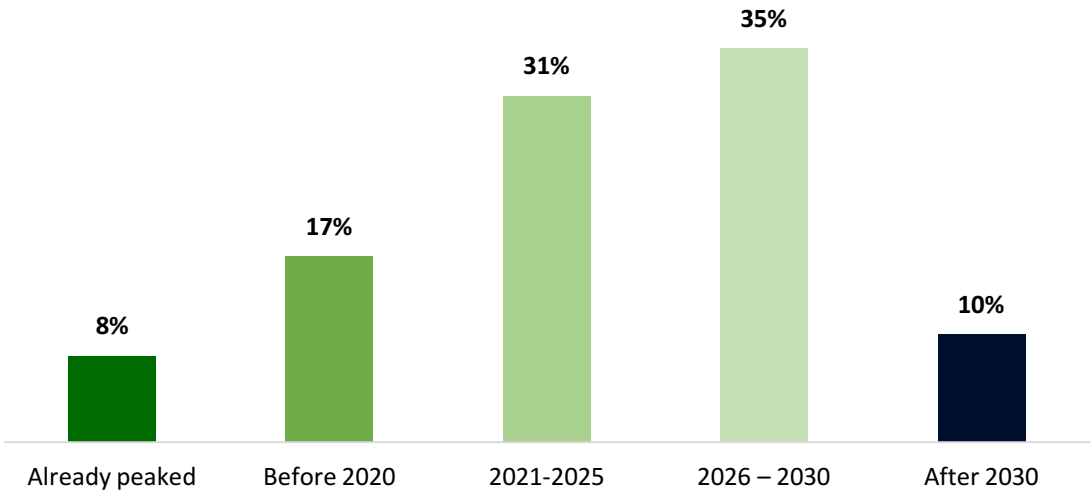

Figure 33 Q6-1 When do you expect China's emissions will peak? (N=259)

Selected quotes: How do you expect the Paris Agreement will affect progress on carbon pricing?

- "If the US President insists on failing to fulfil the Paris Agreement, then it will be difficult to have a rising carbon price." – China national government
- "The Paris Agreement is a loose, bottom-up agreement. The expected effect will depend on the determination of the Trump government. Otherwise it would have little impact on the international carbon price." – Academia
- "It will only increase the number of people who are concerned. And then the price will continue to go down." – Carbon trading exchange
- "According to the Paris agreement, China's commitment to the task of reducing emissions will become increasingly heavy. So, the carbon price will become higher and higher." – Academia
- "With the international political and economic situation changing, the recognition of environmental factors will be weakened." – Steel sector market participant
- "It will serve to encourage countries to take on targets and implement programs that encourage carbon reductions." – NGO
- "It will provide a more credible (but also more tedious) regulatory framework for countries that would be going for markets with or without Paris." – Media

Appendix 1: Key policies issued for the pilots in 2016-17

Shenzhen	On Sep 18th, 2016, Shenzhen released a notice on emission trading in the 2016 compliance cycle. 824 entities were covered, 246 more than in 2015.
Beijing	On Apr 28th, 2016, Beijing released the third batch of carbon emission intensity benchmarks, intended to facilitate allowance calculation. On Sep 18th, 2016, Beijing disclosed the list of covered entities for the year 2016, including 947 companies.
Shanghai	On Feb 4th, 2016, Shanghai released the list of covered entities for the year 2016. The total number covered reached 310. The water transport sector was covered for the first time. Shanghai suspended trading from Jun 30 to Nov 17 of 2016 to transition allowances with 2013-2015 vintage to current allowances. On Nov 11th of 2016, Shanghai issued the allocation plan for 2016, with a cap of 155 million tons.
Guangdong	On Jul 8th, 2016, Guangdong published the allocation plans for previously covered sectors including power, iron and steel, petrochemicals, and normal cement. On Jun 6th, 2017, allocation plans for aviation, paper making, and white cement were also issued. Thus, the cap for Guangdong in 2016 reached 422 million tons, covering 280 entities.
Tianjin	On Mar 21st of 2016, Tianjin issued *the Interim Administration Measures on Emissions Trading for Tianjin*, which took effect on Jun 1st of 2016.
Hubei	On Jul 12th, 2016, Hubei released a notice to exert more restrictions on the use of CCERs, aiming to mitigate the impact of CCERs on the allowance price. On Jan 4th, 2017, Hubei issued an allocation plan for the 2016 compliance year, with a cap of 253 million tons and 236 covered entities.
Chongqing	On Nov 11th, 2016, Chongqing urged covered entities to report emissions and apply for allowances for 2016[13]. Based on the report, 100 million tons of allowances were issued to covered entities on Jan 18, 2017.

