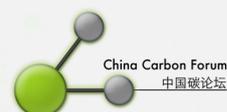


2020 CHINA CARBON PRICING SURVEY

December 2020



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Abstract

This report summarises the results of the *2020 China Carbon Pricing Survey*. The survey elicited expectations about the future of China's carbon price from stakeholders in carbon markets in China during July-August 2020. Through cooperation with industrial associations, the project team reached a wide range of representatives from China's carbon-intensive industries, especially power generation, which are already subject to, or are soon expected to be subject to carbon pricing. As the largest survey of its kind yet conducted, the results continue to give strong confidence that carbon price levels in China will rise over time, and that carbon pricing will increasingly affect investment decisions. The Chinese government announced in September 2020 that the national carbon market will accelerate the construction of the nationwide ETS, and the majority of power sector respondents indicated that they expect the sector to be ready for full compliance obligations in a national carbon market next year. The carbon market is expected to be an important policy instrument to motivate companies to reduce GHG emissions in the coming decade, as part of a suite of policy tools. There is strong confidence that China will meet its target to peak carbon emissions by 2030. Many expect that the peak in emissions may be reached significantly earlier. Many respondents expect a delay in the rollout of the national carbon market because of the COVID-19 pandemic.

Keywords

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

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Professor Frank Jotzo of the Centre for Climate Economics and Policy at Australian National University deserves a special mention, as he was the initiator and lead author of the initial survey in 2013, which served as the starting point for the series of surveys, and he provided advice to the team on methodology.

Peter Edwards of China Carbon Forum managed the project, and we would also like to thank Cherry Zheng, as well as Yu Jiahui and Chen Zhibin from SinoCarbon for their contribution to the report. Finally, we would like to thank Zhang Yanqi and Li Ruixin who helped with the translation of the report.

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Acronyms:

CBIRC	China Banking & Insurance Regulatory Commission
CCER	China Certified Emission Reduction (offset system)
CDM	Clean Development Mechanism
CNY	Chinese Yuan
CSRC	China Securities Regulatory Commission
ETS	Emissions Trading System
GDP	Gross Domestic Product
MtCO ₂ e	Million Tons of Carbon Dioxide Equivalent
MEE	Ministry of Ecology and Environment
MRVA	Monitoring, Reporting, Verification and Accreditation
NDRC	National Development and Reform Commission
PBOC	People's Bank of China
QFII	Qualified Foreign Institutional Investor
TCE	Tons of Coal Equivalent
tCO ₂ e	Tons of Carbon Dioxide Equivalent

Executive Summary

The *2020 China Carbon Pricing Survey* was undertaken during July – August 2020, obtaining expectations about the future of carbon pricing in China from hundreds of stakeholders. The survey is a collective “best guess”. It does not claim to be representative, but it does provide an indication of stakeholder views about the likely future of carbon pricing in China. The project builds on similar surveys conducted in 2013, 2015, 2017, 2018 and 2019.

China’s carbon market progress

Eight pilot carbon markets were launched in the period of 2013 to 2016, in five municipalities (Beijing, Chongqing, Shanghai, Tianjin and Shenzhen) and three provinces (Guangdong, Hubei and Fujian). The pilot markets have experimented with different allocation mechanisms, sectoral coverage, the use of offsets, and various derivative products.

In 2015, shortly before the Paris Agreement was signed, China announced that it would develop a national carbon market. A roadmap for development of the national market was released in late 2017. Over the past years, the Chinese government and various international cooperation projects have focused on capacity building for the national carbon market.

In September 2020, just after the survey was conducted, President Xi Jinping announced to the UN General Assembly that China would aim to achieve carbon neutrality by 2060, triggering global interest in China’s climate actions. Soon after the pledge, the Ministry of Ecology and Environment (MEE) committed to starting the national carbon market ‘as soon as possible’.

In early November, MEE released a draft of the National Carbon Trading Management Measures for public comment. This document sets out the responsibilities of municipal-level environmental bureaus, the maximum ratio of offset credits which can be used, penalties for non-compliance, and that the costs of emissions verification will be borne by the government.

Respondents

The survey received 567 responses from professionals in a range of sectors, including industry (69%), market-related service companies (13%), industry sector associations (5% each), research institutes and carbon exchanges (3% each). Almost half of all respondents (46%) are from companies either covered by regional emissions trading systems or likely be included in the forthcoming national carbon market. 23% of responses came from the power sector.

32% were from provinces with pilot carbon markets, 67% from non-pilot regions, with 1% from organisations not based in mainland China. The geographic spread of respondents has increased with each iteration of the survey, reflecting a growing engagement in carbon markets across the country.

Due to self-selection, it is likely that those who responded to the survey are more likely to be involved in preparation for the carbon market than those who didn’t respond, possibly leading to some bias towards upbeat expectations about carbon pricing. We have sought to mitigate this effect by working with sector associations to elicit more representative industry responses. On the other hand, confidence has probably increased significantly following China’s pledge towards carbon neutrality by 2060.

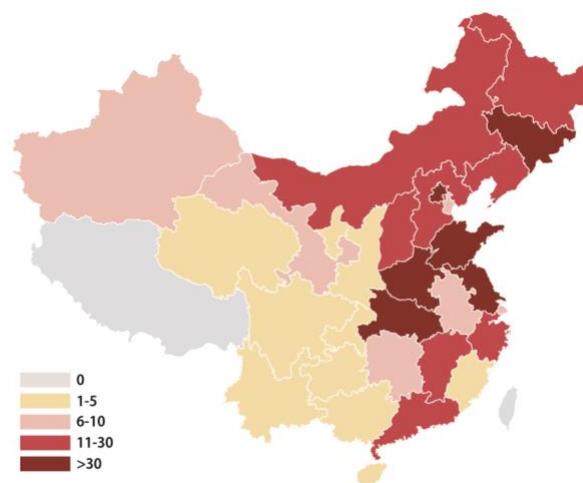


Figure 1 Location of respondent organisations.

China's national carbon market

Half of respondents (50%) expect that national carbon market will start trading in the power sector in 2021, but only 12% of respondents expect the market to be 'fully functional' by 2021.¹ 72% of respondents expect a 'fully functional' carbon market by 2025. The national carbon market is expected to gradually cover other sectors, with cement, steel, chemicals, aluminium and petrochemicals identified as the more likely sectors to be included next.

Respondents expect carbon emissions trading to increasingly affect investment decisions in coming years. 37% of respondents expect investment decisions to be strongly or moderately affected in 2020. By 2025, this number rises to 69%. Only 5% of respondents expect investment decisions to be unaffected by 2025.

Carbon emissions trading is expected to increasingly affect investment decisions

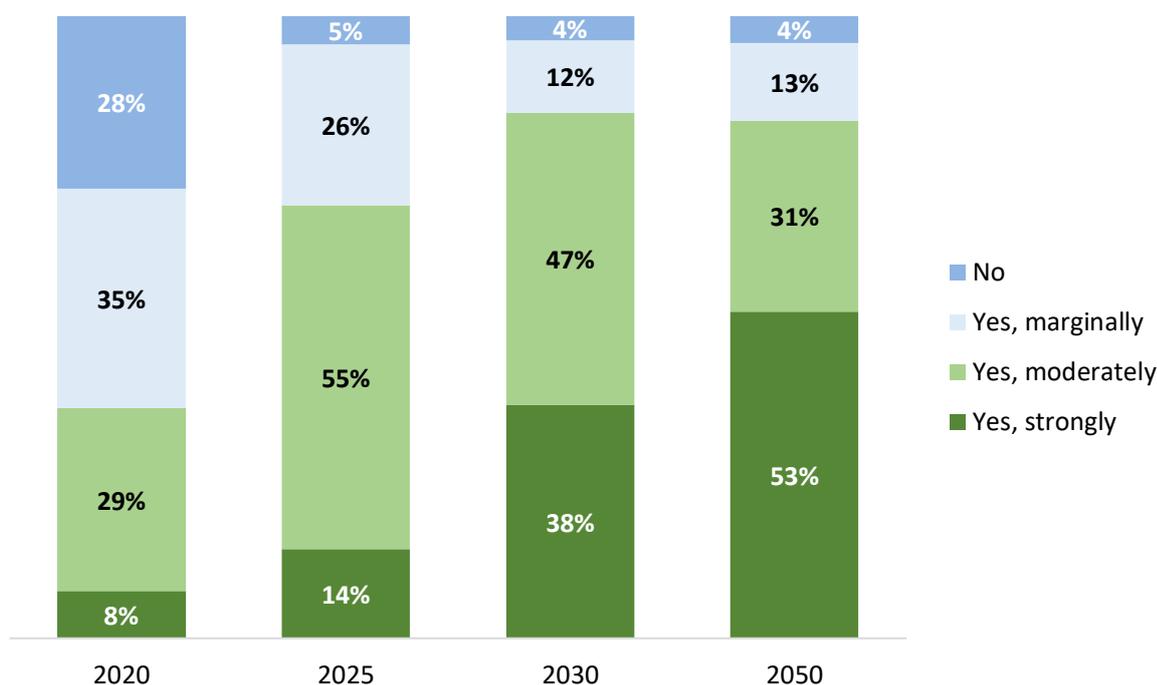


Figure 2 Do you expect the ETS in China to affect investment decisions in 2020, 2025, 2030, 2050? (n=362,360,346,324)

Price expectations

The average price expectation in the national carbon market starts at CNY 49/t in 2020, rises to CNY 71/t in 2025, and CNY 93/t by 2030. We asked for stakeholders' carbon price expectations to mid-century, in order to get a sense of how carbon pricing may play a role in China's mid to long-term decarbonisation strategy. Average carbon price expectations for 2050 are CNY 167/t. However, as in most carbon markets, the actual price levels remain highly uncertain, especially in the more distant future. The 20th-80th percentile range grows from CNY 28/t to CNY 100/t in 2030 to CNY 30/t to CNY 200/t in 2050. Price expectations in this year's survey are similar to those in 2019.

¹ Full text of question: "By when do you expect China's 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."

China's carbon price is expected to steadily rise

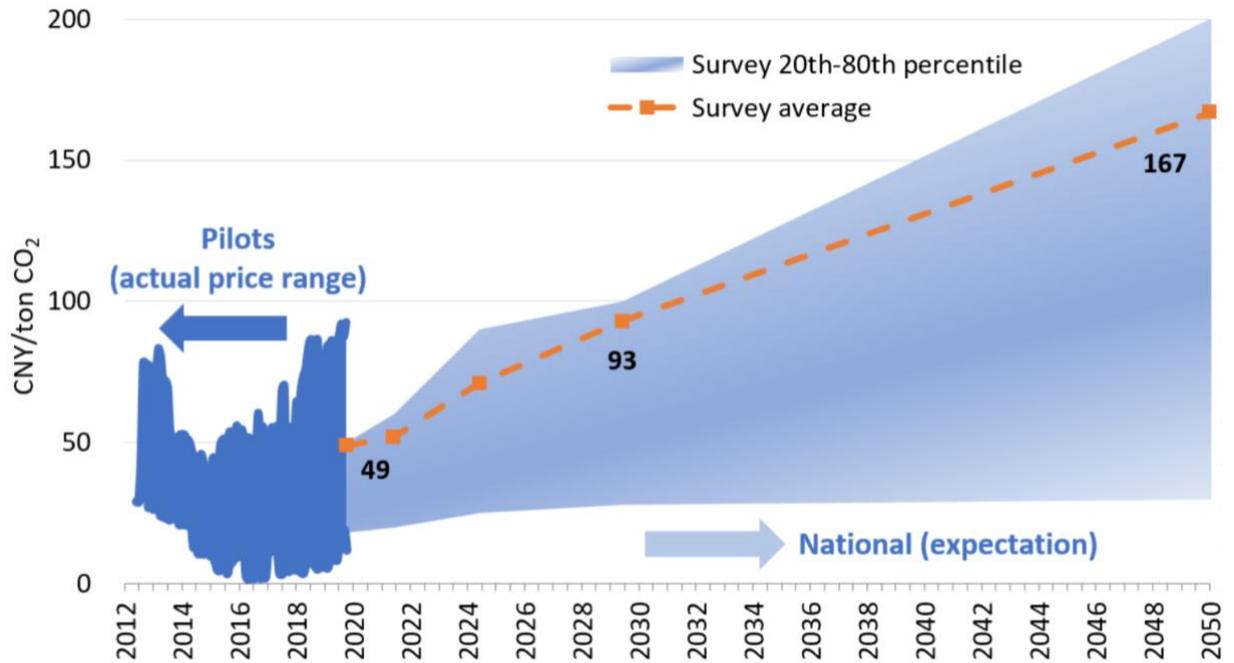


Figure 3 Range of prices in the pilot systems to-date, and estimated prices for the national system.

Impact of COVID-19

The COVID-19 pandemic has had a major impact on the world this year. The largest share of survey respondents (42%) expect that COVID-19 will cause a delay of six months or more in the rollout of the national carbon market. ‘No significant effect’ was chosen by about a quarter of respondents.

The vast majority of respondents expect that the COVID-19 crisis will have no effect on China’s broader climate ambitions (44%) or will actually increase the level of ambition (43%). For the effect of COVID-19 on global climate ambitions, the responses were very mixed, with a slightly higher share of respondents (39%) expecting a decrease in ambitions.

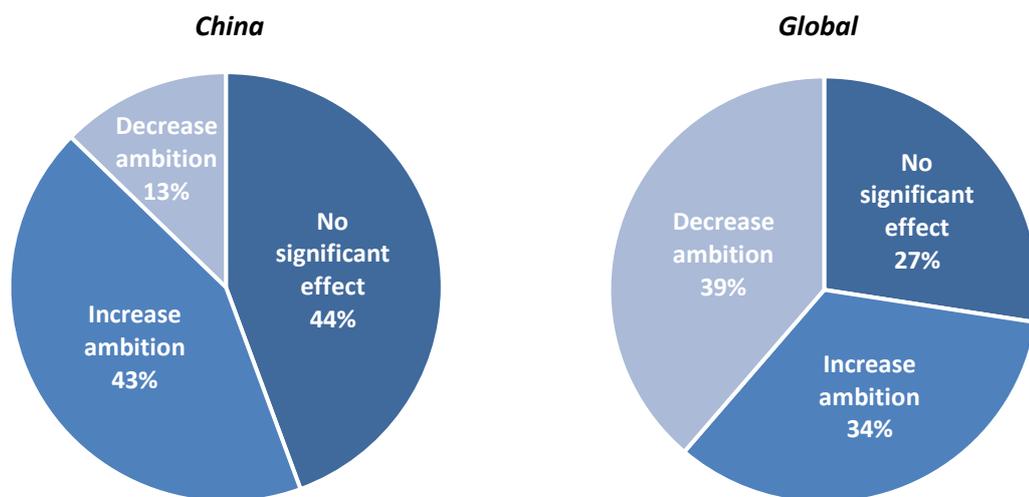


Figure 4 What effect do you think COVID-19 will have on China’s (left) and Global (right) climate ambition? (n=268,266)

China's emissions targets and peak emissions

80% of respondents expect China to achieve the carbon emissions peak by 2030, and 36% expect China's emissions to peak by 2025 or earlier. These results are consistent with the 2019 survey. It is noteworthy that 12% of respondents are now of the view that China's CO₂ emissions have either already peaked or will peak in 2020, up from 10% last year and down from a high of 25% in 2017.

China's emissions are expected to peak by 2030

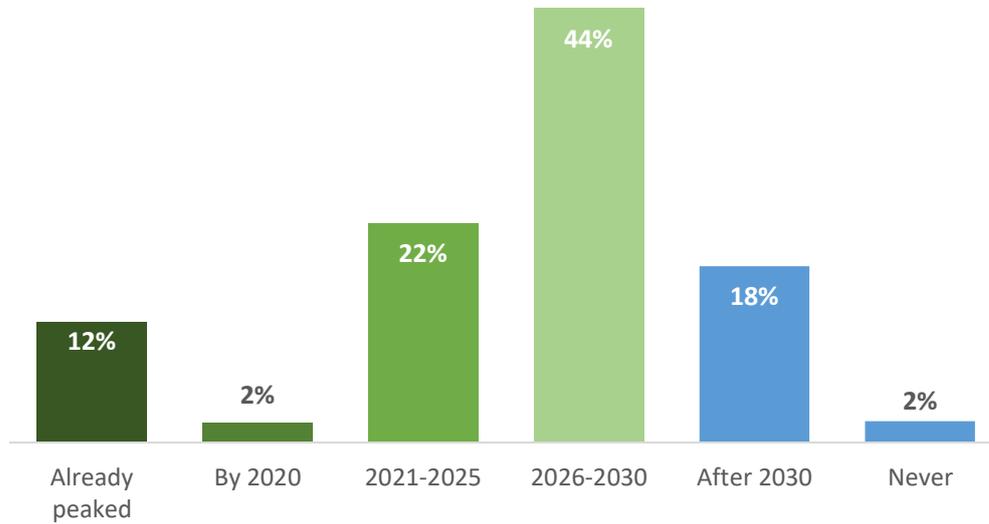


Figure 5 When do you expect China's emissions will peak? (n=461)

Introduction

This report presents the results from the *2020 China Carbon Pricing Survey*, jointly conducted by China Carbon Forum, ICF and SinoCarbon, with the support of the China Electricity Council, China Non-ferrous Metals Industry Association, China Building Material Group, China Cement Association, and the China Metallurgical Industry Planning and Research Institute, with inputs from the Norwegian Environment Agency.

The project builds on similar surveys conducted in 2013, 2015, 2017, 2018 and 2019. Many of the questions asked were the same or similar in each of the surveys so that comparisons can be made over time. 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, the 2017 and 2018 surveys occurred in the periods before and after the release of the central government's plan for a national market, and the 2019 survey was conducted around the time that the central government released the Trial Power Sector Allocation Plan for the National ETS, and just prior to a series of 18 large-scale trainings and workshops on allowance allocation trial held around the country.

This year's survey comes as China prepares to move from the capacity building phase of the development of its national emissions trading system to the trial trading phase, as outlined in the 'Development Plan' for a national carbon market released in December 2017. Several key developments occurred subsequent to conducting the survey. In early November 2020, the Ministry of Ecology and Environment (MEE) issued a new draft of the National Carbon Trading Management Measures for canvassing public comment. This document clarifies several design aspects of the national carbon market that were not specified in previous documents, such as the responsibilities of municipal-level environmental bureaus, the ratio of offset credits for companies' compliance, the penalty for non-compliance, and the costs of emissions verification being borne by the government. The national carbon market is expected to be ready for full compliance in the power generation sector next year and is expected to gradually cover other sectors once certain conditions are met.²

The survey also comes at a time of global interest in China's implementation of carbon pricing. In September 2020, President Xi Jinping announced to the UN General Assembly that China would adopt a target of carbon neutrality by 2060, and a peak in carbon emissions before 2030. In order to achieve its carbon neutrality target in 2060, China is likely to give the carbon market more importance. Firstly, the carbon market can incentivise investment into low carbon energy and accelerate the phase-out of fossil energy; secondly, the cap-and-trade approach of ETS is aligned with the goal of controlling overall GHG emissions; thirdly, the carbon market may facilitate carbon sink off-setting projects with the capacity for absorbing carbon emissions, which will make an important contribution to achieving carbon neutrality. In

² The other sectors expected to eventually be covered are those detailed in the government's regulations on monitoring and reporting of carbon emissions, i.e. petrochemicals, chemicals, building materials, steel, non-ferrous metals, papermaking and aviation. See 国家发展改革委办公厅关于做好 2016、2017 年度碳排放报告与核查及排放监测计划制定工作的通知: http://qhs.mee.gov.cn/tscjs/201904/t20190419_700399.shtml

the governmental statements and proposals that have been made following President Xi's recent announcement, the carbon market was consistently noted as one of the policy tools that should be strengthened. Therefore, it is positive to see that the national carbon market is planned to begin operation in 2021 and be improved gradually during the 14th FYP (2021-2025).

China's increased ambition follows that of the EU, which committed to 'net zero' emissions by 2050 under its 'Green Deal' published in December 2019. Since President Xi's commitment, Japan and Korea have also matched Europe's 2050 net zero target. At the same time, the future of US climate change policy and its level of ambition, including potentially re-joining the Paris Agreement, is now on the horizon as a result of the recent 2020 Presidential election.

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 2030.³ By the end of 2019, the 2020 target had been over-achieved (45.8% reduction from 2005), meaning that China is also on track to meet its 2030 target.⁴ Some highly respected Chinese experts have advocated a lower limit of 65 per cent carbon intensity reduction by 2030.