Table A-1 Key policies issued for the carbon trading pilots in 2016-17.

[13] Unlike other pilots, allowances in Chongqing were allocated based on emission report and applications by entities, instead of by calculation.

Appendix 2: CCER trading to-date

As of September 30th, 2017, 2,871 Certified Emission Reduction (CCER) projects had been publicized for review and 1,047 had been registered (287 of which had been issued). Among those issued, the certification reports for 254 (representing 52.94 million tons of CCERs) are publically available. In 2016 alone, 1,505 projects were publicized for comment, 611 were registered, and 196 were issued (Figure A-1).

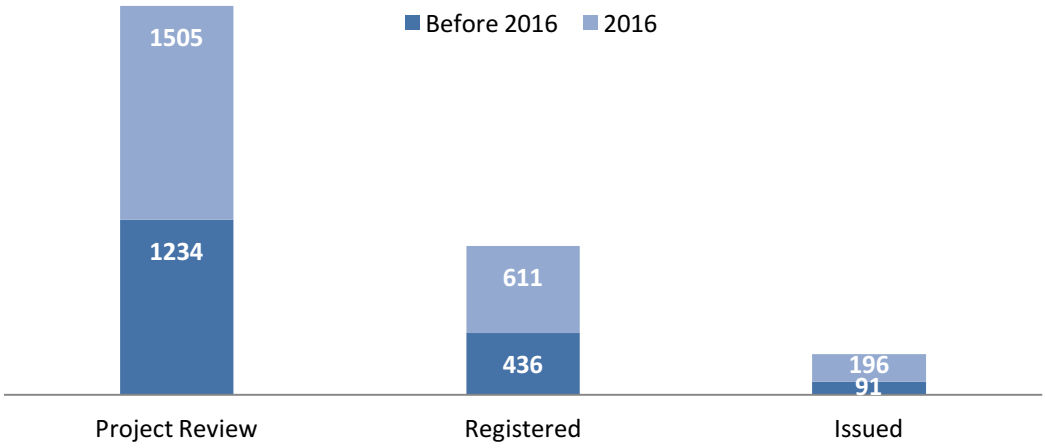

Figure A-1 Number of CCER projects.

As of September 30th, 2017, 287 Certified Emission Reduction (CCER) projects had been issued. Among those issued, the certification reports for 254 (representing 52.94 million tons of CCERs) are publically available. Of these, 139 are Type I (18.9 million tons of CCERs issued), 17 are Type II (3.7 million tCO_2e), and 98 are Type III (30.3 million tCO_2e).[14] In addition, wind, small-scale hydro, solar PV and household biogas projects are most popular, due in part to the offset rules for CCERs in the pilot carbon markets. The details are displayed in Figures A-2 and A-3.

	Wind	Hydro	Solar PV	Household biogas	Total
Total projects	90	32	48	41	254
Millions of tCO_2e	12.5	13.4	2.7	6.3	52.9

Table A-2 Publicly detailed CCER projects, as of September 30th 2017.

[14] According to regulation on the management and operation of CCER projects issued by the NDRC, there are four categories of CCER projects. Category 1 refers to newly developed CCER projects. Category 2 refers to those projects which get a Letter of Approval from the Designated National Authority but are not yet registered with the CDM Executive Board. Category 3 refers to those registered CDM projects applying for issuance of emissions reductions generated before the date of registration, known as Pre-CDM projects. Category 4 refers to those registered CDM projects for which the CDM Executive Board has not issued any emissions reductions.

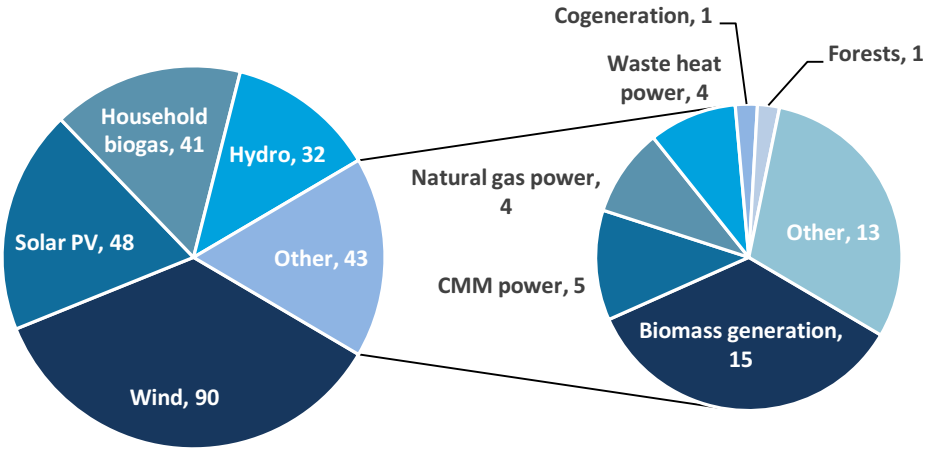

Figure A-2 CCER projects by type (number of projects issued)

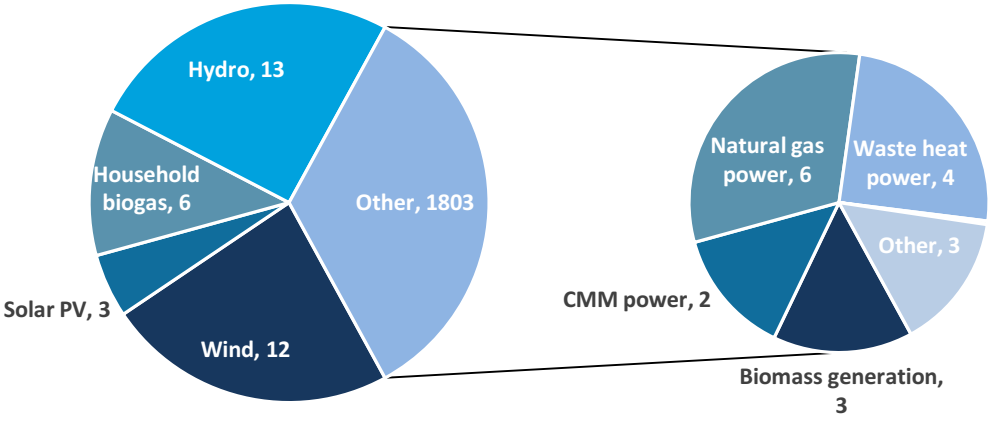

Figure A-3 CCER projects by type (million tons of credits issued)

123.7 million tons had been traded by September 2017. In 2016 alone, the trading volume was 42.5 million tons, increasing by 27.3% compared with 2015. Between January and September of 2017, 42.77 million were traded, approaching the level of 2016 (Figure A-4).

Only Beijing and Shanghai released online trading prices. The price ranges for Beijing and Shanghai were CNY 10-20/ton and CNY 20-25/ton respectively.

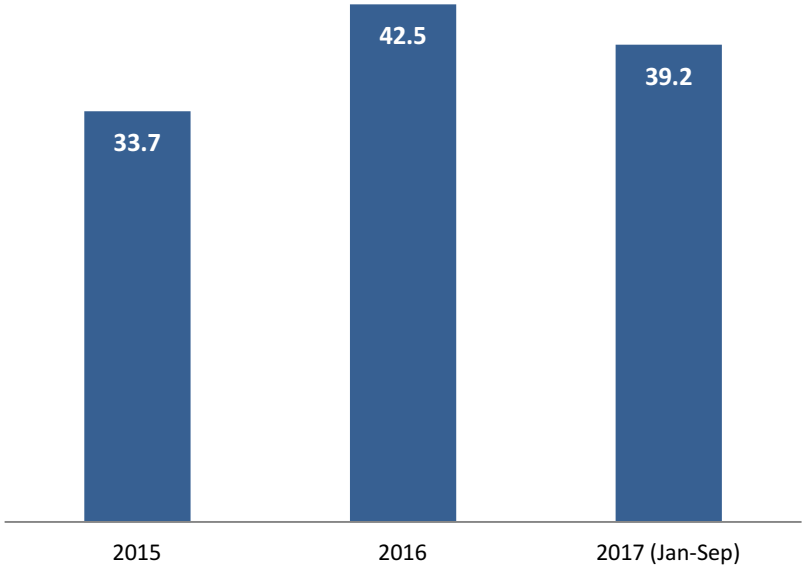

Figure A-4 CCER trading volume (million tons)