The survey was conducted anonymously through a secure online survey platform, *Diaochapai*, from July 2 to August 2, 2020. Chinese language and English language versions were made available. A number of channels were used to communicate with potential respondents. Through the cooperation with related industrial associations, strong efforts were made to survey representatives from China's carbon-intensive industries, with a special focus on the power sector, which is soon expected to be subject to carbon pricing nationwide. This included dissemination of the survey by industry associations to their members, namely the China Electricity Council, the China Cement Association, the China's Nonferrous Metals Industry Association and the China Iron and Steel Industry Association. The survey was made accessible to participants of trainings held under the auspices of the EU-China ETS Platform. The survey was also sent to participants that partook in the 2019 survey who provided contact details. Finally, the survey was made available to potential respondents through targeted social media channels, in particular WeChat.⁵

The survey received 567 responses from professionals in a range of sectors, including industry, market-related services, research institutes and carbon exchanges. Just under half of all respondents are either covered by regional systems or are likely to be included in the forthcoming national carbon market. In addition, a further quarter of survey responses were from industry representatives that are either unsure or do not expect to be covered by the national carbon market, and 5% were from sectoral associations,

³ Carbon intensity refers to the level of carbon emissions per unit of GDP (CO₂/CNY GDP).

⁴ 新闻办就《中国应对气候变化的政策与行动 2019 年度报告》有关情况举行发布会:
http://www.gov.cn/xinwen/2019-11/27/content_5456146.htm

⁵ Project partner SinoCarbon shared the survey with its WeChat channel, which at the time had over ten thousand subscribers. 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.

bringing the collective representation of industry views to 74% (424 responses). Industry responses to the survey have been encouraged by their relevant sector associations.

In addition to the survey itself, the project team conducted an industry focus group and roundtable on the survey results in September 2020. The roundtable involved industry representatives and sectoral associations, together with government experts on carbon market development. The aim of the roundtable was to provide a channel for communication of industry opinions on carbon market design to policymakers, and to expand the scope of public discourse on these important aspects of the national system. Links to the public report from the roundtable can be found on the China Carbon Forum website.

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, 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 carbon pricing in China. 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. We have sought to mitigate this effect by working with sector associations to elicit more representative industry responses. In addition, industry has been receiving continuous capacity building support since the last edition of the survey.⁶ 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 due to self-selection by those who chose to respond to the survey.

The expectations about future carbon prices derived from surveys such as this 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 results from the survey, covering the experience of the pilot systems, expectations about the national system, the impact of COVID-19 on the carbon market, the readiness of enterprises, the impact of carbon pricing on investment decisions, the role of the carbon market in relation to other policies, and expectations about the peaking of China's carbon emissions. This report is intended to objectively present the opinions of respondents as a reference for policymakers and market participants.

⁶ For example, from December 2018 to October 2020 the EU-China ETS Platform held capacity building training for more than 8,000 industry and local government representatives in 48 provinces and cities. About 70% of the participants in this training have been local government representatives. The training conducted by MEE in late 2019 included approximately 4,600 participants, with about two thirds being industry representatives.

Update on carbon emissions trading in China

Beginning in mid-2013, eight regional emissions trading systems were introduced in different parts of China (Shenzhen, Shanghai, Beijing, Guangdong, Tianjin, Hubei, Chongqing and Fujian), providing valuable experience for the central government in developing a national carbon pricing mechanism. Each province has its own carbon intensity target and China's regional emissions trading systems have so far also adopted carbon intensity-based caps, rather than an absolute emissions cap, which is the case in other emissions trading systems internationally. This approach has been judged by the Chinese government as best suited to achieve the dual demands of economic growth and emissions reduction.

In December 2017, China's National Development and Reform Commission (NDRC) announced the official launch of the much-anticipated national carbon market, marked by the release of the *Development Plan for Construction of the National Carbon Emissions Trading Market (Power Sector)*, (the "National Carbon Market Development Plan"). The national carbon market will start with the power generation sector, and gradually cover other sectors once certain conditions are met. The National Carbon Market Development Plan outlines the targets and roadmap for the development of the national market, specifies the remaining work required to enable the start of trading activities, and confirms a three-phase roadmap: a foundational phase, a simulation trading phase, and a market operation phase. According to this roadmap, simulation trading was expected to begin around 2020, with the deepening and expanding phase starting approximately one year after the simulation period is launched.

In 2018, China undertook a major governmental restructuring program. After the restructuring, responsibility for the development of China's national carbon market now falls to the Ministry of Ecology and Environment (MEE). MEE has collected carbon emissions data from 2013 to 2018, is collecting 2019 data, and preparing for allocation, registry and market operation of the national carbon market.

In December 2019, the Ministry of Finance issued the "Interim Provisions on Accounting Treatment of Carbon Emissions Allowances", and the MEE issued a notice to officially start the MRV work in 2019 and required each provincial authority to submit its list of local power generation compliance entities.

In 2020, due to COVID-19, the deadline for companies to submit their reporting and verification of 2019 GHG data was extended to the period covering May 31-July 31. Several major policies or drafts have been issued in the second half of the year as detailed in the next section.

Recent highlights

1. China has issued regulations on accounting treatment of carbon emission allowances

On December 16, 2019, the Ministry of Finance issued interim provisions on the accounting treatment of carbon emission allowances. This regulation clearly defines the accounting treatment of carbon emission allowances and the presentation and disclosure of financial statements of key emitting enterprises. Compared with the draft for comment issued by the Ministry in 2016, the new version of the provisions is mandatory, and the scope of application is clarified. In addition, with the promulgation of this regulation, it shows that the government attaches importance to the carbon emissions trading market with its determination to enact effective regulation and provides standardised guidelines for emitting enterprises.

2. Monitoring plans, data reporting & verification and submitting the list of covered entities in the power generation industry for 2019

On December 27, 2019, the MEE issued a notice requiring reporting and verification of 2019 carbon emissions data in eight industrial sectors, as well as submitting the list of covered entities in the power generation industry. The notice requires that all the relevant work should be completed by May 31, 2020.

Compared with previous years, this notice was issued in a timelier manner than in past years, which reflects that the climate change authorities hope to gradually normalise the carbon verification, so as to give the subordinate departments more sufficient preparation time. According to the work arrangement of the power generation industry in the notice, it can be seen that determining the list of key emitting units in the power generation industry is one of the key tasks of this time, and it also implies that the national carbon trading market with the power generation industry as the breakthrough point will be launched in 2020.

3. China accelerates the construction of national carbon market and promotes the development of climate investment and financing

On September 22, 2020, China's president Xi Jinping proposed China will strive to achieve a peak in carbon emissions by 2030 and achieve carbon neutrality by 2060. As an important policy tool and economic means for China to solve greenhouse gas emission reduction, China's national carbon market is also expected to officially start at the end of this year. Recently, Li Gao, director of MEE's Department of Climate Change, said that the upcoming "14th Five-Year Plan" will be a milestone period for the development of China's carbon market. China will realise the transition from pilot projects to the national unified market, from a single industry to a multi-industry integration, and from the start of transactions to the continuous and stable operation.

In order to promote investment and financing activities to support climate change mitigation and adaptation actions, several agencies, including the MEE, the NDRC, the PBOC, the CBIRC and the CSRC, jointly issued guiding opinions on promoting investment and financing in response to climate change in October 2020. The guiding document represents a strategic deployment for the development of China's climate investment and financing in the next five years. The main contents of the opinion include expanding the scope of carbon market trading entities and exploring the development of carbon financial products. It is also mentioned in the general requirements that we should "adhere to the market orientation and give full play to the decisive role of the market in Climate Investment and financing". In addition, the Opinions also mentioned that "give full play to the incentive and restraint role of carbon emissions trading mechanism". Therefore, the promulgation of the Opinions also brings more opportunities for the start-up and further development of the national carbon emissions trading market.

4. Draft "National Trial Carbon Emissions Trading Management Measures" and "National Carbon Emissions Allowance Registration and Settlement Management Measures" released for comment

On November 2, 2020, the general office of the MEE issued a notice to publish drafts for comment of the "National Trial Carbon Emissions Trading Management Measures" and "National Trial Carbon Emissions Allowance Registration and Settlement Management Measures". The National Carbon Trading

Management Measures is a revised version based on the "National ETS Management Measures (Trial) published by the NDRC in December 2014, and the previous version will become invalid after the formal publication of the draft.

From the perspective of the framework, the draft is basically consistent with the old version, however three new articles are added. The chapter on "supervision and management" added more content which fully reflects the importance of the carbon market supervision mechanism. In terms of specific content, the draft has several obvious changes compared with the old version, including the adjustment of the management level from two to three (adding municipal-level bureaus), the provincial level may no longer have autonomy in quota allocation, the verification work will no longer be oriented to all key emitting units, the verification costs will be borne by the government, the share of offset credits allowed for compliance purposes was clarified, as well as the penalty for non-compliance.

5. Draft Implementation Plan for Allocation of National ETS Carbon Emission Allowances for 2019 and 2020 (Power Generation Industry) released for comment

On November 20, 2020, the MEE issued a draft for comment of the Implementation Plan for Setting and Allocating Carbon Emission Allowances for 2019-2020 in the National Carbon Market in the Power Generation Sector, which was based on an internal version from September.

Based on the "National Carbon Emissions Trading Market Construction Plan (Power Generation Industry)" previously released, the implementation plan of this consultation further defines the type of units under management, the determination and allocation method for total allowance allocation, and the allowance distribution. In addition, the implementation plan also formulated corresponding measures for the merger, separation and shutdown of key emitting units.

The implementation plan also provides benchmark values for allowance allocation of coal-fired and gas-fired units in 2019-2020. With the feedback from stakeholders and 2019 emission data, MEE will finalise the allocation plan.

Transaction data for China's carbon market

Pilots

As of October 30, 2020, over 425 million tonnes worth of allowances had been traded in the primary and secondary markets since the markets began, with a value of CNY 9.86 billion. Guangdong stands out as the market with the highest transaction volume and value. Hubei, Shenzhen, Shanghai and Beijing represent a second tier of regional markets. While Beijing has seen the fifth largest level of trading, the value is third only to Guangdong and Hubei due to the higher price in Beijing (see Figure 4 below). Tianjin, Chongqing, and Fujian have seen very low levels of trading both in terms of quantity and value.

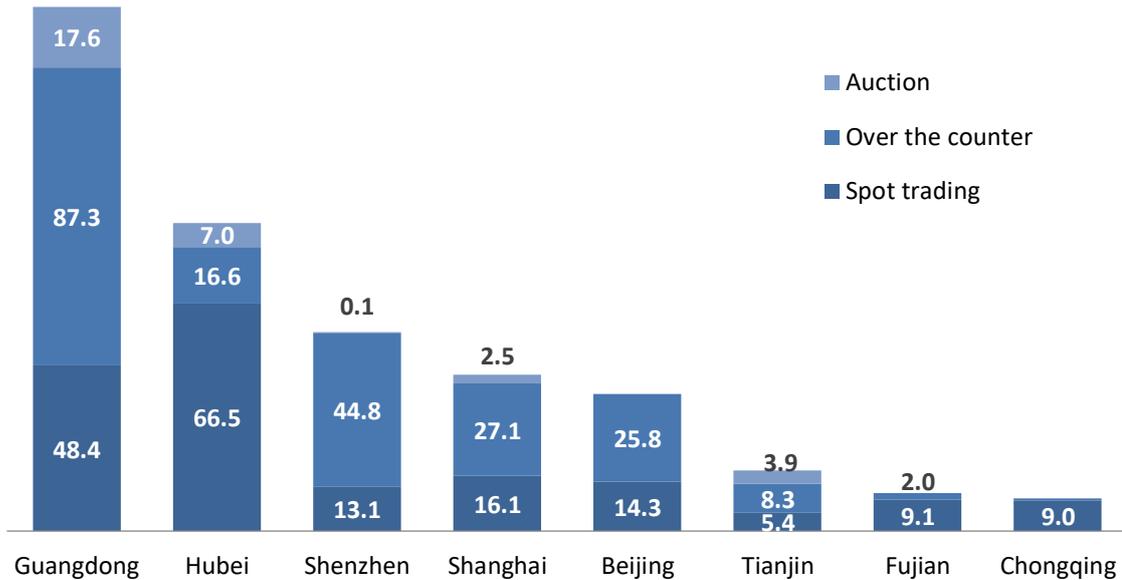


Figure 1 Cumulative trading volume in the 8 regional markets to October 30, 2020 (million tons).

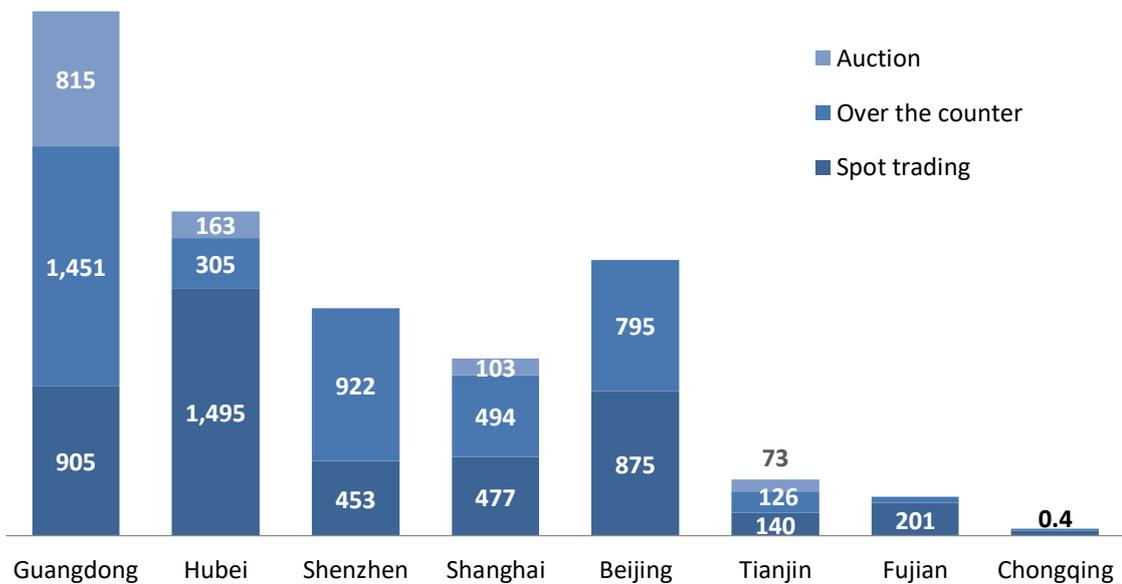


Figure 2 Cumulative trading value in the 8 regional markets to October 30, 2020 (million CNY).

For each compliance period, the trading volume in the regional pilots has seen an upward trend year on year, and the 2018 compliance year saw a significant increase in both trading volume and value. Due to the impact of the epidemic, the compliance deadline for most of the pilot markets has been postponed for the 2019 compliance year. As of October 2020, some pilots had not yet completed the compliance cycle, so the trading volume is still lower than in the 2018 compliance year.

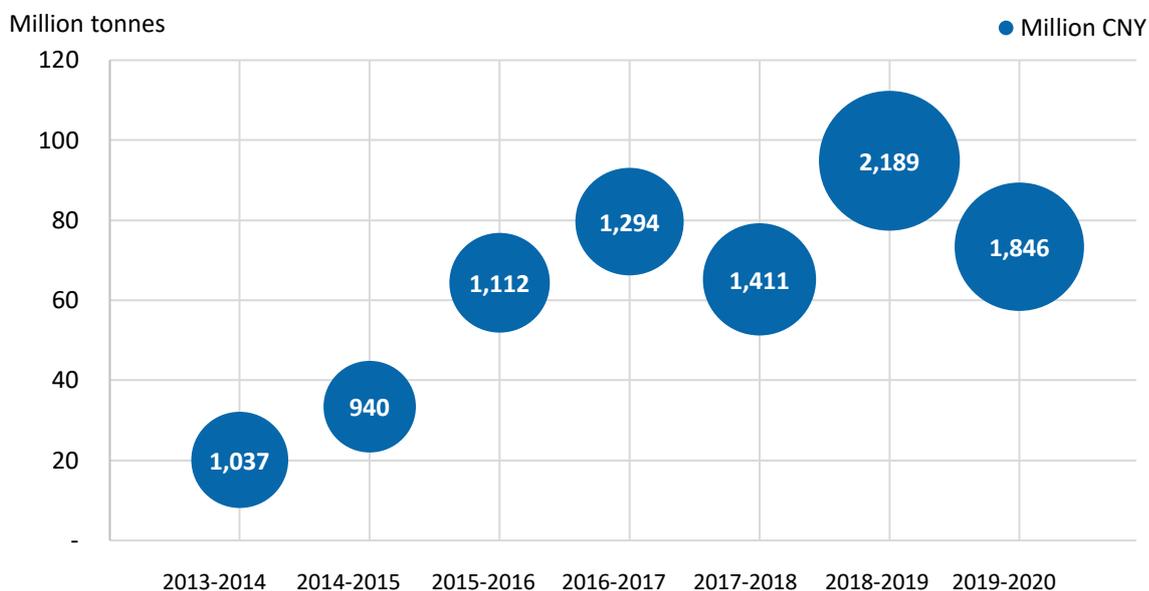


Figure 3 Trading volume and value of primary and secondary market in pilots (million tonnes/million CNY)

Summary of allowance price changes during 2019-20

Beijing	The price in Beijing was above CNY 80/ton for most of the year.
Shanghai	The price stayed around CNY 40/ton.
Hubei	The price stayed around CNY 20-30/ton.
Guangdong	Guangdong has been stable around CNY 20-30/ton.
Tianjin	Tianjin's carbon price has been rising since the end of 2019, and currently stayed around CNY 25/ton.
Fujian	Fujian's carbon price fell below CNY 10/ton at the end of 2019, and gradually rebounded to nearly CNY 20/ton in 2020.
Chongqing	Chongqing's carbon price began to rise at the end of 2019, reaching CNY 30/ton in mid-2020, and currently retreating to around CNY 15/ton.
Shenzhen	The price fell below CNY 10/ton at the end of 2019. In 2020, there are big differences in the price of different varieties of allowances.

Table 1 Price trends in pilot markets during 2019/20, ranked in order of price at the close of trading on October 30, 2020.

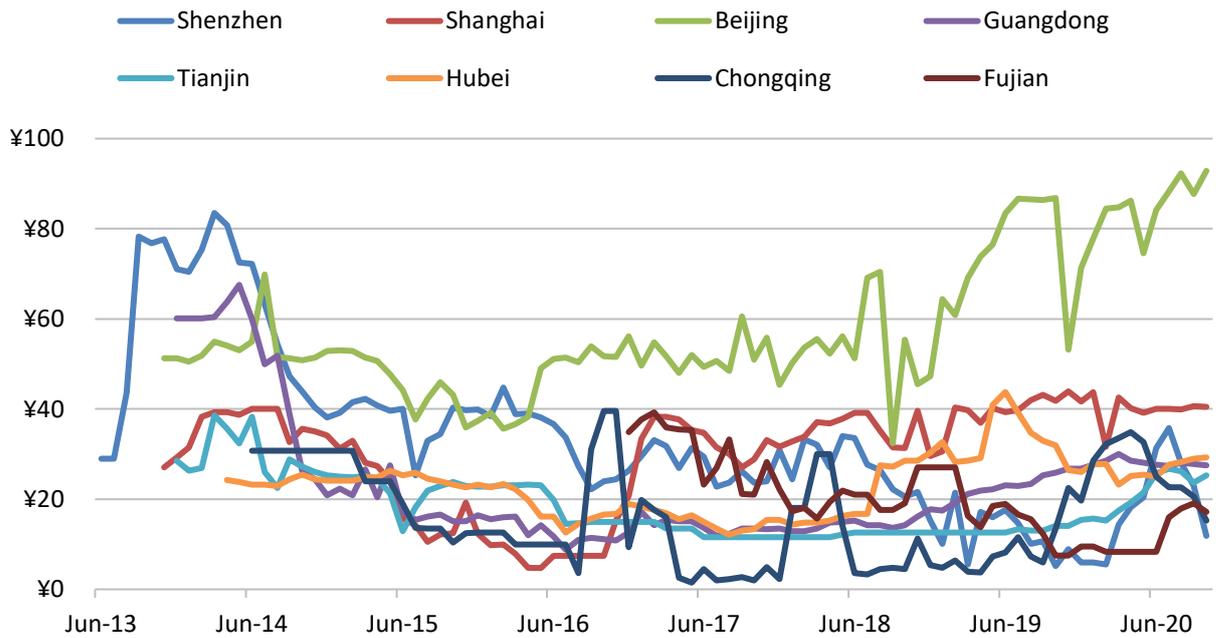


Figure 4 Monthly average price of online trading (CNY/ton), June 2013 - October 2020

Offset Credits: China Certified Emission Reductions (CCER)

287 CCER projects were registered for emissions reduction. In March 2017, NDRC announced the suspension all approvals related to CCERs due to the necessity of reviewing and revising current regulations. Therefore, the trading volume was extremely low in 2017-2018. In May 2018, as operation of the CCER trading platform resumed, CCER trading began to rebound. As of October 30, 2020, 256 million tons of CCERs had been traded in the primary and secondary markets since the markets began. The National Carbon Trading Management Measures published for comment in November 2020 stipulate that emitting companies can use CCERs to offset up to 5% of their emissions. The CCERs used for offset should come from emission reduction projects in areas such as renewable energy, carbon sinks, and methane utilisation.