Appendix 3: Status of the national ETS design

Tasks	Current status	Key tasks for 2nd half of 2017 and beyond
Legislation	The draft ETS regulation has been submitted to the State Council, and the Legislative Affairs Office under the State Council is working on it according to its working procedures.	• Work closely with Legislative Affairs Office to pass the Regulation before launch of national ETS • Release administrative measures for: Third-party Verification Agencies; GHG Emission Reporting; and for Carbon Trading
Monitoring, reporting & verification	Guidelines for GHG accounting and reporting for 24 sectors have been released. Provincial DRCs have selected around 100 third-party verifiers to conduct verification of historical emissions.	• Unify step by step qualification management and supervision of third-party verifiers through assessment and clearly defined requirements • Upgrade and optimize guidelines for certain sectors • Conduct third-party verification for 2016 emissions
Cap setting & allocation	The State Council approved the national allocation plan in late 2016. In addition, NDRC has conducted trial allowance calculation for 3 sectors (power, cement and aluminium) in Sichuan and Jiangsu.	• Issue methodologies and operation manuals for allowance allocation in relevant sectors • Release national allocation plan and related operation manuals • Organize capacity building on allocation
Trading platform	Establish trading platform for the national ETS based on platforms of the seven pilots, plus Sichuan and Fujian.	• Assess current trading platforms • Develop administration rules for the trading platforms • Design and build a common trading system for the trading platforms
Registry system	Software of the national registry developed. Feasibility study of the national registry system has been conducted.	• Construct and consolidate a unified primary and back-up systems • Decide and select the operational entity of the registry system
Offset mechanism	CCER project registration and credit issuance has been suspended. Administration rules for offset mechanism in the national ETS have been researched.	• Revise CCER management measures • Formulate offsetting rules for compliance purposes
Transition of pilots	NDRC and the pilots have researched the planned transition.	• Design a reasonable plan for transition of allowances

Appendix 4: Survey questions and aggregated responses

Section 1: Respondents' background

This first part of the survey aims to identify respondents' profile.

Q1-1: Where is your organization located?

	Responses	Percentage
In mainland China	239	92%
Outside of mainland China	21	8%

Q1-2: How would you classify your organization?

	Responses	Percentage
Company covered, or to be covered, by ETS	41	16%
Company not covered by ETS	26	10%
Industry sectoral association	7	3%
China national government	6	2%
China local government	7	3%
Academia	25	10%
Government research institute	13	5%
Emissions trading exchange	17	7%
Financial sector	18	7%
Consultancy	65	25%
Legal services	0	-
NGO	15	6%
Multilateral or bilateral development org.	2	1%
Foreign government or embassy	1	<1%
Other	17	7%

Q1-3: Will your company operate under the national ETS? [only for industry respondents]

	Responses	Percentage
Yes	34	83%
No	2	5%
Don't know	5	12%

If YES or Don't know, please specify the sector:

	Responses	Percentage
Petrochemicals (incl. crude oil processing, ethylene)	6	15%
Chemicals (incl. calcium carbide, ammonia synthesis, methanol)	8	21%
Building materials (incl. cement, ceramics, clinker, plate glass)	1	3%
Iron & Steel	5	13%
Non-ferrous metals	1	3%
Pulp and paper	3	8%
Electricity generation	10	26%
Aviation	5	13%

Q1-4: Is your company currently operating under an emissions trading system in China? [only for industry respondents]

	Responses	Percentage
Yes	24	59%
No	17	41%

If YES, which of the following (choose one or more)?

	Responses	Percentage*
Beijing	10	42%
Shanghai	7	29%
Tianjin	8	33%
Hubei	7	29%
Guangdong	10	42%
Chongqing	4	17%
Shenzhen	4	17%

* share of companies covered by pilots, not of total responses, as some respondents chose multiple systems.

If YES, please specify the sector:

	Responses	Percentage*
Petrochemicals (incl. Crude oil processing, ethylene)	5	21%
Chemicals (incl. Calcium carbide, ammonia synthesis, methanol)	5	21%
Building materials (incl. cement, ceramics, clinker, plate glass)	1	4%
Iron & Steel	2	8%
Non-ferrous metals	0	-
Pulp and paper	1	4%
Electricity generation	9	38%
Aviation	2	8%
Automotive	0	-
Oil & gas extraction	0	-
Textile	0	-
Transportation	0	-
Buildings (e.g., residential, gov. buildings)	0	-
Other	1	4%

"Other" included: Carbon development

* share of companies covered, not of total responses, as some respondents chose multiple options.

Q1-5: Please specify the enterprise type [only for industry respondents]

	Responses	Percentage
Central Government-led State Owned	13	34%
Local Government-led State Owned	12	17%
Private	3	29%
Foreign investment	7	5%
Joint venture	3	7%
Other	2	7%

"Other" included: "In the process of transferring equity"; Unspecified

Q1-6: How much energy does your company annually consume in China? (Note: under one legal entity) [only for industry respondents]

	Responses	Percentage
Less than 5,000 tce/year	2	5%
5,000 ~ 10,000 tce/year	2	5%
10,000 ~ 100,000 tce/year	9	22%
100,000 ~ 1,000,000 tce/year	9	22%
More than 1,000,000 tce/year	19	46%

Q1-7: Is your organization currently operating under an emissions trading system outside of China? [only for industry respondents]

	Responses	Percentage
Yes	11	27%
No	30	73%

If YES, where?

	Responses	Percentage
EU ETS	9	82%
California ETS	1	9%
Québec ETS	0	-
Alberta ETS	0	-
South Korea ETS	0	-
New Zealand ETS	0	-
Kazakhstan ETS	0	-
Regional Greenhouse Gas Initiative	0	-
Other	0	-
No response	1	9%

Q1-8: In the management structure of your company, what position do you hold? [only for industry respondents]

	Responses	Percentage
Junior staff	18	44%
Mid-level manager	20	49%
Senior executive	2	2%
Other	1	5%

"Other" included: Environmental Commissioner

Section 2: Current capacity and level of readiness [only for industry respondents]

This section aims to understand the current capacity and the level of readiness of companies to take part in an emissions trading system.

Q2-1: Do you think that your company is prepared to perform tasks under an ETS in the following areas?

	Monitoring and reporting	Allocation data collection	Administrating allowances	Carbon trading
Not prepared at all	1	4	4	5
Yes, marginally	20	13	10	14
Yes, moderately	4	8	14	12
Yes, strongly	16	16	12	10
Don't know	0	0	1	0

Q2-2: In which areas do you need to receive further training? (Choose up to 3 areas you would like to receive trainings before the national ETS starts)

	Responses	Percentage*
Key features of emission trading and carbon markets	15	37%
Monitoring and reporting greenhouse gas emissions	13	32%
Verification and accreditation	3	7%
Corporate level organization and compliance strategy	20	49%
Use of ETS registry	3	7%
Data collection for allocation	11	27%
Legal framework/regulations	12	29%
Carbon finance	18	44%
Development and use of CCERs	11	27%

* share of companies covered, not of total responses, as some respondents chose multiple options.

Q2-3: Has your company assigned a dedicated person (internal or external) or formed a dedicated team to handle your ETS obligations?

	Responses	Percentage
Yes	31	76%
No	10	24%

If YES: How many people are in the team?

	Responses		Responses
1	1	9	1
2	2	10	2
3	8	12	1
4	4	15	1
5	3	16	1
6	2	20	1
8	1	30	2
		No response	1

If YES: What is your team's organizational form?

	Responses	Percentage*
Independent company	4	13%
Department	13	42%
Decision making team from different departments	14	45%

* share of companies with dedicated person/team.

If YES: What are the competencies of the person(s) you have assigned to handle the ETS obligations?

	Responses	Percentage*
Financial	5	16%
Process engineer	14	45%
Management	24	77%
Other	4	13%

* share of companies with dedicated person/team, not of total responses, as some respondents chose multiple options.

Q2-4: Has your company participated in training(s) on ETS?

	Responses	Percentage
Yes	33	80%
No	8	20%

If YES: Which department/level represented your company in the training(s)?
Answers included: Production Technology Department (4); Carbon Asset Department; Factory or energy department; Energy and Environment; Business; Department Manager; Parent Group; Safety and Environmental Protection; Finance; High and middle levels both participated; Vice President; Employee; Multiple departments; Department-level; Self-training; Energy and Authorities; Middle Management; Production Management Department; Strategy; Administration Department.

If YES: From which agency did your company receive training?
Answers included: SinoCarbon (5); ICF; ICIS (2); Development and Reform Commission – Unspecified (3); National Development and Reform Commission; Beijing Municipal DRC; Tianjin DRC; Guangdong Provincial DRC; Provincial DRC; Local government; City government; Beijing Environmental Exchange; Hubei Exchange; Guangdong Carbon Exchange (2); Trading exchanges – Unspecified (2); Carbon Cast; Steel Association (2); Nitrogen Fertilizer Industry Association; Sectoral association; State Council Policy Research Phase II; International Cooperation Project; GIZ; Guangdong Capacity Building Center; Strait Trading Center; Civil Aviation University of China; Preparatory Group of Carbon Emissions Trading Management Center; Group internal carbon management company; Environmental Protection Science Research Institute; Self-training;.

Q2-5: Has your company formulated a compliance strategy for ETS in China?