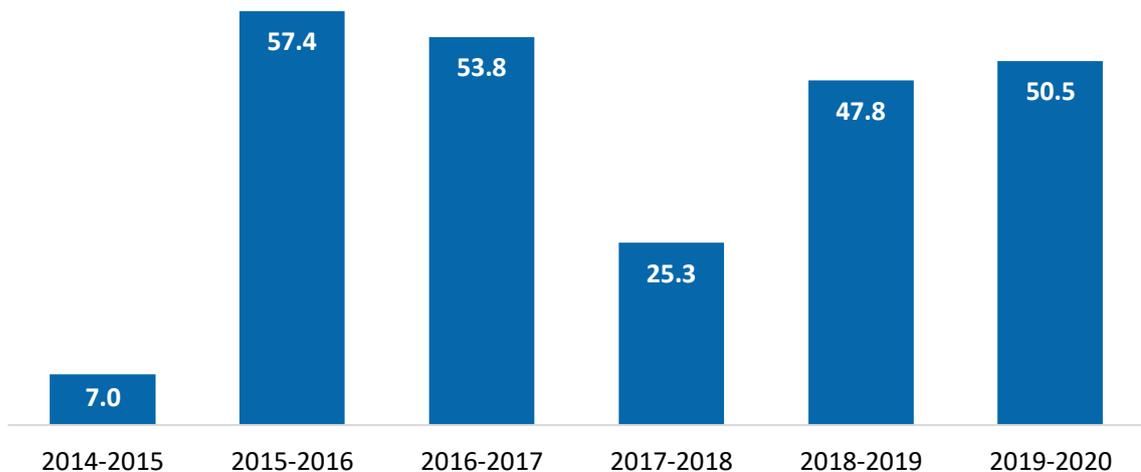


Figure 5 CCER trading volume (million tons).

Status of the National Carbon Market

The table below summarises the status of the national carbon market development at present:

	Current status	Future trends
Policy	<p>The draft National Carbon Trading Management Measures and National Carbon Allowance Registration and Settlement Management measures were released by MEE.</p> <p>Three phases of national ETS clarified: foundational work, simulation trading, deepening and expanding.</p>	<p>MEE are working with other departments to release State Council National ETS Regulation, National ETS management measures from MEE, and other related detailed policies.</p>
Coverage	<p>Only power generation sector will be covered initially.</p>	<p>Other sectors covered once conditions met: petrochemicals, chemicals, building materials, iron and steel, nonferrous metals, papermaking, and aviation.</p>
Allowance allocation	<p>Implementation Plan for Allocating Carbon Emission Allowances for 2019 to 2020 in the National Power Sector Carbon Market issued for comment. Draft allocation plans for cement and electrolytic aluminium have been formulated, and trial calculation conducted.</p>	<p>Conduct allowance allocation according to the results of trial calculation.</p>
Monitoring, reporting & verification (MRV)	<p>MEE issued a "Notice on the Formulation of the 2019 Carbon Emission Reporting and Verification and Emission Monitoring Plan", requiring local organizations to carry out the 2019 annual emissions reporting, verification, and monitoring plan, and submit it by May 2020.</p> <p>The National Carbon Trading Management Measures have made a series of regulations on MRV.</p>	<p>According to the draft National Carbon Trading Management Measures, the verification work will no longer be oriented to all key emitting units. Instead, the provincial competent department will randomly select inspection objects and randomly select inspection agencies or inspectors. The inspection results and results are disclosed to the public in a timely manner.</p>
Compliance	<p>The draft National Carbon Trading Management Measures stipulate that a fine of 20,000 to 30,000 CNY shall be imposed on units that fail to perform the contract, as well as the deduction of the outstanding amount in the next year.</p>	<p>It is expected that stricter penalties will be introduced in the national regulations.</p>
Supporting systems	<p>Plan for developing a registry, trading, settlement and reporting systems has been confirmed.</p> <p>Plans for national registry system and trading system have been formulated; data collection is under development.</p>	<p>The registry will be located and managed in Hubei; A trading platform will be located and managed in Shanghai.</p> <p>After the plans of two systems is confirmed, the development and implementation will be promoted.</p>

	Current status	Future trends
Offsets	<p>The administrative measures on CCERs are still under revision.</p> <p>The National Carbon Trading Management Measures stipulate that emitting units can use CCERs to offset up to 5% of their emissions. The CCER used for offset should come from emission reduction projects in areas such as renewable energy, carbon sinks, and methane utilization.</p>	<p>CCERs will be included in the national ETS once conditions are met. MEE is revising management rules for voluntary market.</p>
Transition plan of pilots	<p>Power sector entities in regional markets to be incorporated into national ETS.</p> <p>Pilots continue to operate and will transition to national ETS once conditions are met.</p>	<p>The detailed transition plan is still being researched.</p>

Table 2: Status of the National Carbon Market (at October 30, 2020).

Survey respondents

567 eligible responses are included in the analysis. The number of respondents this year was the highest so far, compared with the 2019 survey (389), 2018 (317), 2017 (260), 2015 (304) and 2013 (86).

The survey features strong representation from industry, as well as a significant number of responses from China's expert community on carbon markets, consultancies and academic expert advisors. It provides a reasonable indication of views and expectations among China's carbon market community. 564 (99%) respondents used the Chinese version of the survey, and 3 (1%) respondents used the English version. The ratio of Chinese respondents has increased with each iteration of the survey.

Within this report, unless otherwise stated, percentages refer to the proportion of respondents who provided an answer to a particular question, excluding those who selected 'Don't know'.

Survey respondents by groups

Of the 567 respondents, 76% of respondents identified as being from industry (companies and sectoral associations), including 46% from companies either already covered by a carbon market likely to be covered by the national carbon market in the future. In terms of numbers, this year's survey included responses from 424 industry representatives including 244 from covered entities, while last year's survey involved 261 and 219 from those groups respectively. The share of industry respondents has risen steadily over the years: representing 68% in the 2018 and 2019 surveys, 29% in 2017, 23% in 2015, and 7% in 2013. Of the covered entities, the highest representation was from power generation (25% of all respondents), followed by non-ferrous metals (11%), building materials including cement (8%) and steel (4%) sectors.

13% of respondents are from companies providing carbon market-related services, including consultancy, verification, offset development and trading. 3% came from research institutes and carbon exchanges. Other responses came from central and local government, NGOs, academia the carbon finance industry, research institutes, the finance sector and multilateral organizations.

Survey respondents by group

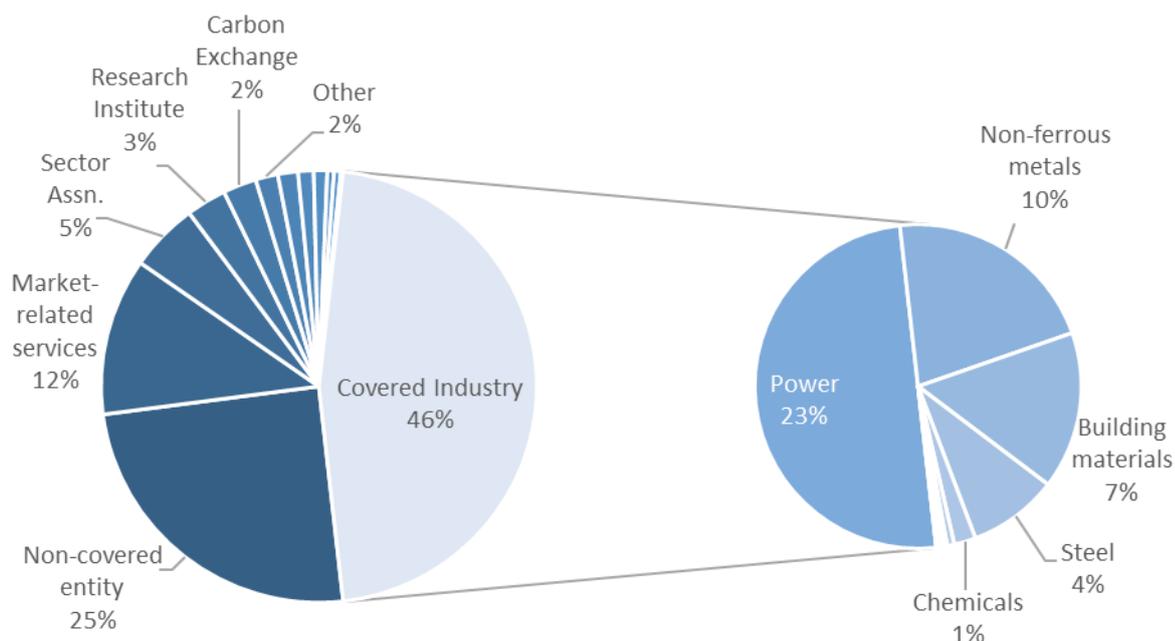


Figure 6 How would you classify your organization?
Note: total number of responses n=567.

Responses by region

20% of the respondents to the survey are from organizations located in Beijing. 32% were from provinces with pilot carbon markets, 67% from non-pilot regions, with the remaining 1% from organizations not based in mainland China.

The relatively high level of responses from Beijing reflects the concentration of the policymaking, consultancy 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 Jilin (12%), Shandong (9%), Henan (8%), Jiangsu (7%), Hubei and Hebei (5% each).

The geographic spread of respondents has increased with each iteration of the survey, reflecting a growing engagement in carbon markets across the country.

Survey respondents by region: increasingly widespread

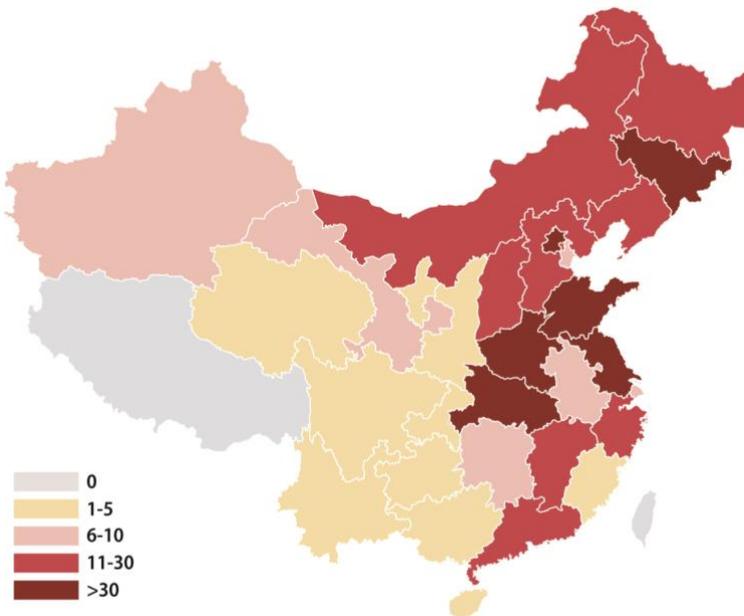


Figure 7 Location of respondent organisations (n=567)

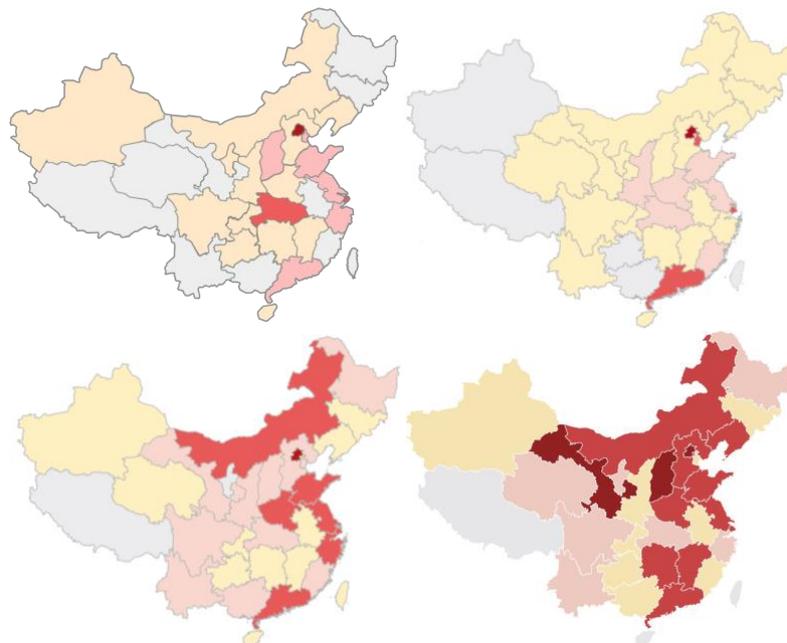


Figure 8 Location of respondent organisations in previous survey (from top left): 2015, 2017, 2018, 2019.

Industry responses

In total, 393 responses from industrial companies were collected (including 244 from covered or likely to be covered entities). The distribution of the survey by industry associations helped to elicit a high number of industry responses. An additional 31 responses came from industry associations themselves.

36% of covered or likely to be covered entities have participated in the regional pilot emissions trading systems, including participants in each of China's regional pilot carbon markets, with especially good representation from companies operating under the Beijing (32) and Hubei (19) systems.

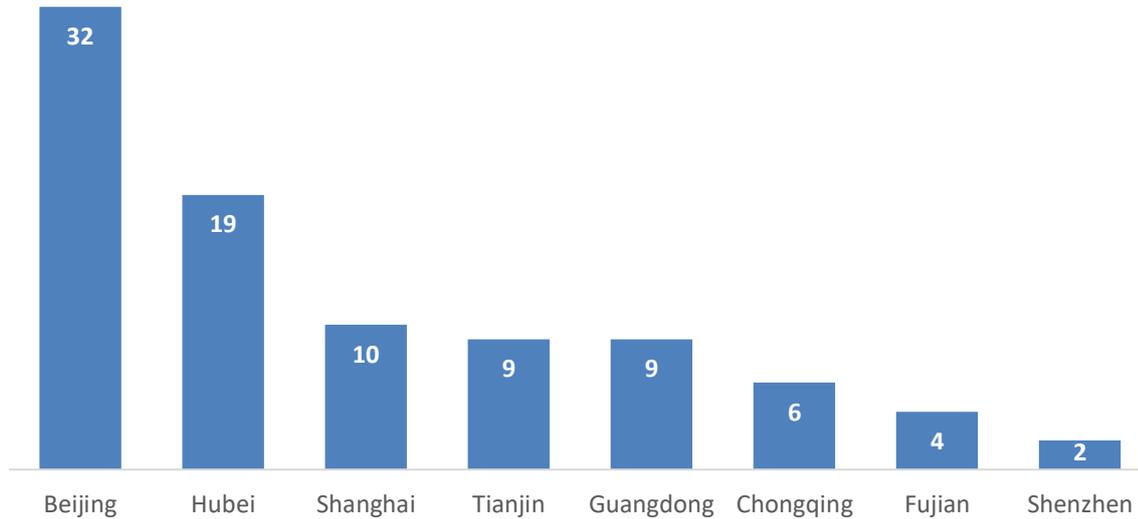


Figure 9 Is your company currently operating under an emissions trading system(s) in China? If Yes: Which of the following? (n=66)

12 industry respondents were from companies currently operating in an ETS outside of China. For these companies, working under more than one ETS jurisdiction may facilitate experience sharing, industry peer to peer learning, and eventual integration across systems.

For respondents from covered or likely to be covered enterprises, over two thirds identified as general staff (up 6% from last year), while 27% of responses were from mid-level managers. There were very few responses from senior executives.

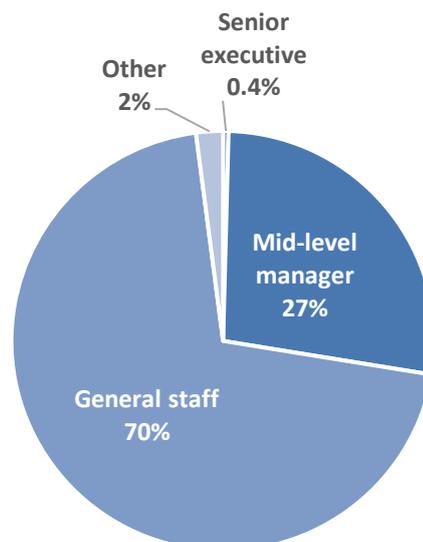


Figure 10 In the management structure of your company, what position do you hold? (n=243)

Of the responses from covered companies, 59% identified themselves as belonging to central state-owned companies, with another 15% from local state-owned enterprises. 22% of respondents from covered entities were from privately owned companies. 41% of the covered entities were very large energy consumers, reporting energy consumption of over 1 million tce/year, and 40% reported consumption of between 10 thousand to 1 million tce/year. 18% came from small companies with energy consumption 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 (66) and local (16). Central government SOEs are among the largest emitters in China.

Industry respondents by size and ownership type

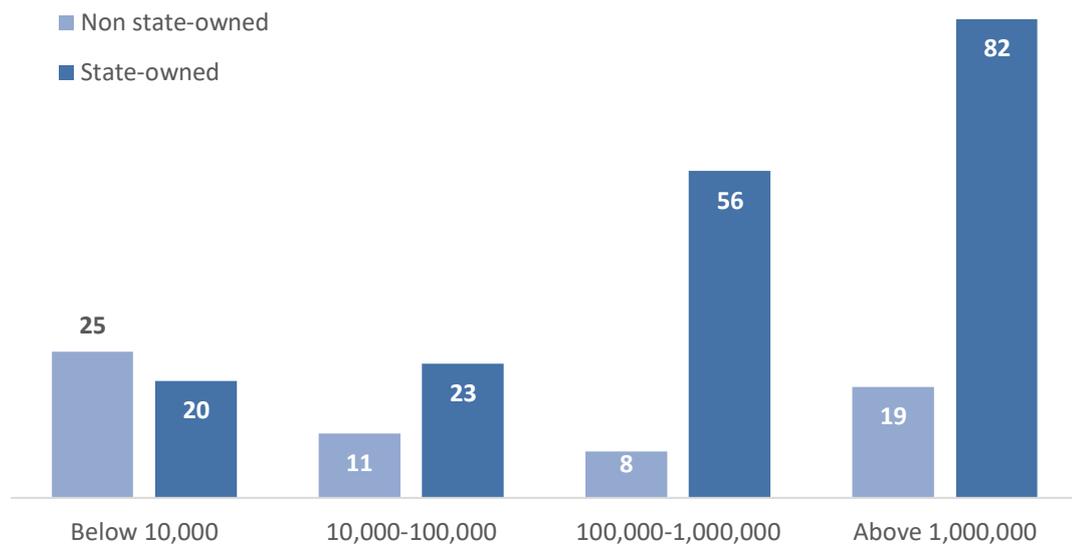


Figure 11 How much energy does your company annually consume in China? – by enterprise type (tce/year) (n=244)

The pilot emissions trading systems

Since the pilot carbon markets were launched in 2013 and 2014, they have each now completed either six or seven compliance cycles, providing useful information to inform future policy making.

Prices in the pilot systems

Prices in the eight regional systems are outlined in Figure 4 on page 9 above. Around the time of the survey, prices ranged from CNY 13/t in Fujian to CNY 100/t in Beijing. About half of respondents who expressed a view, said that carbon prices in the pilots at the time of the survey were similar to what they expected. There is a significant divergence in views between covered industry and other respondents, however – a much larger share of covered entities says prices are higher than they expected.

Prices in the regional pilots were lower than most stakeholders expected

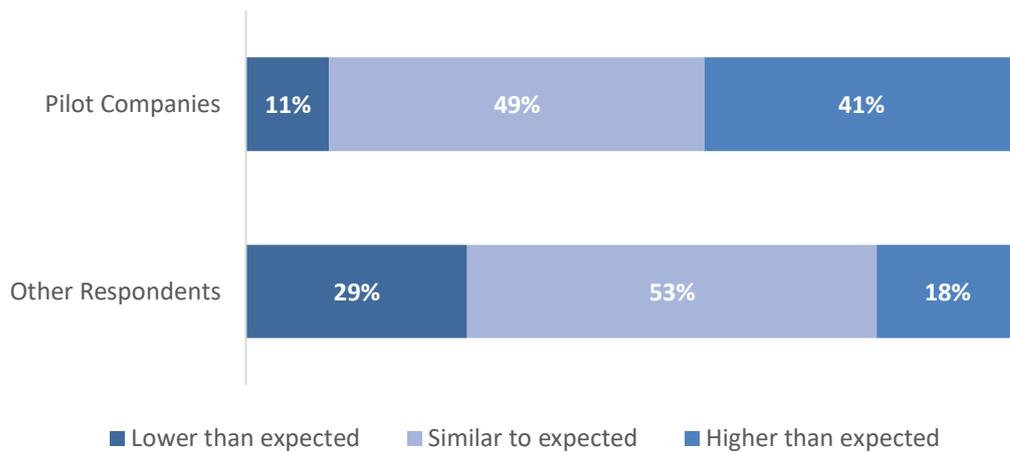


Figure 12 How do the current prices in the carbon trading pilots compare with your expectations? (n=152)

Respondents based in pilot regions were asked about their future expectations for prices in the pilot markets, both for the highest and lowest prices in the pilot regions, providing a range of expected prices for the years ahead. 114 respondents provided their expectations on pilot market prices, representing a response rate of 63% of pilot region respondents.