	Responses	Percentage
Yes	25	61%
No	16	39%

If YES: Summarise the strategy here (optional)
Answers included:
Ensure compliance and the security of trading;
During the pilot phase, conduct internal transactions; during the national market stage, gradually participate in the market;
Through the deployment of CCERs, carry out trusteeship business to reduce performance costs;
According to the market price, as well as the company's production and operations, actively comply, and strive to achieve efficiency.

Q2-6: Does the transition from pilot to national ETS require some adjustment to your strategy and/or organizational structure?

	Responses	Percentage
Yes	21	51%
No	20	49%

If YES: If so, how? (optional)
Answers included:
May establish an independent department.
Set up a professional company.
Establish professional institutions, foster and organize knowledge transfer to help personnel working on trading, information collection, development, and financial aspects of the carbon market. Currently, we are closely watching the development of the market.

Develop a trading mechanism, participate in the market as appropriate, and establish a comprehensive operational management model for the group's carbon assets.
Establish systems and responsible organizations.
Establish a carbon trading decision-making team; set up management procedures that are legally compliant, convenient and efficient.
Need to organize a specialised group to study the trading situation; increase R&D and investment in technology, in order to reduce the level of emissions.

Q2-7: Does your company have an emissions reduction target?

	Responses	Percentage
Yes	33	80%
No	8	20%

Q2-8: Has your company undertaken internal distribution of allowances between subsidiary companies?

	Responses	Percentage
Yes, intra-company exchange of allowances via a trading desk	7	17%
Yes, re-allocation of allowances by headquarters	9	22%
No	21	51%
Don't know	4	10%

Q2-9: Do you have an internal/ shadow carbon price?
Note: a shadow price is an assumed future price of carbon emissions, which is factored into investment and operational decisions.

	Responses	Percentage
Yes	12	31%
No	27	69%

If YES: What value is it?
15-20; 20; 40; 50; 60; 50-100; The production process of each subsidiary is different. The carbon price ranges from 300-670.

Q2-10: Have you conducted internal monitoring and reporting of your company's GHG emissions ahead of the start of China ETS pilots?

	Responses	Percentage
Yes	23	42.5%
No	17	57.5%

If YES: What type of problems were encountered? (optional)
Answers included:
No time.
Policy instability and lack of security, resulting in not being able to meet the objectives. There is confusion between the various government departments involved. In our understanding, except for the professional institutions, many departments involved have gaps and take an old-fashioned approach to national policy. This has a very harmful impact on the approval of each link in the development of carbon trading.
Problem with statistical requirements.
Internal training on new aspects should be strengthened.
We just started last year. We are not familiar with the policy and need further understanding of the principles of quota allocation.

Q2-11: What other preparations are needed in order to be ready for participation in the ETS? (optional)
Answers included:
Focus on policy.
Policy, organisation adjustment.
Many things: All aspects of policy, administration, understanding and dealing with the official unified system, needs be prepared.
System development, training etc.
Internal portfolio management; strengthen education on market risk.
Learning about emissions accounting rules; standards and rules for quota allocation; evaluation of carbon trading compliance; and, how to form a carbon asset management team as an emitting entity.
The government should increase its support for industry to achieve carbon emission reductions.
1) System construction, organization and division of responsibilities; 2) laws, regulations, and trading methods related to carbon emissions trading; 3) support for companies' senior management.
Understand the reasons for the level of emissions in this industry.
Implementing industry energy consumption standards well, and strengthen energy management.

Section 3: Impacts of the emissions trading systems on investment decisions

This section seeks to understand the impacts of the emissions trading systems on investment decisions.

Q3-1: Do you expect the ETS in China to affect [your company's] investment decisions in 2017? In 2020? In 2025?

	2017	2020	2025
No	46	8	5
Yes, marginally	108	49	31
Yes, moderately	70	147	88
Yes, strongly	28	42	107
Don't know	7	13	28

Explain your answer (optional): Selection of answers provided on page 26 above.

Q3-2: What type of actions are you planning to be compliant?

	Responses	Percentage
Trade allowances in the market	28	68%
Use Offsets (CCERs)	26	63%
Energy-efficiency measures	30	73%
Other	6	15%

Answers for "Other" included:
Not clear on how industry can make use of CCERs
Adjust the technology section of the production chain
Quota trusteeship
One we have carbon credits we can talk about the trading
According to the Thirteenth FYP, using the last two (offsets and energy efficiency) can meet the requirements
Energy-saving reforms, adjust the composition of our power supply

Q3-3: Which do you expect to be the most important policies in motivating companies to reduce GHG emissions in China at different points in time?
(Please select up to 3 options for years 2017, 2020, and 2025)

	2017	2020	2025
ETS	165	171	178
Subsidies for energy conservation	113	69	39
Feed-in tariffs for renewable energy	87	75	50
Mandatory closure of inefficient facilities	135	85	73
Environmental tax	50	103	138
Environmental information disclosure	62	83	89
Energy allowances trading	40	66	86

Selection of answers for "Other" provided on page 28 above.

Section 4: Prices in the pilot systems

This section covers questions about current carbon price levels and price expectations in the pilots.

Q4-1: How do the current prices in ETS pilots compare with your expectations?

	Responses	Percentage*
Actual prices are higher than what I expected	23	9%
Actual prices are similar to what I expected	76	29%
Actual prices are lower than what I expected	102	39%
Don't know	58	22%

* share of total respondents, not of options chosen, as some respondents chose multiple options.

Q4-2: In your opinion, what are the main factors influencing prices in the ETS pilots?
(Select one or more)

	Responses	Percentage*
Cap setting and free allocation	209	80%
Compliance period	70	27%
Economic growth rate	111	43%
Information transparency	124	75%
Government regulation and intervention	196	48%
Other	5	1%
Don't know	7	3%

* share of total respondents, not of options chosen, as some respondents chose multiple options.

Section 5: The national ETS

This section covers questions about expectations on design and price in the future national ETS.

Q5-1: Regarding the national ETS, what do you expect the intensity of trading will be during the first compliance cycle?
Trading will be:

	Responses	Percentage
Active	20	9%
Moderately active	177	84%
Inactive	14	7%
Don't know	46	not included

Q5-2: By when do you expect China national ETS to be fully functional?
e.g. all key building blocks in place, including: legislation/law, cap and allocation management, complete MRVA system, registry, trading platforms, market oversight, etc.

	Responses	Percentage
2017	8	3%
2018-2020	114	45%
2021-2025	113	44%
Later than 2025	19	7%
Never	2	1%
Don't know	3	not included

Q5-3: What legal basis do you think is necessary for the start of the national ETS in order to ensure compliance?

	Responses	Percentage
National Law by National People's Congress	160	63%
National Regulation by State Council	82	32%
National Regulation at Ministry level	10	4%
Ministry Notice	3	1%
Don't know	4	not included

Q5-4: Do you think a rules-based flexibility mechanism, such as a stability reserve to keep prices from fluctuating too much, is necessary?

	Responses	Percentage
Yes	220	88%
No	29	12%
Don't know	10	not included

Explain your answers (optional): Selection of answers provided on page 15 above.

Q5-5: Do you think a New Entrants Reserve is necessary?
Note: A New Entrants Reserve constitutes a special-purpose pool of emission allowances set aside for new companies entering the carbon market, and companies that increase capacity.

	Responses	Percentage
Yes	203	84%
No	40	16%
Don't know	15	not included

Explain your answer (optional): Selection of answers provided on page 16 above.

Q5-6: How many emissions trading exchanges should operate in the national ETS?

	Responses	Percentage
Within every province	36	14%
Several regional platforms	124	49%
One national platform	93	37%
Don't know	6	not included

Explain your answer (optional): Selection of answers provided on page 17 above.

Q5-7: How should banking of permits from the pilot systems to the national ETS be managed?

	Responses	Percentage
Full banking of allowances	92	40%
% of permits may be banked	112	49%
No banking allowed	24	11%
Other	7	3%
Don't know	24	not included

Explain your answer (optional): Selection of answers provided on page 18 above.

Q5-8: What should be the level of reporting?

	Responses	Percentage
Enterprise level	157	64%
Facility level	60	24%
Product level	30	12%
Don't know	12	not included

Q5-9: What do you expect the price in the national ETS to be in the coming years? (in Yuan/ton CO_2)

	2017	2018	2020	2025
Average	38	51	74	108
Median	30	43	60	100
Standard deviation	21	32	54	84
10th percentile	20	22	27	30
20th percentile	20	30	35	50
80th percentile	50	62	100	200
90th percentile	50	100	150	200
Nr. of responses	161	160	159	157

Explain your answers (optional): Selection of answers provided on page 21 above.

Section 6: China's emissions, international carbon markets and international climate policy

This section aims to put China national ETS in the context of international carbon markets and international climate policy.

Q6-1: When do you expect China's carbon emissions will peak?

	Responses	Percentage
Already peaked	20	8%
Before 2020	43	17%
2021-2025	80	31%
2026 – 2030	91	35%
After 2030	25	10%
No answer	1	not included

Q6-2: Do you expect that China will take on a GHG emissions target for 2025 [2030] and, if so, what type?