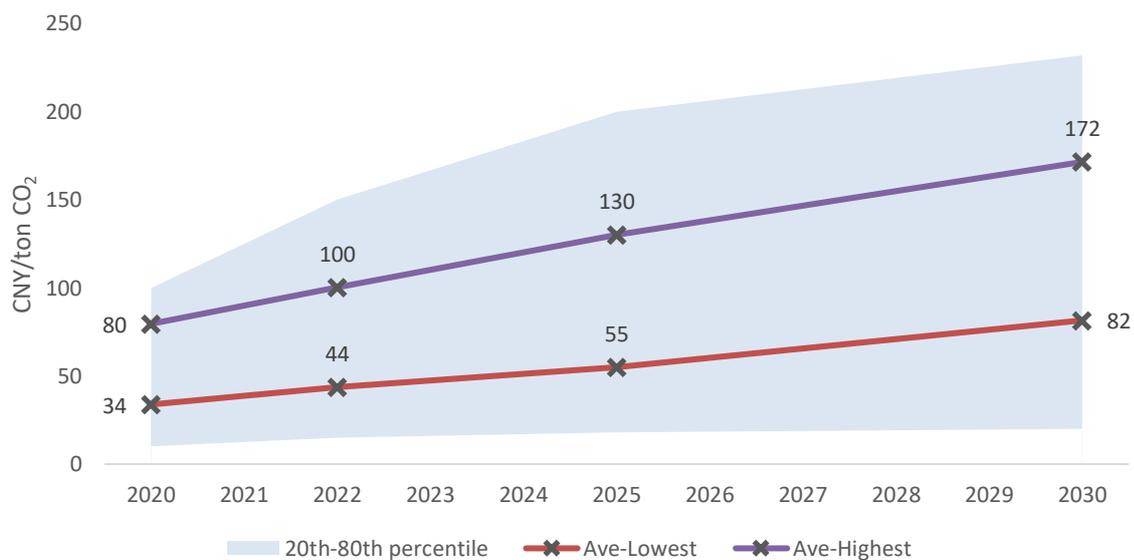


Figure 13 What do you expect the highest and lowest prices in the pilot regions to be in the coming years? (n=115,109,106,106)

Selected quotes on prices in the pilot regions to be in the coming years:

- 2020 has been deeply affected by the pandemic, which has not been conducive to the development of the carbon market, but in the long-term tackling GHG emissions remains an important task. – *Beijing carbon market-related services company*
- The price will increase with the maturing of the national carbon market and the increasing awareness of carbon emission reduction in society. The price will also increase with the increasing cost of emission reduction. – *Beijing-based NGO*
- After the launch of the national carbon market, market controls will be strengthened, and the prices in the regional markets will influence each other. Market traders will be more active, there will be more innovation with financial products such as bank pledges, and the financial aspect of the market will be enhanced. – *Beijing consulting company*

Factors influencing prices

When asked what the main factors are influencing prices in the regional pilots, a large majority of those who expressed an opinion (75%) believed that policy-driven factors were more important than market-driven factors in the market. Of those policy-driven factors, ‘allowance allocation’ was the most commonly chosen. ‘Cap-setting and allocation’ was also the most selected option in 2018 and 2019. Of the market-driven factors, ‘uncertainty affecting demand’ was the most selected option. Respondents were allowed to select multiple options.

Factors influencing prices by respondent group

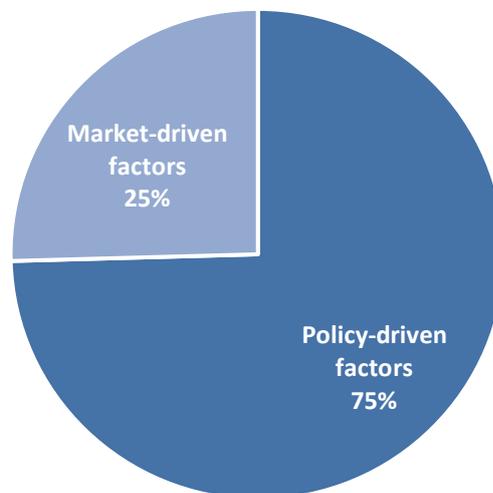


Figure 14 What do you think are the main factors influencing prices in the carbon trading pilots? (n=119)

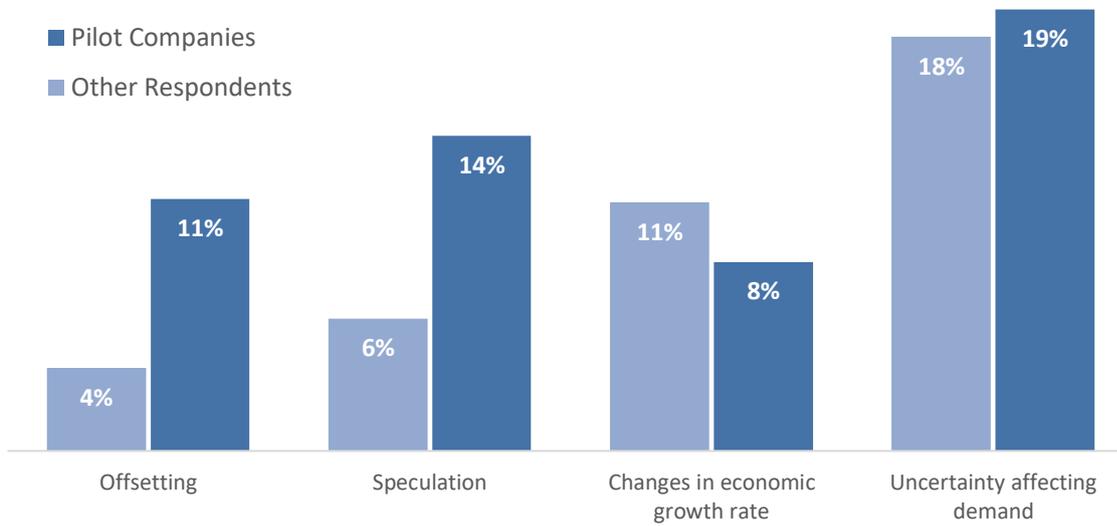
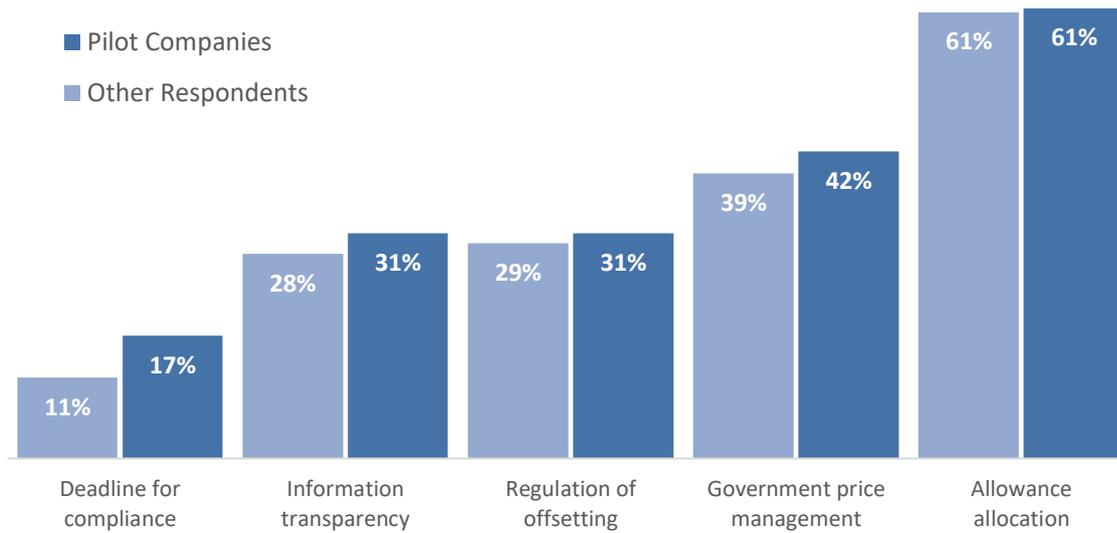


Figure 15 What policy-driven (top) and market driven (bottom) factors do you think are the main factors influencing prices in the carbon trading pilots? (n=119)

National emissions trading system

Since President Xi’s announcement ahead of the Paris Climate Summit in 2015, preparations have taken place for the development of a national emissions trading system. The national carbon market could become a key component of China’s ambition to control its growing carbon emissions. In September 2020, President Xi Jinping announced that the country will aim to achieve carbon neutrality by 2060. A week after that, the Party Secretary and Minister of MEE published an article in which mentioned that the national carbon market will ‘start trading as soon as possible’.

Start of the national carbon market

Survey respondents were asked by when they expect the ‘test run’ will start in the power sector. About half of all respondents expect that this will be the case during next year, 2021.

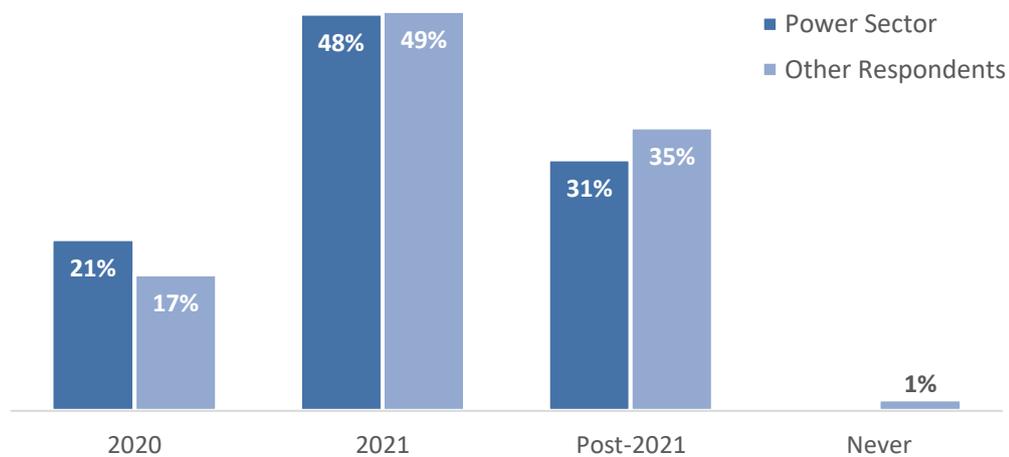


Figure 16 By when do you expect the ‘test run’ will start in the power sector? (n=454)

Another key milestone on the rollout of the national carbon market will be the development of the regulatory framework. Respondents were asked by when they expect the *Interim Regulations on the Management of Carbon Emissions Trading* to be issued. Again, almost half of respondents expect this to occur in 2021. There is more confidence amongst power sector respondents that the regulations will be issued earlier rather than later.

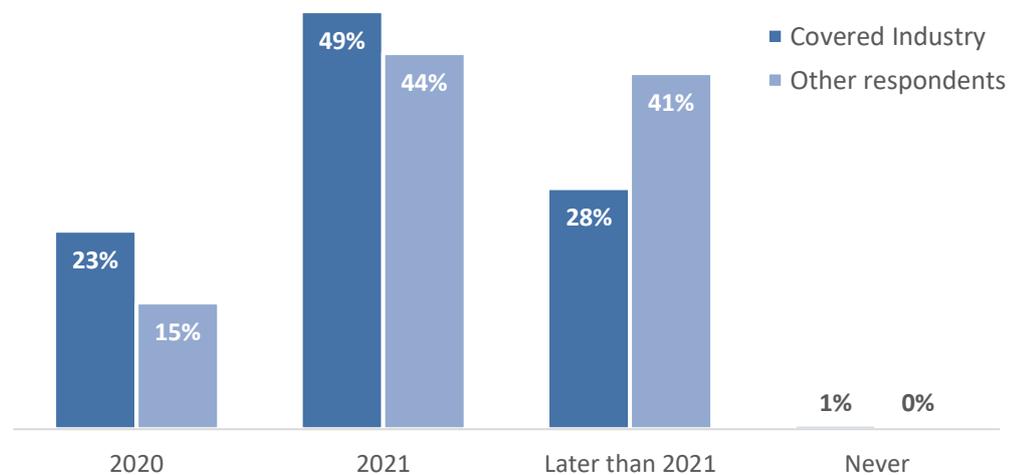


Figure 17 By when do you expect the *Interim Regulations on the Management of Carbon Emissions Trading* will be issued? (n=466)

Respondents were asked by when they think that the power sector will be ready for a compliance market (phase 3 of the National Carbon Market Development Plan). Half of respondents expect that the power sector will be ready for trading in the compliance market by 2021.

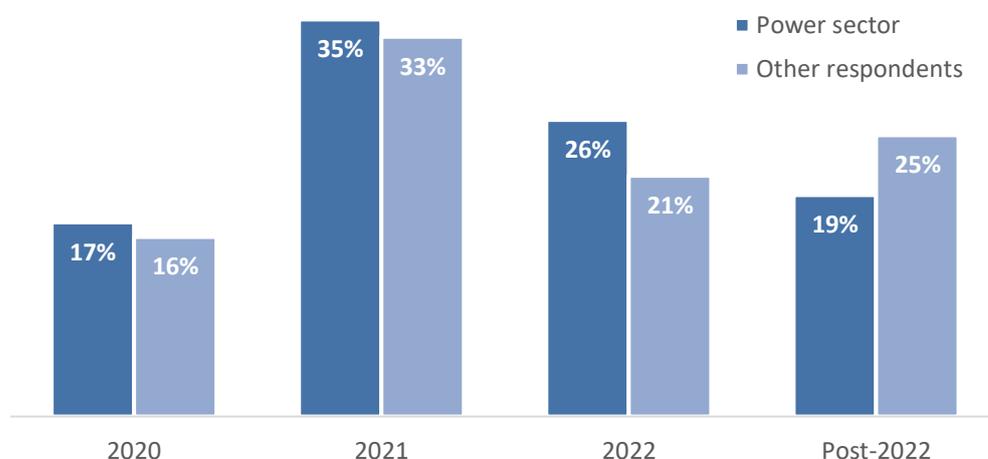


Figure 18 When do you think that the power sector will be ready for a compliance market? (n=462)

When asked by when China’s national ETS will be ‘fully functional’, only 12% of respondents expect this to occur by 2021 or earlier.⁷ This is the same level of confidence that existed for a fully functioning market by 2020 in the 2019 survey. 46% of respondents expect a fully functional carbon market by 2023, while 72% believe that this will be achieved by the middle of the decade. Only 1% of likely to be covered enterprises expect the carbon market to never become ‘fully functional’.

The national ETS is expected to be fully functional by mid-decade

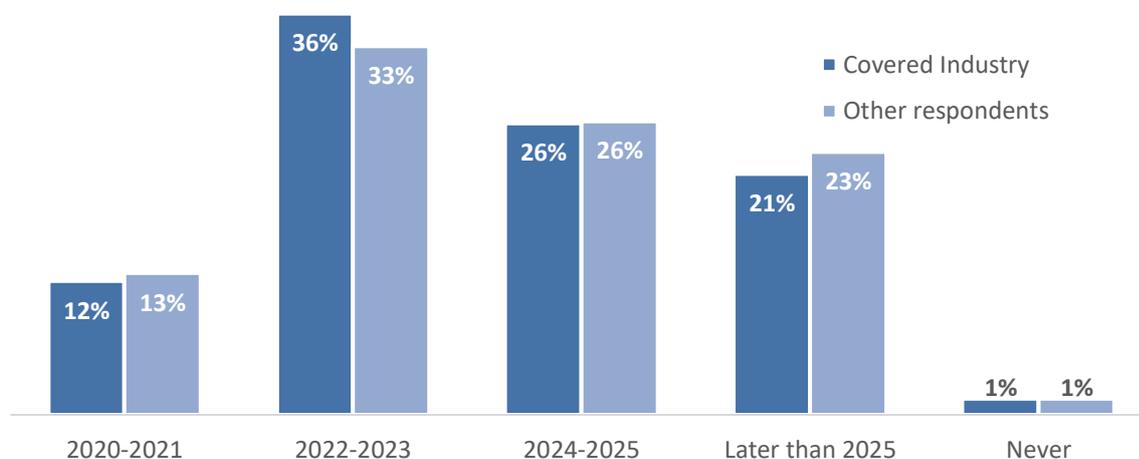


Figure 19 By when do you expect the China national ETS to be fully functional? (n=490)

⁷ Over the course of the *China Carbon Pricing Surveys*, questions around the operationalisation of the national carbon market have changed with the evolving policy landscape. In 2013, the survey asked simply when respondents expected a national ETS to start. In 2015, respondents were asked by when they expected the national ETS to be ‘fully operational and covering all provinces/regions’. In 2017 we asked by when the carbon market would be ‘fully functional’, establishing a definition which includes “all key building blocks in place, including: legislation/law, cap and allocation management, complete MRVA system, registry, trading platforms, market oversight, etc.”. In 2018, the survey kept this framing, but added a question on when the power sector would be ready for trading, given that it was clear it would be the only sector included at the start of the national carbon market. And in 2019, respondents were asked about each of the steps laid out in the central government’s ‘National Carbon Market Development Plan’, i.e. the start of a test phase, the start of compliance trading, as well as the expected date of a ‘fully functioning’ market. This latter approach is replicated this year, albeit with minor changes in wording of the questions.

After electricity generation, the cement sector clearly stands out from the other sectors in terms of perceived carbon market readiness, as more than half of respondents expect it to be ready to join the national ETS by 2022.

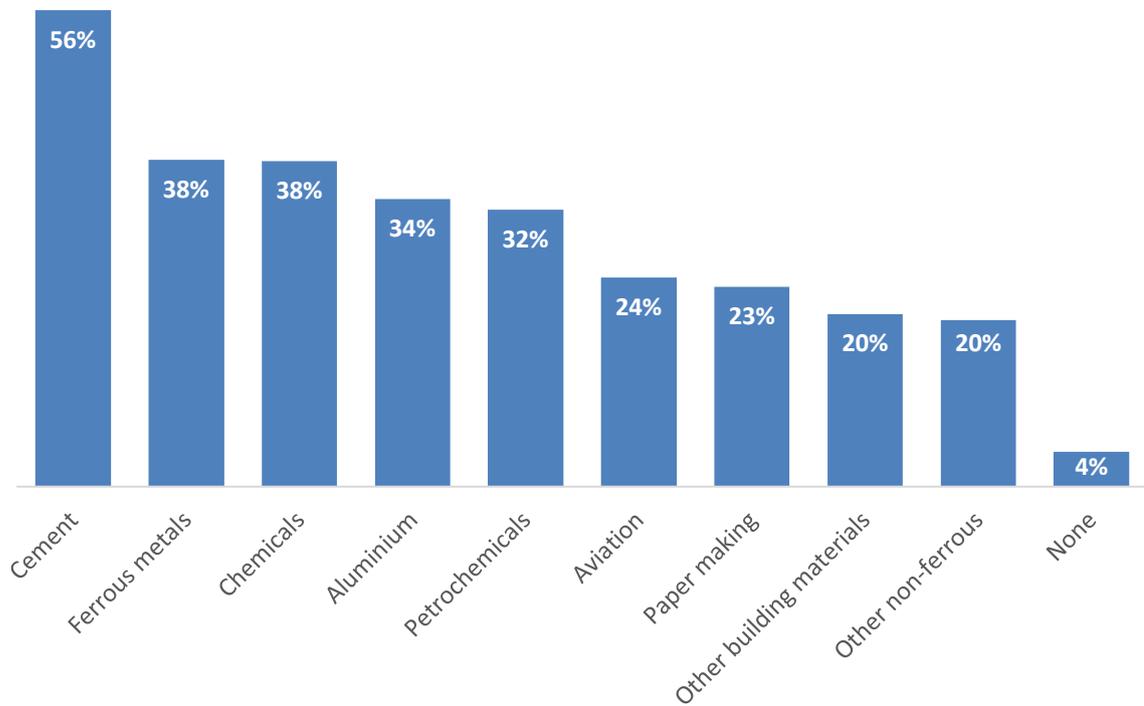


Figure 20 Do you think the following sectors will be ready to join the national system by the end of 2022? (n=480)

Power sector respondents were asked about their company's situation during the test phase of the national carbon market regarding allowance allocation. The largest proportion of respondents suggested that allocation would be equal to their compliance needs (41%), while over a third of respondents believe that they will need to buy allowances in the market (up from 28% last year).

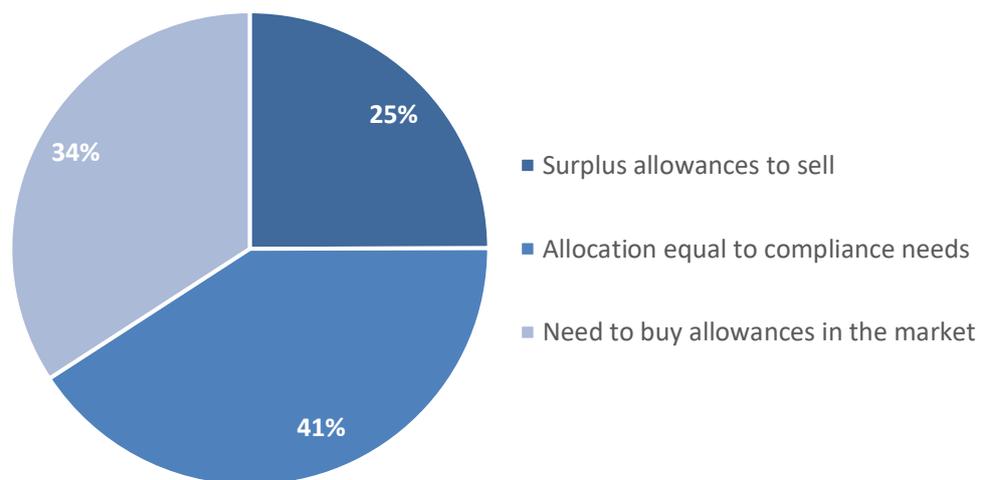


Figure 21 What do you expect your company's situation to be in the test phase of the national carbon market regarding allowance allocation? (n=133)

Management of the national carbon market

China is on track to transition from regional pilot carbon trading markets to a national carbon trading system. In the process, an issue for enterprises involved in the regional pilots is how their remaining allowances from the pilots will be treated in the national system.

The vast majority of the respondents (83%) believe that some level of transfer of permits from the pilot systems to the national market should be allowed.⁸ 59% of respondents believe that companies should be able to transfer assets from the pilots into the national system while retaining a part of their value. However, the level of support for full banking of pilot permits has dropped from over 40% in the last two surveys to less than a quarter of this year's respondents. 16% of respondents preferred no banking of pilot allowances, down from 27% in 2018 and 2019.

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

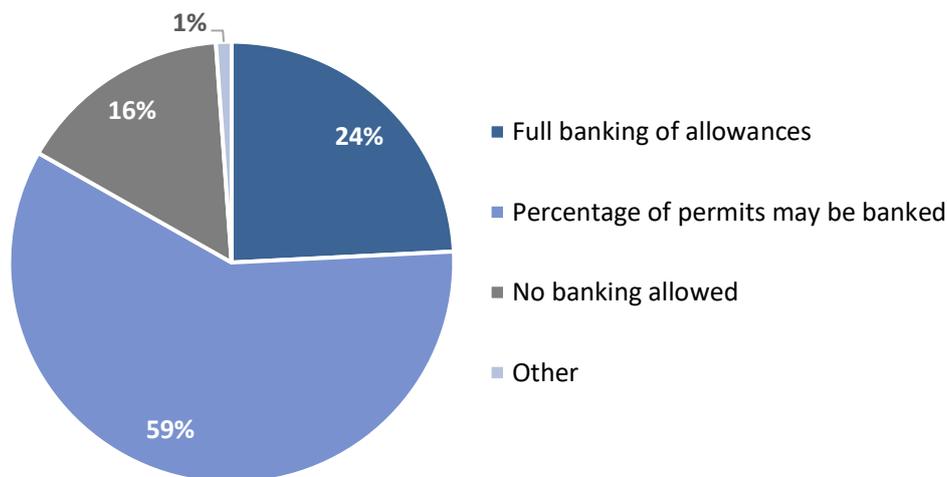


Figure 22 How should banking of permits from the pilot systems to the national carbon market be managed? (n=442)

How should banking of permits from the pilot systems to the national ETS be managed?

- The coal power sector is the first pilot industry in the national market and there should be a transitional period for allowance allocation for continuity. The pilot itself is a trading market, and the amount of allowances has significance in guiding the operation of the market. – *Jiangxi power co.*
- Enterprises bought the allowances, and the allowances are the asset of enterprises. Full banking should be allowed. – *Hubei power company*
- Given the vast differences in terms of coverage, allocation rules and allowance price between ETS pilots and the national ETS, allowing banking of allowances would introduce great uncertainty, complexity and fairness issues. – *Europe-based multilateral organisation*
- Different pilots have different trading situations. The price gap between the different pilots is huge. – *Tianjin consulting and verification company*
- Local allowance allocation is according to different policies and the value of allowances varies among the different pilots. – *Shanghai power company*

⁸ Banking means the holding of permits from one compliance period for the purpose of sale or surrender in a future compliance period.

Benchmarking and historical (grandfathering) allocation are two common methodologies for free allowance allocation in an emissions trading system. Benchmarking calculates allowance allocation to installations or entities based on a benchmark value in one sector, which usually represents good performance in that sector and is determined based on reported GHG emissions data. Historical allocation calculates the allowance allocation in relation to an installation or entity's historical GHG emissions level in past years. Historical allocation may be unfair to companies which have already performed well in past years, and/or which are growing quickly. Benchmarking allocation tends to be fairer, but is more complex to regulate and calculate.

China's central government has made it clear that the power sector will follow a benchmarking approach in the national carbon market. The majority of industry respondents in the building materials (incl. cement) and non-ferrous metals sectors identified benchmarking as the most appropriate methodology for allocating allowances. Steel sector respondents prefer historical intensity-based allocation by a slim margin. Many respondents didn't answer this question, possibly suggesting that some respondents don't know their preference, or don't understand the distinction.

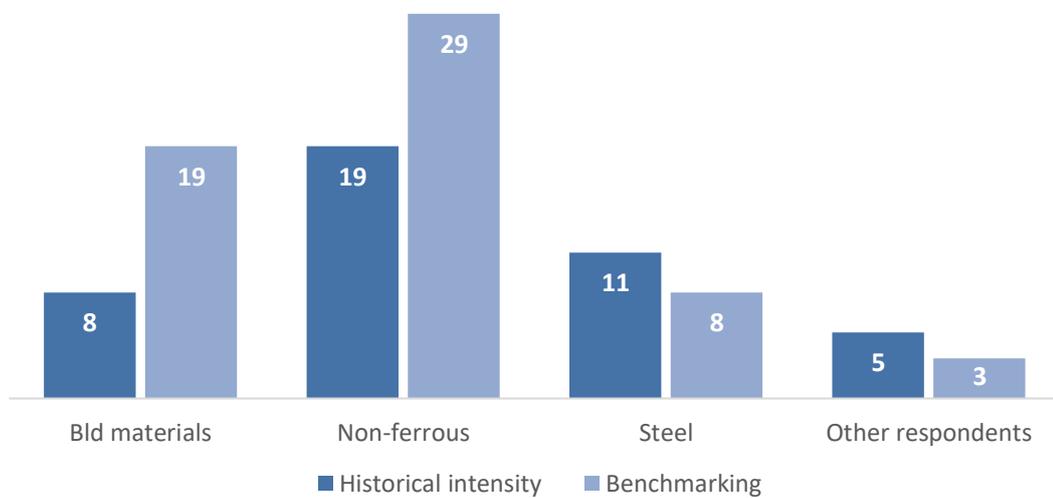


Figure 23 What do you think is the best method to allocate allowances? (n=63)

Respondents from the power sector were asked how benchmarking should be implemented in their sector under the national carbon market. A majority indicated a preference for a transition towards a single sector-wide benchmark.

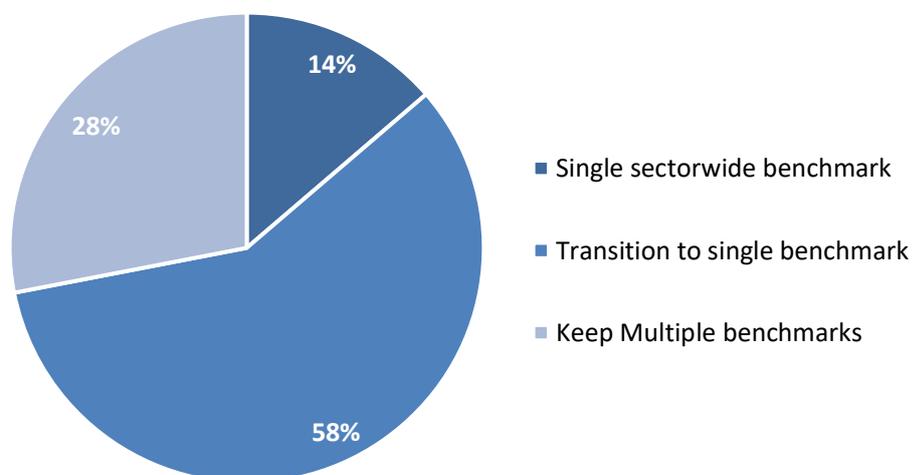


Figure 24 Which draft benchmark approach do you prefer? (n=139)

The same respondents were asked how frequently the benchmark should be updated. Over two thirds prefer a frequency of every five years.

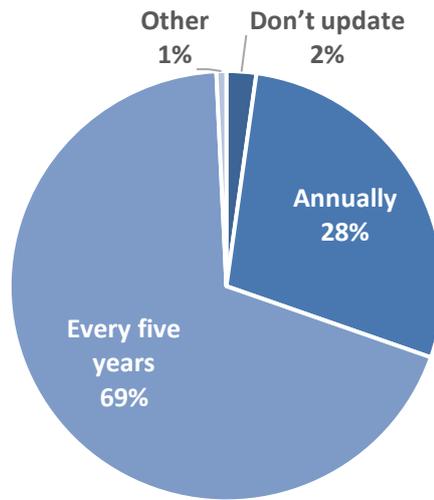


Figure 25 How frequently should the benchmark be updated?

41% of those with a view expect that there will be auctioning covering at least 10% of the total cap by 2025 (down from 46% last year).

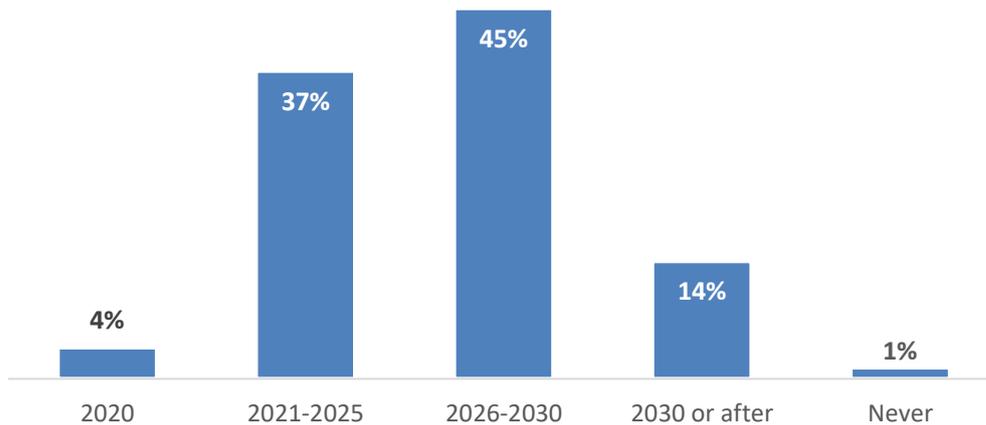


Figure 26 By when do you expect auctioning to cover at least 10% of the total cap? (n=449)

15% of respondents believe that publication of emissions data could be made mandatory as soon as the national carbon market starts, while 43% think this could occur by 2025 (down from 62% last year).

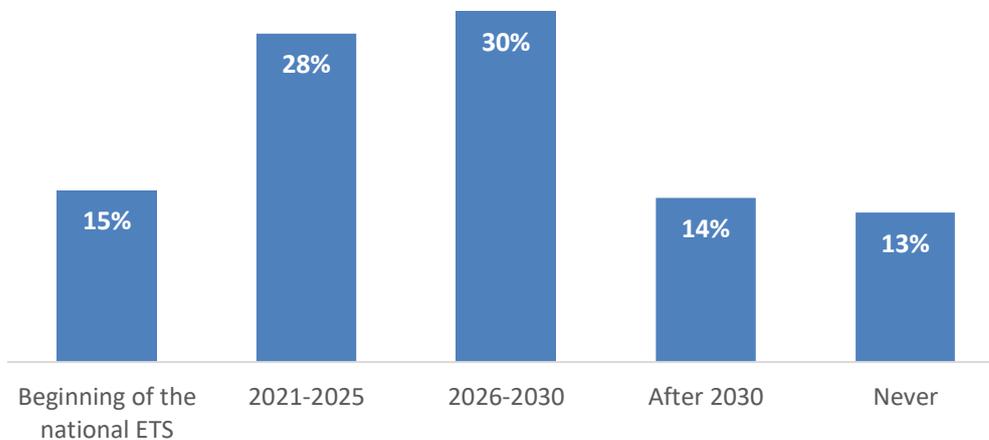


Figure 27 By when do you think that publication of emissions data could be made mandatory by: (n=354)

Respondents were asked what types of data should be made public, in order to support transparency of the market. Annual company-level emissions data and sectoral emissions data were identified as the most important.

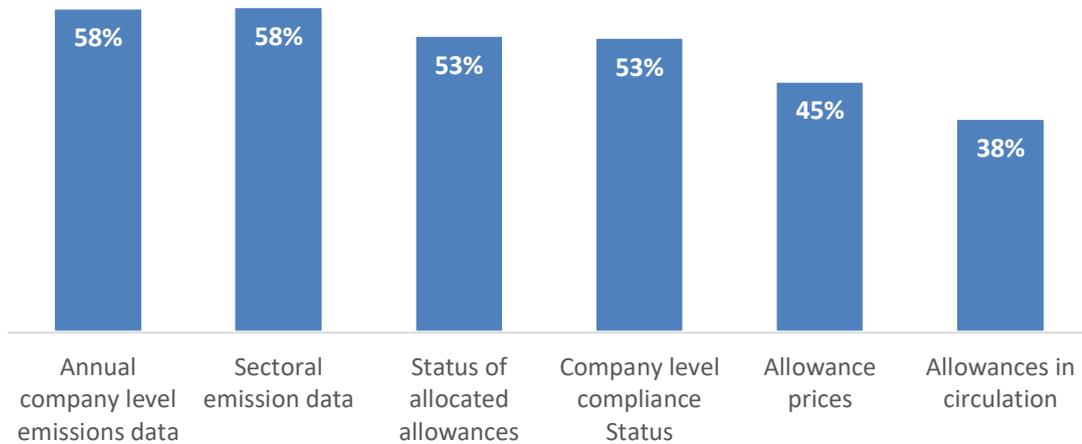


Figure 28 What data should be made public, to support transparency of the market? (n=567)

Half of respondents believe that non-covered entities should be able to participate in the national carbon market by 2025.

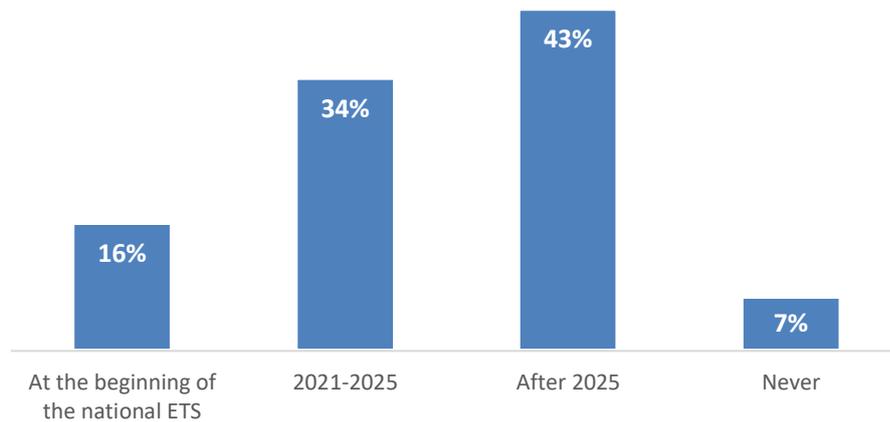


Figure 29 By when do you think that non-covered entities should be able to participate in the national carbon market? (n=342)

Respondents were relatively evenly split over whether an offset mechanism should be available for the national carbon market by 2023. Only 1% believe that there should never be an offset mechanism.

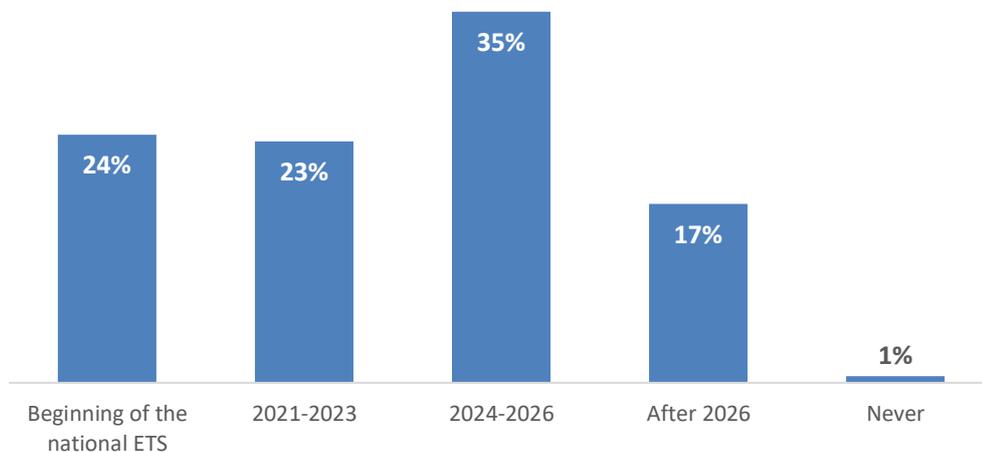


Figure 30 When do you think an offset mechanism should be available for the national market? (n=468)

Two thirds of respondents expect that CCERs will be eligible for providing offset credits in the national carbon market. About one third of respondents expect that credits generated by the Verified Carbon Standard (VCS) or validated by local authorities will also be eligible.

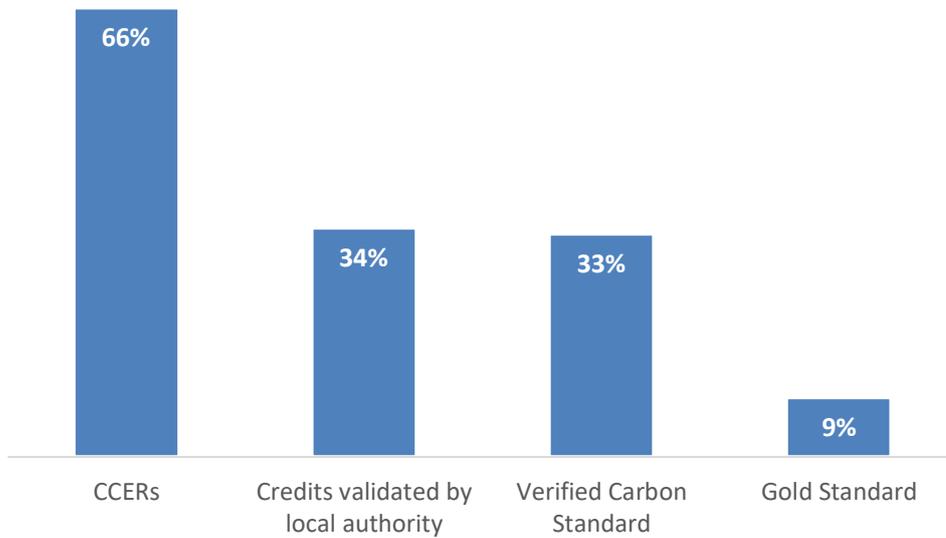


Figure 31 What products do you expect to be eligible for national ETS as offset credits? (n=457)

Respondents were asked whether they expect any restrictions to be applied to the offset credits utilised within the national carbon market. The most commonly expected restrictions relate to the vintage year of credits, a maximum share of a company’s compliance obligation, and on specific project types. It is worth noting that subsequent to the conducting of the survey, the draft National Carbon Trading Management Measures specified that a maximum of 5% of a company’s compliance obligation can be met by CCER permits. Allowable offsets will include projects in renewable energy, carbon sinks, and methane utilisation.