	2025	2030
No Target	6	3
Intensity Target	157	82
Absolute Target	85	157
Don't know	11	16

Explain your answer (optional): Selection of answers provided on page 30 above.

Q6-3: Do you expect that China's national ETS will be linked with any other systems by the year 2025 or 2030?

	Responses	Percentage
Yes, by 2025	81	31%
Yes, by 2030	78	30%
After 2030	42	16%
Never	35	13%
Don't know	24	not included

If YES: Which ones? (Select one or more)

	Responses	Percentage
EU ETS	169	84%
California ETS	54	27%
Québec ETS	38	19%
Alberta ETS	16	8%
South Korea ETS	65	32%
New Zealand ETS	38	19%
Kazakhstan ETS	28	14%
Regional Greenhouse Gas Initiative	76	38%
Other	7	3%

* % of total respondents answering "Yes", not options chosen, some respondents chose multiple options.

Q6-4: How do you expect the Paris Agreement will affect progress on carbon pricing? (optional)
Selection of answers provided on page 31 above.

Q6-5: Are there are any other insights or opinions that you would like to share? (optional)
Selection of answers provided on page 32 above.

Q6-6: Do you have any suggestions for future China Carbon Pricing Surveys? (optional)
Answers available on request.

Project partners

China Carbon Forum (CCF) is an independent and neutral platform to engage stakeholders in China's climate change sector. CCF prepares research and organises focused events to discuss climate change issues in specific sectors, including networking events, research, and policy consultations to discuss removal of barriers to emissions reductions, and to develop a more climate resilient society.

ICF is recognised as a leading global provider of climate change policy expertise. The firm has offices and energy/climate experts in U.K., China, Belgium, India, Singapore and North America. ICF has over 1,500 professional employees dedicated to the study of energy, environmental, and climate change issues. ICF's Beijing office, brings in-depth knowledge of the key energy, environment, economic, and policy issues in China with a 20-year track record of continuous climate policy capacity building in China and an extensive network of partners and relevant stakeholders.

SinoCarbon Innovation & Investment Co., Ltd. (SinoCarbon) was founded in 2010 and is committed to becoming a leading integrated low-carbon service provider in China with a focus on pushing low carbon development through various innovative practices. With a profound background in energy, environment and finance industries, SinoCarbon possesses a low-carbon innovation team of nearly 200 professionals in the fields of energy, information, environment, finance, business, and legal and public policy, skilled and experienced in low carbon consultancy and research. Through constant innovation, SinoCarbon has gained an outstanding reputation in the industry.

The Dutch Emissions Authority (Nederlandse Emissieautoriteit, NEa) is a competent authority which ensures that companies taking part in the European Emissions Trading System (EU ETS) and the laws and regulations governing renewable energy for transport and air pollution from fuels fulfil their obligations. The NEa does so by providing information and advice and by monitoring the companies involved (among other activities).

Tsinghua University China Carbon Market Center (CCMC) focuses on both international and China's domestic carbon market research and development. The Department of Climate Change of China's National Development and Reform Commission (NDRC), China's emissions trading authority, provided strong support for the establishment of CCMC, with the expectation that CMCC will play a critical role in the establishment of China's national emissions trading system through providing technical and policy advice.

Project funders

The Royal Norwegian Embassy

Norway and China have worked together on environment and climate issues for nearly two decades. The cooperation has focused on environmental management and capacity building. Norway supports projects that contribute to China's implementation of global environmental conventions, drawing on highly skilled Chinese and Norwegian partners with core competence in the areas singled out for collaboration. Priority areas for the cooperation have been biodiversity, climate change and management of hazardous substances, such as POPs and Mercury. Norway also gives great importance to our participation in and support to China Council for International Cooperation on Environment and Development (CCICED), a high-level advisory body to the Government of China.

Kingdom of the Netherlands / Ministry of Infrastructure and Environment

The Ministry of Infrastructure and Environment works with China in the different fields of its portfolio: infrastructure, spatial planning, water resource management, transport and environment and climate. The Ministry has supported China in its work on environment and development for more than 25 years.

For this specific project the Dutch Emission Authority (NEa) was assigned by the Ministry to share its experience and give input. The NEa is the competent authority of the Netherlands which ensures that companies taking part in the European Emissions Trading System (EU ETS) fulfil their obligations and has therefor ample experience to support China in its efforts to set up a ETS.

Conducted by

China Carbon Forum 中国碳论坛

ICF

SinoCarbon Innovation & Investment 中创碳投

nea Nederlandse Emissieautoriteit Dutch Emissions Authority

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