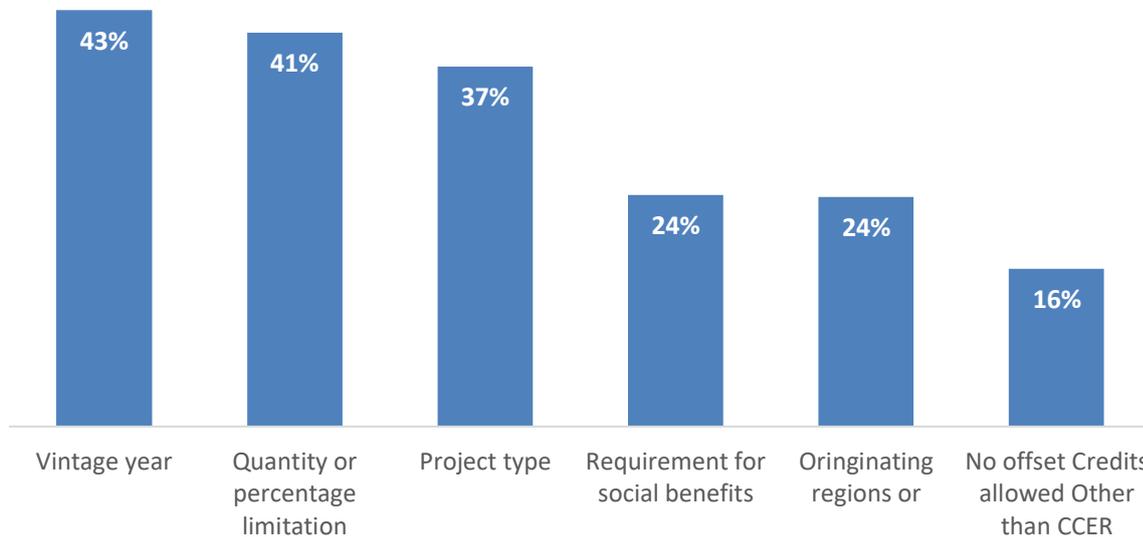


Figure 32 Do you expect any restrictions in the use of offset credits? (n=435)

Respondents were asked to identify one type of carbon financial product that they consider most suitable for early introduction in the national carbon market. The most popular choice was ‘repurchase agreements’, followed by ‘futures’.

A repurchase agreement is the equivalent of a short-term, collateralised loan. An owner of allowances sells those allowances to a buyer for cash. As part of the deal, the seller agrees to buy back the securities at a later date. The price paid to repurchase the allowance is higher than the original selling price. Carbon futures are derivative financial contracts that obligate the parties to transact allowances at a predetermined future date and price. Here, the buyer must purchase or the seller must sell the underlying allowances at the set price, regardless of the current market price at the expiration date.

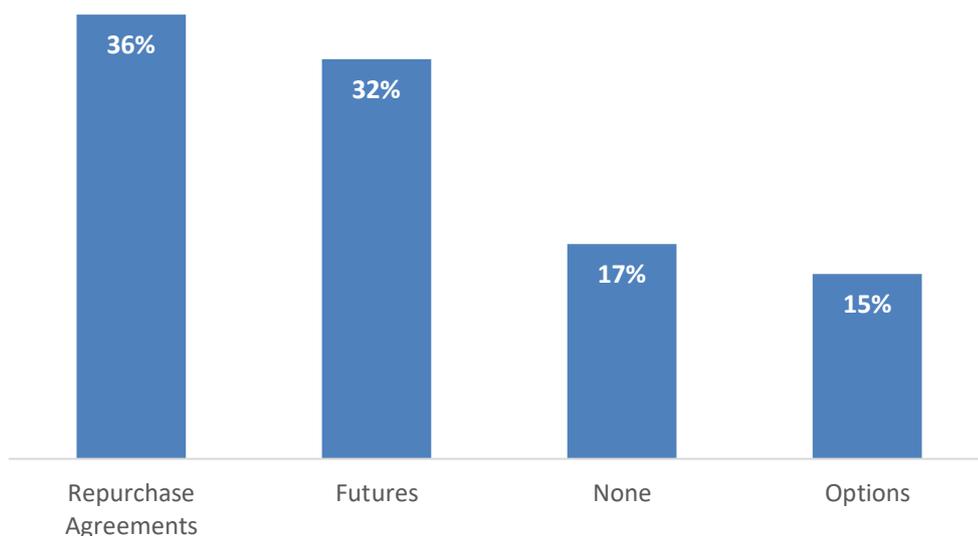


Figure 33 What kinds of carbon financial products are most suitable for early introduction in the national ETS? (n=419)

Prices in the national carbon market

Respondents were asked what they expect the average carbon price to be at different points in time in a national carbon market 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 carbon market starts at CNY 49/t in 2020, rises to CNY 71/t in 2025 and CNY 93/t by the end of the coming decade (Figure 31). We asked for stakeholders’ carbon price expectations to mid-century, in order to get a sense of how carbon pricing may play a role in China’s mid to long-term decarbonisation strategy. Average carbon price expectations for 2050 are CNY 167/t. However, the actual price levels remain highly uncertain, especially in the more distant future. The 20th-80th percentile range grows from CNY 28/t to CNY 100/t in 2030 to CNY 30/t to CNY 200/t in 2050 .

The authors removed a number of extreme responses, however there remains a large variance in price expectations provided in this year’s survey.⁹ The chart below indicates both the average (mean) of expectations, as well as the median.

47% of respondents provided no price estimates (similar to last year). High levels of uncertainty may lead some respondents to be reluctant to provide a quantified price expectation.

⁹ The authors removed outlying responses, defined as over 1,000 CNY/ton by 2030 and over 2,000 CNY/tonne by 2050. These were considered to be extreme and therefore not included in the analysis.

China's carbon price is expected to steadily rise

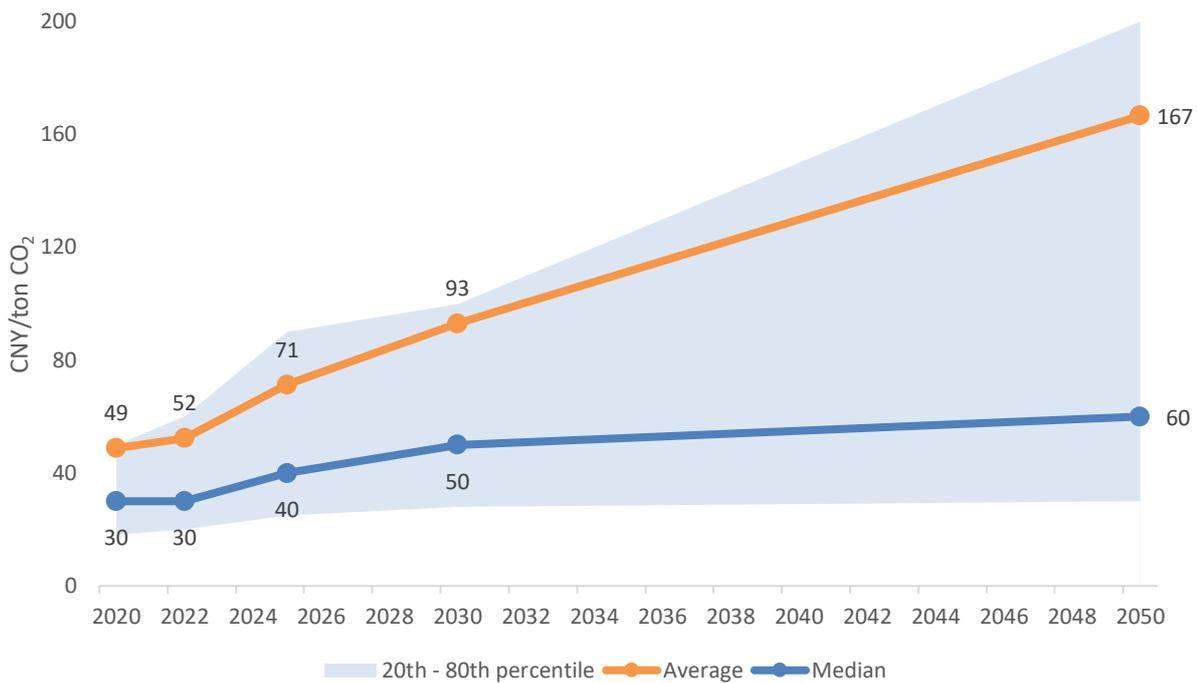


Figure 34 What do you expect the price in the national carbon market to be in the coming years? (n=245,241,237,234,230)

The future price expectations are similar to those in last year's survey, but lower than at the time of the 2018 survey (when a national price of one hundred yuan was expected to be reached by 2025).

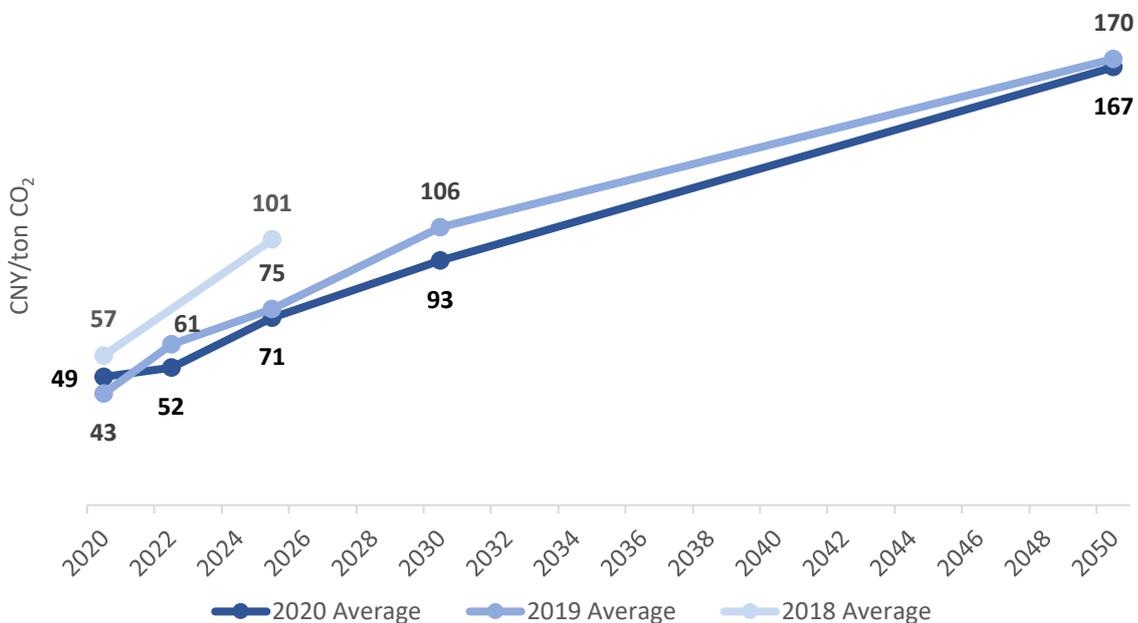


Figure 35 Expectations of the price in the national carbon market, 2019 survey vs. 2020 survey.

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

Selected quotes on the price of carbon in the national ETS in coming years:

- Only an increasingly high carbon price can better stimulate the market and achieve emission control targets. – *Beijing-based non-covered entity*
- The cost of emission reductions will become more expensive over time. – *Zhejiang power company*
- A carbon price that is too high raises the overall cost to society; a price that is too low is not conducive to emission reductions. – *Guangdong power company*
- Carbon as a commodity needs to keep pace with the world and with economic development. It should not be as though the environmental protection authorities at all levels consider that regardless of how much power generation companies reduce emissions, they always consider them to be directly responsible for urban pollution. This idea should be avoided. – *Henan power company*

What role do you see for the national carbon market in helping China to achieve its mid-century decarbonisation strategy?

- The establishment of the carbon market will help incentivise emitting entities to achieve their carbon reduction targets at low cost and is an important means for China to achieve its GHG emission control and peaking targets. It also helps direct technology development and the finance flows to low-carbon development, promotes the industrial transition and forces enterprises to phase out backward production capacity. The establishment of the carbon market can also provide important reference data for and promotion of China's mid-century decarbonisation. – *Hebei steel company*

Impact of COVID-19

The COVID-19 pandemic has had a major impact on the world this year. We included several questions in the survey this year, to get a sense of how respondents view the impacts of the pandemic on the development of carbon pricing in China, and on climate action in the world.

Respondents could select only one of the below answers. The largest share of respondents (42%) expect that COVID-19 will cause a delay of six months or more in the rollout of the national carbon market. 'No significant effect' was chosen by about a quarter of respondents.

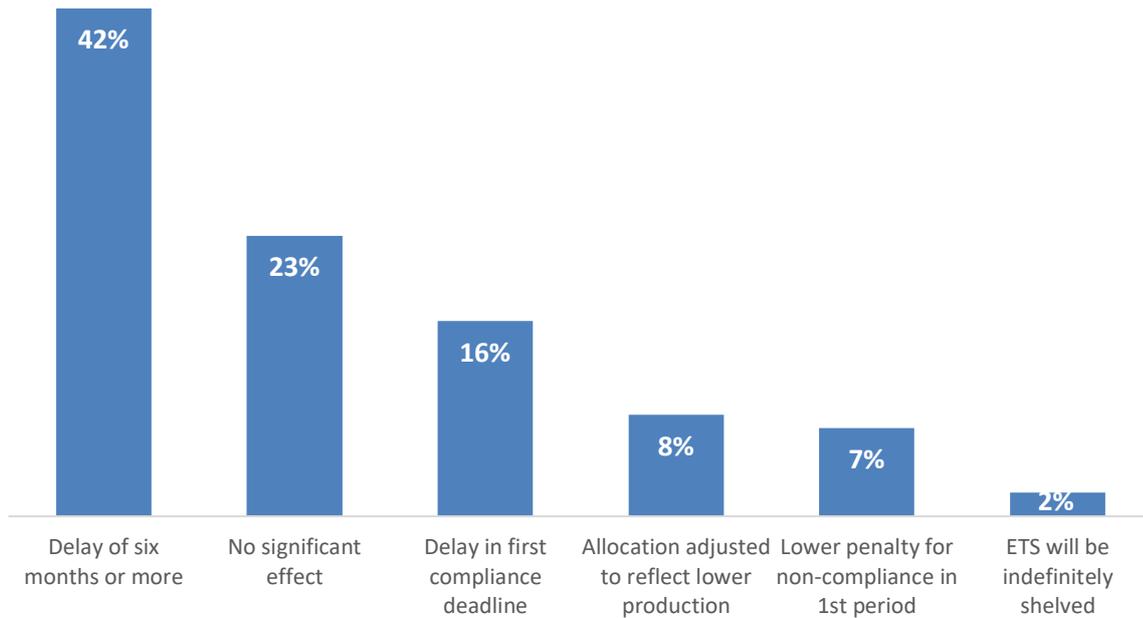


Figure 36 What effects do you think the COVID-19 crisis will have on the rollout of the national ETS? (n=448)

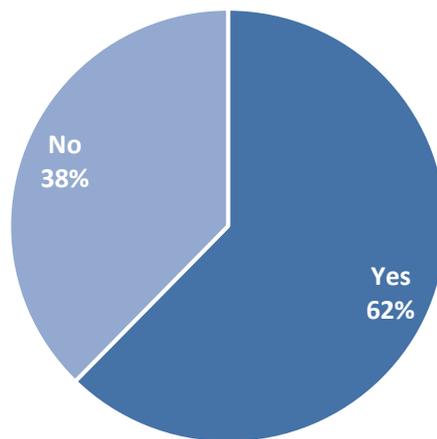


Figure 37 Do you think that the launch of the national ETS should be delayed as a result of the COVID-19 crisis? (n=459)

Most companies (64%) don't expect their low-carbon transition strategy to be affected by COVID-19. Respondents provided explanations of their responses, with several companies commenting on how the COVID-19 pandemic has had a limited impact on their strategy. China's economic recovery has been quick, and the investment decisions impacting on transition strategies tend to be long-term ones.

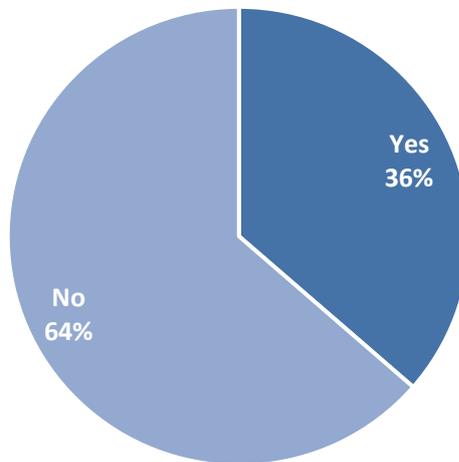


Figure 38 Will COVID-19 affect your low-carbon transition strategy? (n=184)

However, 57% of companies do expect that their emissions will be affected by COVID-19.

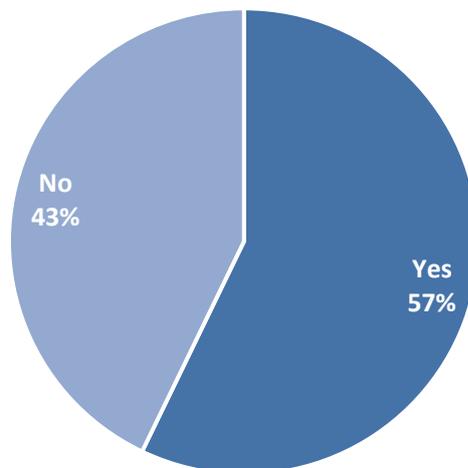


Figure 39 Will COVID-19 affect the emissions of your company in 2020? (n=196)

Will COVID-19 affect the emissions of your company in 2020?

- The country's economy has been affected, and carbon emissions will fall as a result. – *Beijing-based power generation company*
- Crude steel production has been affected, with a significant reduction in normal production intensity in the first quarter. – *Anhui steel company*

Respondents excluding covered industry were asked about the impact of COVID-19 on the climate ambitions of both China and the international community. Interestingly, the vast majority of respondents expect that the COVID-19 crisis will have no effect on China’s broader climate ambitions (44%), or will actually increase the level of ambition (43%). It is worth noting that the survey was conducted in July and August, before China announced its pledge to achieve carbon neutrality by 2060.

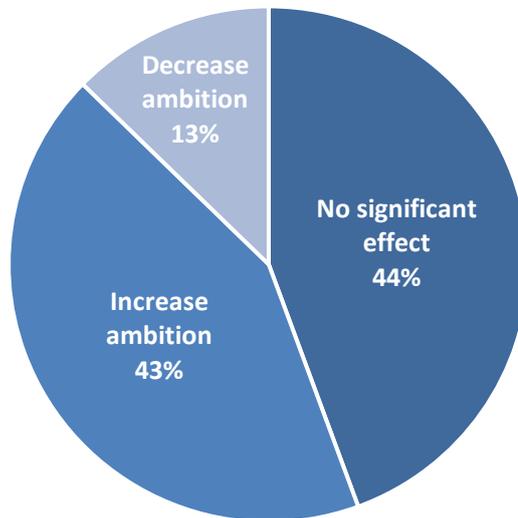


Figure 40 What effects do you think COVID-19 will have on China’s climate ambition? (n=268)

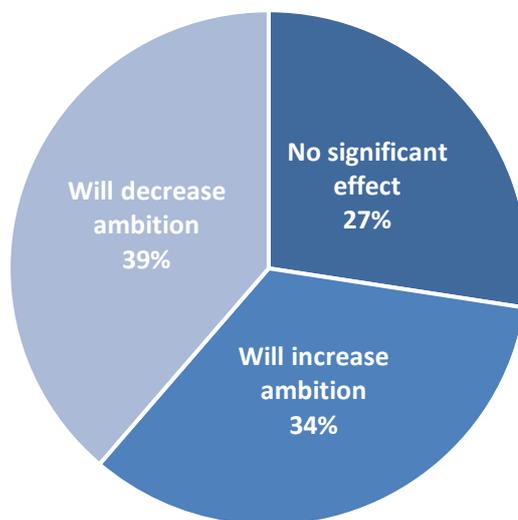


Figure 41 What effects do you think COVID-19 will have on global climate ambition? (n=266)

Readiness for emissions trading

Respondents from both covered industry and local government were asked how prepared their organisation is to take part in the carbon market. Among the 244 respondents from covered industry, the highest level of preparedness was in the areas of ‘verification of emissions’ (55%) and ‘monitoring and reporting emissions’ (51%). In last year’s results, monitoring and reporting was the area for which companies were most prepared, and at a much higher level (79%). This likely reflects the fact that this year’s survey has a larger sample size, capturing a greater representation of industry in regions that are less prepared. ‘Allowance and CCER trading’ (83%) and ‘legal framework/regulations’ (78%) were outlined as the areas in which organisations were least prepared and require further training.

We also compared the responses of companies which participated in regional pilot carbon markets, versus those who didn’t. As should be expected, the survey shows a higher level of preparedness amongst companies that have participated in regional pilot carbon markets. Preparedness for MRV of carbon emissions was roughly even between pilot and non-pilot companies, reflecting the fact that the central government has required companies in ten key emitting sectors countrywide to undergo MRV since 2014.

Capacity building is needed in many aspects

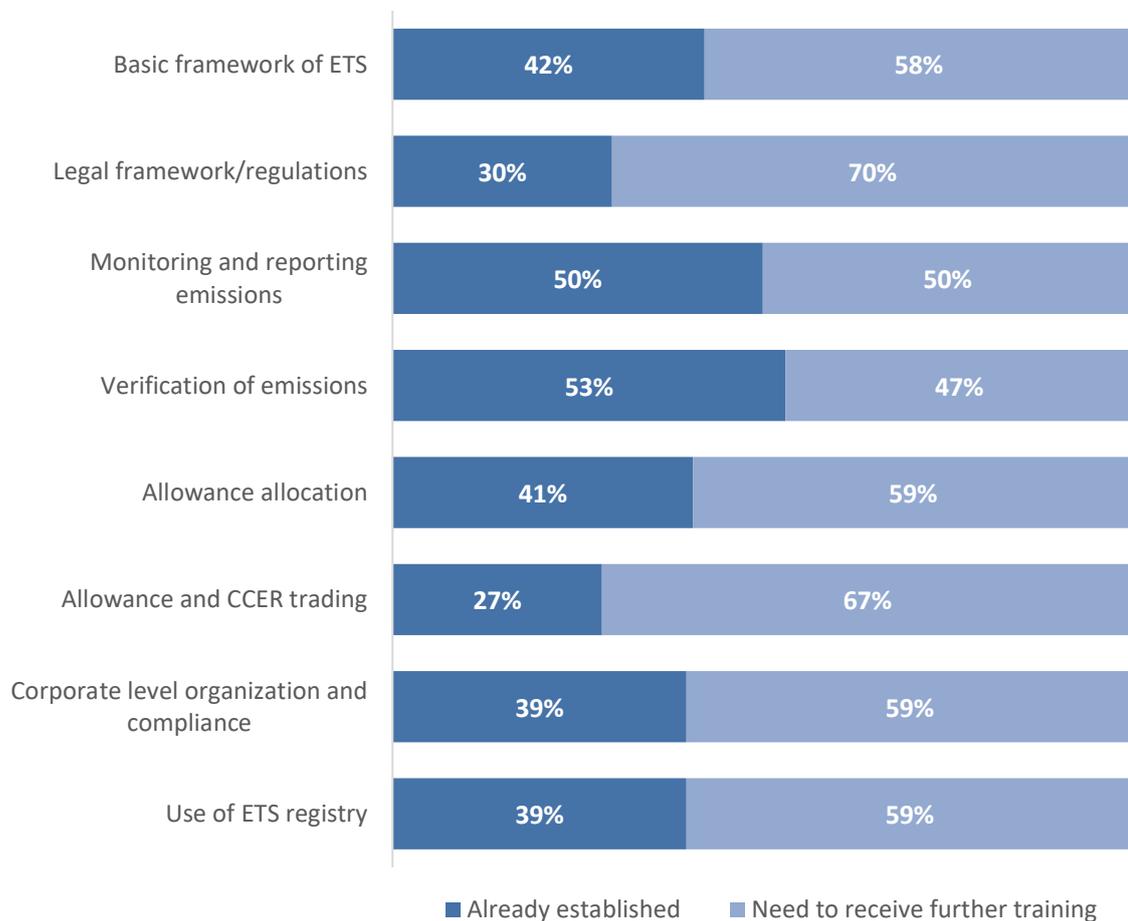


Figure 42 How prepared is your company to perform tasks under an ETS? – Pilot entities (n=54,52,53,54,54,49,46)

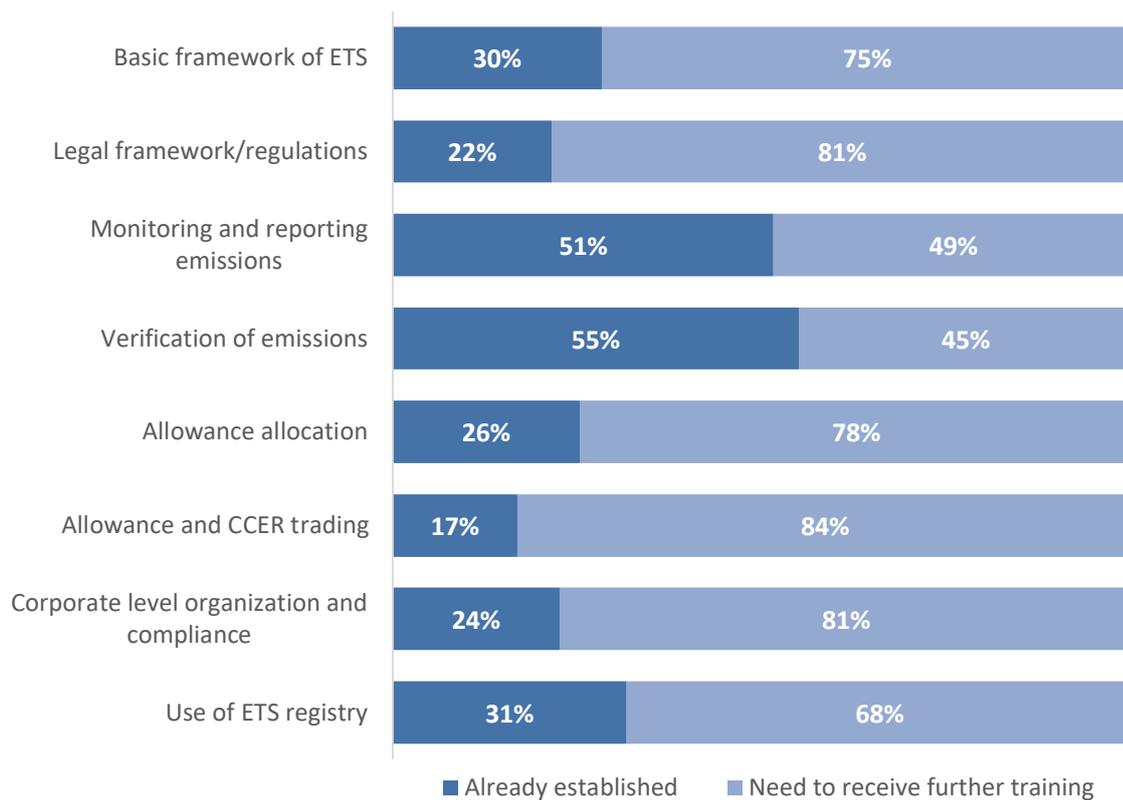


Figure 43 How prepared is your company to perform tasks under an ETS? – Non-pilot entities (n=54,52,53,54,54,49,46)

Are there specific issues which have prevented your company/unit from developing sufficient capacity to-date?

- Uncertainty as to when the enterprise will be included in the ETS. – *Shanxi steel company*
- No dedicated staff for carbon asset management and emissions trading. – *Ningxia power company*
- The allowance allocation policy for the steel sector has not yet been concretely implemented. – *Hebei steel company*
- Attention from the central government has been low and the national carbon market has been slow to start, meaning that the leadership of the enterprise will not take this issue seriously. – *Jiangsu power company*

For the areas where your company/unit is fully prepared, what are the key factors that have helped you achieve this readiness?

- Trainings organised at the national level and by the parent group head office, which provided sufficient knowledge for the company's managers. – *Xinjiang building materials company*
- The quality of data for previous years is of high quality. – *Hebei steel company*
- Fear of environmental fines. – *Gansu power company*
- Supporting technical companies have been established by the group company. – *Henan power company*
- Professional carbon asset management. – *Jilin power company*

The covered industry respondents were asked whether they had formulated a dedicated team to handle carbon trading obligations. 52% of respondents had dedicated either an individual or a team (roughly the same as last year).

Half of companies have formed a team to handle carbon trading obligations

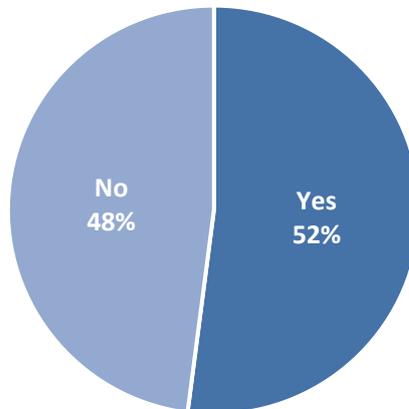


Figure 44 Has your company assigned a dedicated person (internal or external) or formed a dedicated team to handle your carbon trading obligations? (n=244)

Of the companies which have formed teams, most were comprised of either decision-making teams from different departments (28%) or had a dedicated department (58%). Only 14% of respondents had outsourced to an independent company. This is a very similar breakdown as for last year's survey.

Companies have different approaches to ensuring compliance with carbon trading obligations

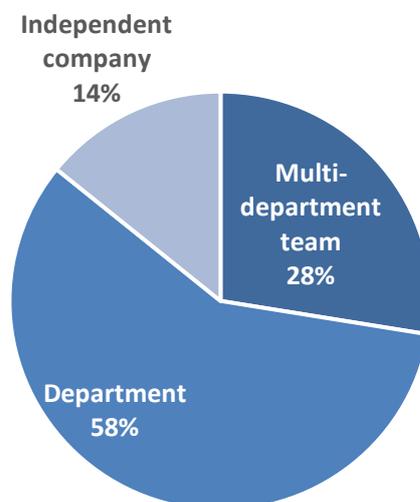


Figure 45 What is your team's organizational form? (n=127)

For the half of industry respondents who have a team dedicated to handling carbon trading obligations, the vast majority have teams of less than 10 people, with the average team consisting of 3.7 people. Companies that participate in pilot markets have teams that average 4.4 people, while companies which didn't participate in the pilot markets average 3.1 people per team. The numbers vary significantly between industries, which is understandable given the different company sizes, and the fact that the power sector has developed more experience with carbon markets, including the previous CDM. Companies in some of the sectors to be covered later in the national carbon market indicate that they assign people part-time to take responsibility for carbon emission management.

These results do not suggest that companies with small teams are understaffed. Even large compliance firms can manage with teams of five or less dedicated professional staff for MRV and allocation purposes.

Most companies have small teams to deal with carbon trading obligations

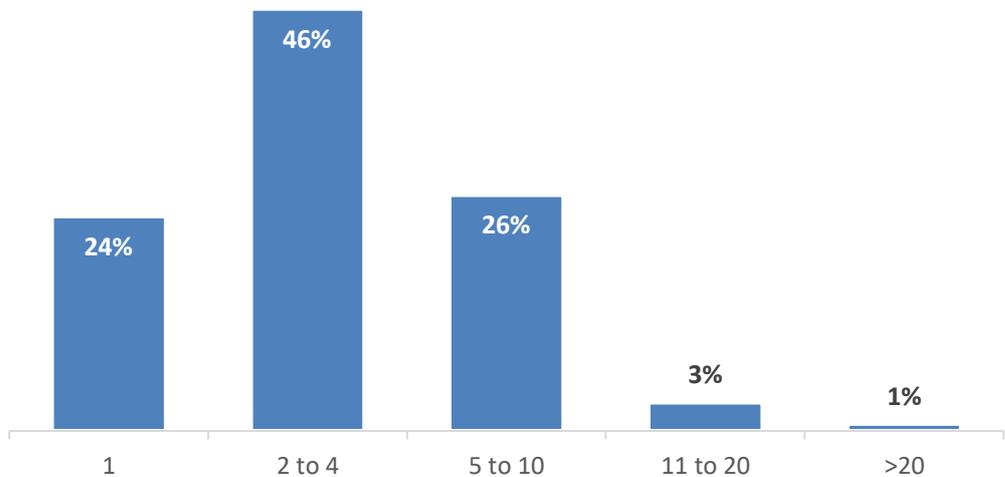


Figure 46 How many people are in the team? – Industry respondents (n=127)

In terms of the make-up of companies’ carbon trading compliance teams, this year’s survey shows a similar representation as last year, albeit with a higher representation of ‘safety and environment’ staff (75% vs. 49%), and lower representation of ‘financial’ staff (12% vs. 30%).

Carbon trading compliance teams include environment, management and energy saving staff

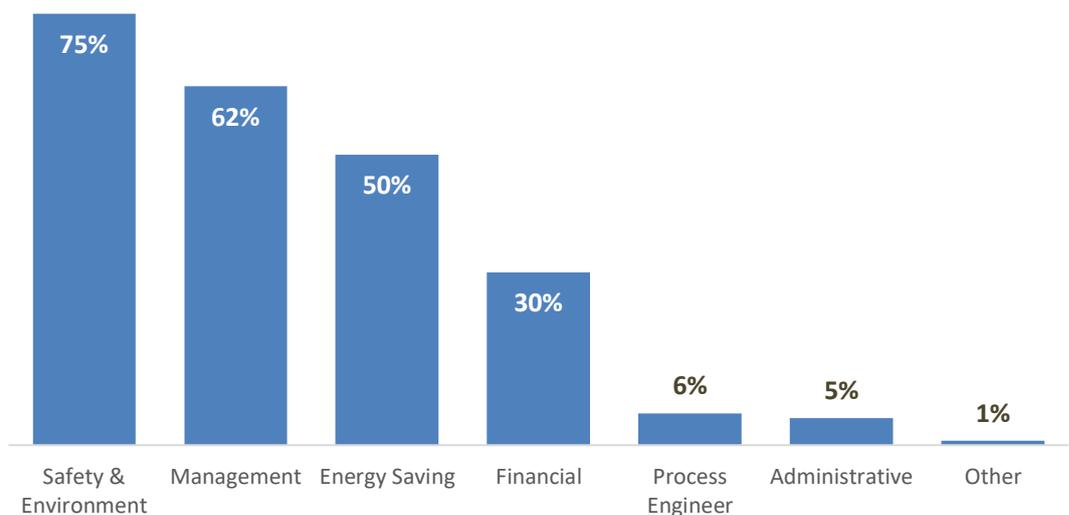


Figure 47 What are the competencies of the person(s) you have assigned to handle carbon trading obligations? (n=127)

81% of industry respondents said they had participated in trainings on carbon trading, significantly higher than last year (64%), while 57% of local government respondents said the same. Capacity building cooperation through bilateral projects and NGOs have contributed to this. As an example, under the EU-China ETS Cooperation Platform, demand-driven trainings for more than 8,000 industry and local government representatives across 48 provinces and cities have successfully delivered between October 2017 and October 2020. About 70% of the participants in these trainings have been local government representatives. 17 large-scale trainings organized by MEE in late 2019 with support from several international cooperation programmes, included approximately 4,600 participants, with about two thirds being industry representatives.

A majority of industry and local authorities have participated in carbon trading training

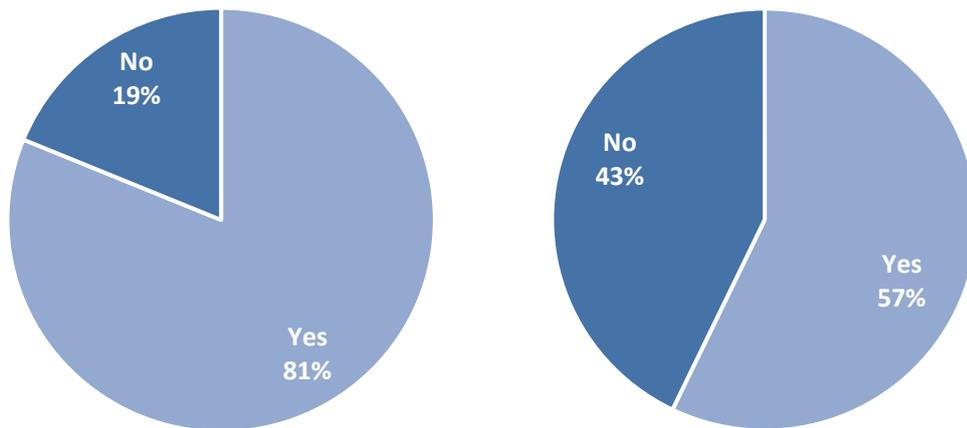


Figure 48 Has your company participated in training(s) on carbon trading?
Left: industry respondents (n=202); Right: Government respondents (n=7)

20% responded that their company had developed a compliance strategy for ETS in China (down from 28% in 2019). ‘Energy efficiency measures’ was the most frequently selected approach, as it was in 2018. The most popular strategy in the 2019 survey was ‘preparing to buy allowances’.

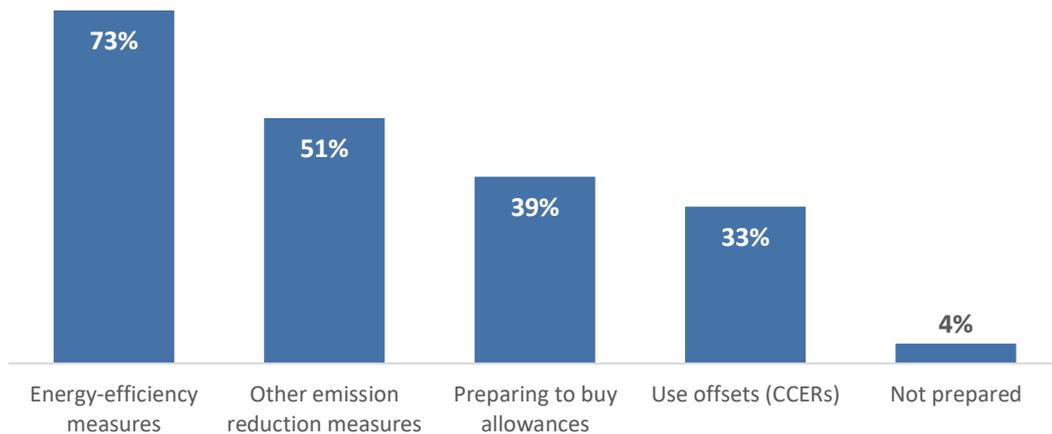


Figure 49 Has your company formulated a compliance strategy for ETS in China? If Yes: How do you plan to be in compliance? (n=49)

The majority of participants in the pilot markets (53%) believe that the transition from pilot to national ETS will require some adjustment to their strategy and/or organizational structure.

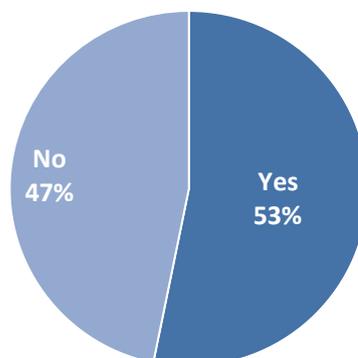


Figure 50 Does the transition from pilot to national ETS require some adjustment to your strategy and/or organizational structure? (n=47)

Of the covered companies, 43% state that their company has set an internal emission reduction target, down from 56% last year. The authors believe that the overall average in this year's survey is lower than last year due to the higher number of respondents from non-pilot regions, and doesn't suggest that any companies have dropped their internal reduction targets.

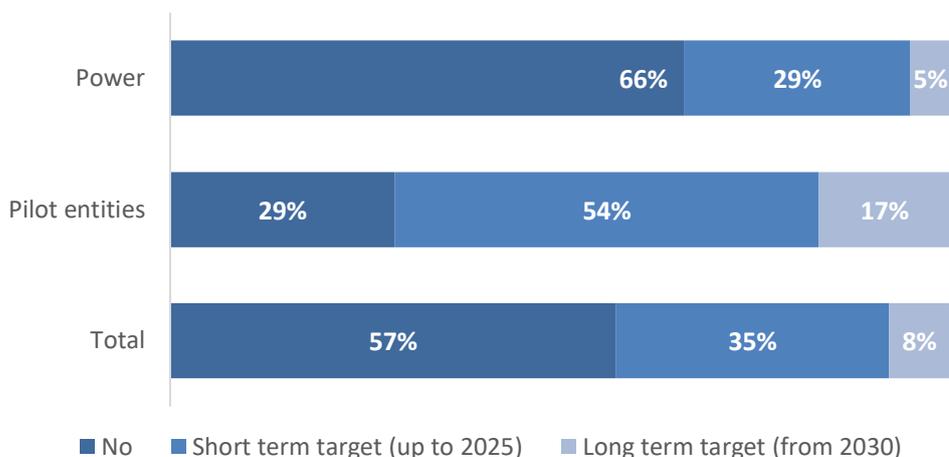


Figure 51 Does your company have an emissions reduction target? (n=189)

10% of covered industry respondents were from companies that have implemented an internal carbon price, up from 5% last year. A full third of industry respondents were unsure if their companies had implemented such a measure. Internal prices averaged CNY 37/ton, similar to last year, and close to the average of current spot prices in China's regional carbon markets.

What other preparations are needed in order to be ready for participation in the ETS?

- Relevant systems within the company and division of responsibilities between departments need to be further optimized. Group-level assistance and guidance is needed as well, for example, guidance on the offset mechanism. – *Hubei power company*
- The company should pay attention to this issue and assign dedicated staff. The internal management and training on relevant laws and regulations is needed as well. – *Ningxia power company*
- If the power sector is the pilot, I believe that new projects must at least receive allowance allocation before they can be built (equivalent to allocation for existing similar capacity if data is not yet available on the new installation). – *Henan power company*

Impacts of carbon pricing on investment

Respondents were asked if they expected the price of carbon to affect investment decisions in 2020, 2025, 2030 and 2050. Respondents expect carbon pricing to increasingly affect investment decisions in the coming years. In 2020, 37% of those who expressed a view, expect investment decisions to be strongly or moderately affected. By 2025, this number rises to 69% of respondents. Only 5% of respondents who answered this question expect investment decisions to be unaffected by 2025.

Carbon emissions trading is expected to increasingly affect investment decisions

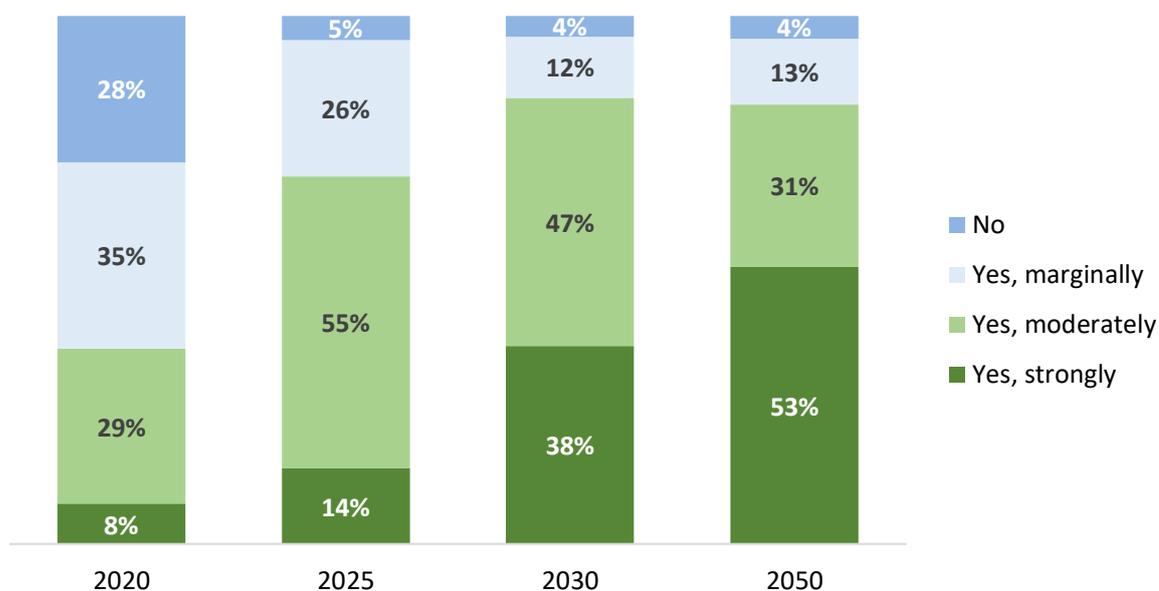


Figure 52 Do you expect the ETS in China to affect investment decisions in 2020, 2025, 2030, 2050? (n=362,360,346,324)

While the expectation of at least a moderate impact in 2020 is down from 47% last year, this is not unexpected as the survey was conducted mid-way through 2020, at which point respondents did not have a clear sense of whether a national carbon market would involve trading before the end of the year, and thus the pilots remained the only source of potential direct impact on companies' investment decisions.

Looking forward, confidence in a moderate impact by 2025 has increased slightly (from 67%) and even further by 2030 (85%, up from 77% last year).

Do you expect the ETS to affect investment decisions? Why?

- The company's management leadership is not aware of this yet, but will realise that the impact on the business will increase year by year after the nationwide ETS's formal launch, and thus influence decision-making. – *Xinjiang building materials company*
- The transition from free allocation to allowance auctions will gradually increase costs for enterprises. – *Beijing market-related services company*
- National emission control policies are likely to become stricter over time. As global temperatures continue to rise, the impact of climate change on people's lives, economic development and social stability will increase, and the control of GHG emissions will receive greater attention from governments and all sectors of society. – *Beijing-based power generation company*
- In the medium to long term, the control of carbon emissions will tighten. – *Beijing-based steel company*
- In the future, carbon trading will be an important factor in business costs. – *Hebei steel company*

Unlike in most other jurisdictions with carbon pricing, China's electricity prices are currently fixed on an annual basis by the central government, with variations by region. This means that power generation companies cannot pass the carbon price on to consumers. Survey respondents were asked by what time they expect the carbon price to affect the price of electricity for consumers. About a quarter of respondents believe this will be the case by 2025, while more than two thirds believe it will be by 2030.

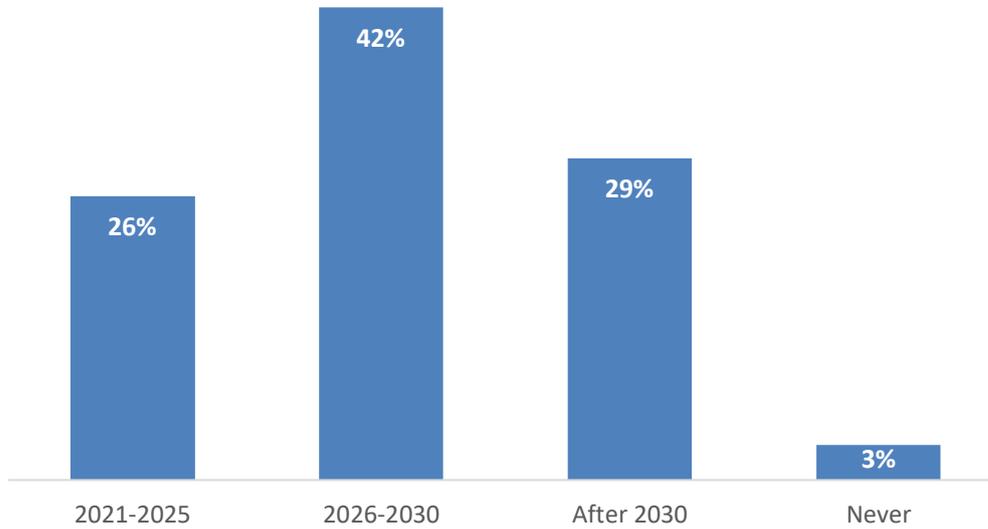


Figure 53 By when do you expect power market reform to allow for carbon price pass through from power producers to end users? (n=443)

Respondents from companies that have been covered by the regional pilot markets were asked how the pilot carbon markets had affected their company. More respondents said that the markets had had a positive impact than not, though that proportion has shifted from 60% in last year's survey, while the share that reported a negative impact has risen from 17% last year to 35% this year.

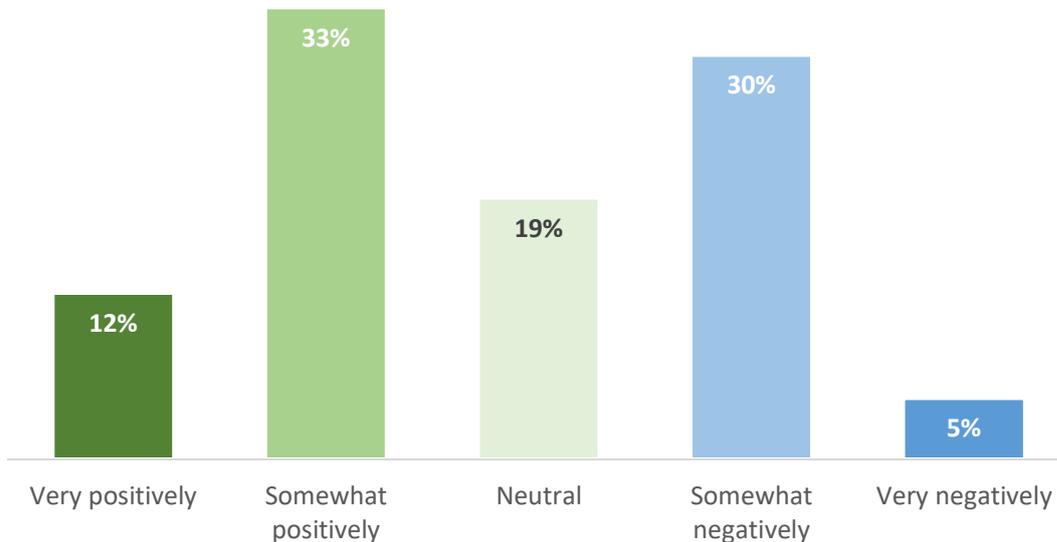


Figure 54 All considered, how have the pilot carbon markets affected your company? (n=57)

The same group were asked whether the carbon price made an investment profitable or helped the business case for an investment that reduces carbon emissions directly or indirectly. About half of pilot entities responded that this was the case, down from 78% last year.

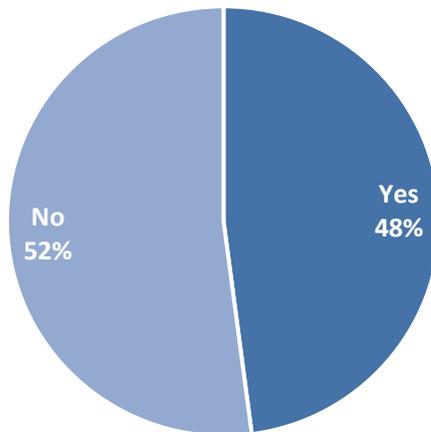


Figure 55 Following your company's participation in the pilot systems, has the carbon price made an investment profitable or helped the business case for an investment that reduces carbon emissions directly or indirectly? (n=48)

An impressive 21% of respondents from pilot entities said that that pilot systems had caused their company to move facilities from one region to another, as a result of the carbon price, up from 10% last year.

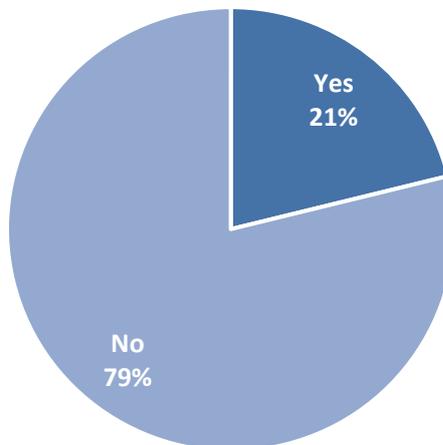


Figure 56 Following your company's participation in the pilot systems, did you move any facilities from one region to another, as a result of the carbon price? (n=52)

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 from now until 2050. Despite the obvious uncertainty with such a long timeframe, the question allows us to get a sense of how respondents view carbon pricing in the context of a range of other measures.

The combined expectation of respondents is that the relative importance will clearly shift away from traditional approaches such as subsidies and the mandatory closure of inefficient facilities (in order to reduce over-capacity), to be replaced by a suite of more market-oriented policies. The carbon market is identified as already playing an important role in 2020, consistent with survey results since 2017. The role of environmental taxes, energy allowances trading and environmental information disclosure is expected to grow in the coming years.¹⁰ At the same time, respondents expect a large a mix of policies in the long run.

The expected importance of environmental tax reflects the continued interest amongst the policy community in the potential benefits of a carbon tax. This could potentially involve CO₂ being integrated into the existing environmental tax regime which currently includes taxing of other air pollutants.

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

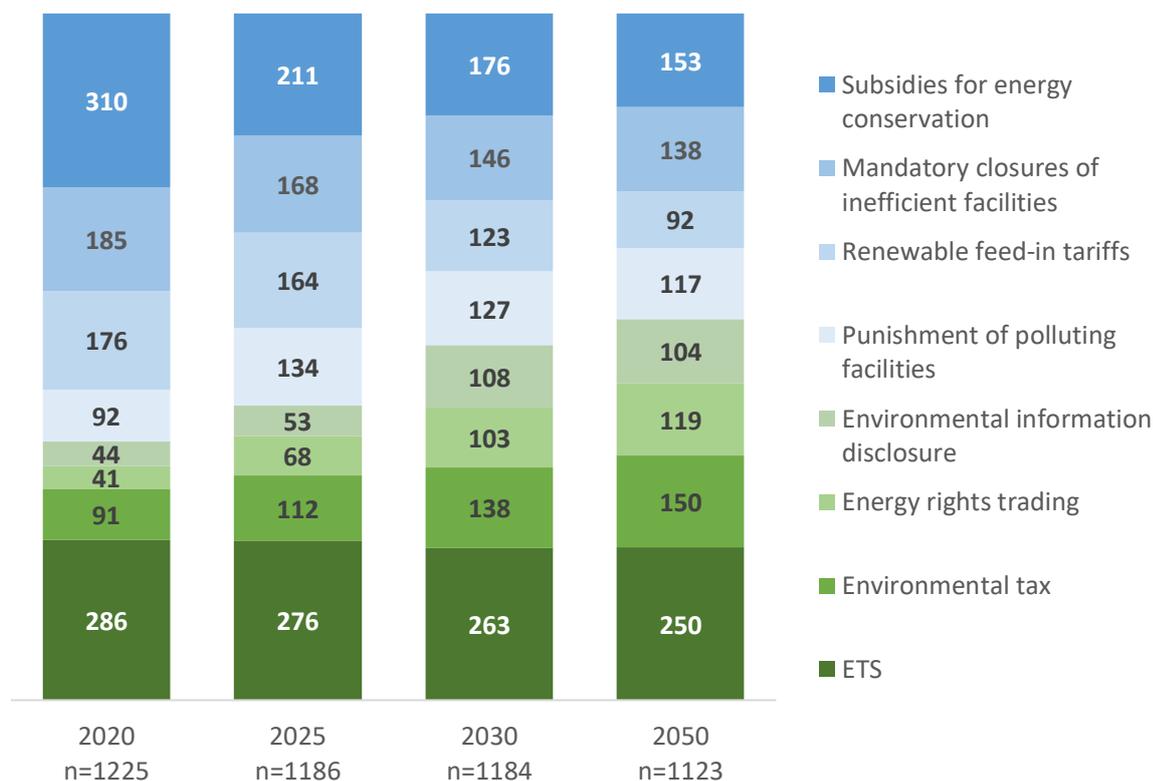


Figure 57 Which do you expect to be the most important policies in motivating companies to reduce GHG emissions in China at different points in time? (n respondents=502; n choices=1225)

¹⁰ 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.

Peak emissions

In September 2020, President Xi Jinping increased China's climate ambition by committing to peak its emissions of carbon dioxide from energy consumption 'before 2030' (up from 'around 2030'). This survey was conducted a few months before that announcement. 80% of respondents expect China to achieve the carbon emissions peak by 2030, and 36% expect China's emissions to peak by 2025 or earlier. These results are consistent with the 2019 survey. It is noteworthy that 12% of respondents are now of the view that China's CO₂ emissions have either already peaked or will peak in 2020, up from 10% last year and down from a high of 25% in 2017. The COVID-19 situation may play a part in these results.

China's emissions are expected to peak ahead of 2030

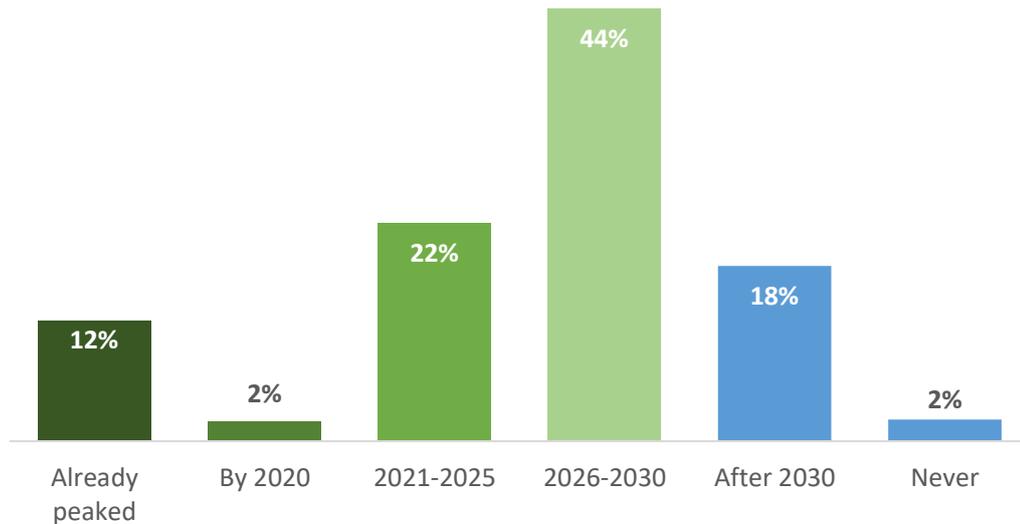


Figure 58 When do you expect China's emissions will peak? (n=461)

Appendix 1: Key policies issued for the pilots in 2019-20

<p>Shenzhen</p>	<ul style="list-style-type: none"> ✓ The number of covered entities in 2019 is 721. ✓ No significant development in 2019-20 on market policy. ✓ China is promoting QFII to participate in domestic carbon emission trading in foreign exchange or CNY. Shenzhen pilot is the first market open to QFII in 2014. As of May 2020, the cumulative trading volume of overseas investment institutions exceeded 10 million tons, with a trading amount of 240 million CNY, accounting for 20% and 16% of the trading volume and amount of Shenzhen pilot respectively. ✓ Shenzhen Administration for Market Regulation released an announcement in Feb 2020 to put on record for the new inspectors and institutions that need to be re-filed in 2020.
<p>Beijing</p>	<ul style="list-style-type: none"> ✓ The number of covered entities in 2019 is 843, and another 634 entities are required to submit the report. ✓ The scope of the adjustment mechanism has been expanded and optimized, to avoid overallocation as a result of plant closures or reductions in production beyond a certain threshold. ✓ In the allowance allocation method, coal-fired units are cancelled in the thermal power generation industry. ✓ Beijing released its 2019 allocation plan in April 2020. The historical base year for the approved emission allowances is adjusted from 2009-2012 to 2016-2018; The emission control coefficient of some industries is subdivided; The "accounting period" of new emission facilities is adjusted to be put into operation after January 1, 2019. And the application material requirements have changed. (The above does not change the allocation method in essence, but only changes in the data year in the calculation formula.)
<p>Shanghai</p>	<ul style="list-style-type: none"> ✓ The number of covered entities in 2019 is 313. ✓ The cap of 2019 is 158 million tons. ✓ The allocation scheme for 2019 adjusts the ratio of one-time free allowance, only companies using the grandparenting method would receive the free allowance at one time, while those using other methods would receive only 80 per cent of the allocation on first allocation. ✓ The restriction of CCER usage ratio is reduced (2018 is no more than 1% of basic allowance, 2019 is 3% and 2% of total emission base on different situation). ✓ Some parameters related to emission calculations for the power grid and heating industry are adjusted and optimized. ✓ Compared with 2018, the proportion of allowance allocation of enterprises based on intensity method and grandparenting method will increase by 0.5% - 1% in 2019. ✓ Shanghai pilot held an allowance auction in August 2020, which is the first time that Shanghai is open to both covered entities and institutional investors.

Guangdong	<ul style="list-style-type: none"> ✓ 242 enterprises were covered in 2019, slightly lower than previous year. ✓ The cap of 2019 is 465 million tons, among which 27 MtCO_{2e} are kept as government reserves for new entrants and market stability ✓ The allocation method for steel, power and cement industries are optimised. ✓ The amount of allowance auction in 2019 increase from 2 million tons in 2018 to 5 million tons.
Tianjin	<ul style="list-style-type: none"> ✓ 125 enterprises were covered in 2019, slightly higher than previous year. ✓ On June 10, 2020, the general office of Tianjin municipal government issued ‘the Interim Measures for the management of carbon emission trading in Tianjin’, updating and optimizing the provisions of the previous version.
Hubei	<ul style="list-style-type: none"> ✓ The cap of 2019 is 270 million tons, among which 8% of the cap are kept as government reserves for new entrants and market stability. ✓ 373 enterprises were covered in 2019, slightly higher than previous year.
Chongqing	<ul style="list-style-type: none"> ✓ The number of covered entities in 2019 is 195 and 113 of them are ready to be included in the national carbon market.
Fujian	<ul style="list-style-type: none"> ✓ 329 enterprises were covered in 2019 (245 existing ones and 84 new entrants). ✓ No significant development in 2019 on allocation method.

Table A-1 Key policies issued for the carbon trading pilots in 2019-20.

Appendix 2: CCER registration and issuance status

As of Oct 30, 2020, 2,856 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 publicly available.

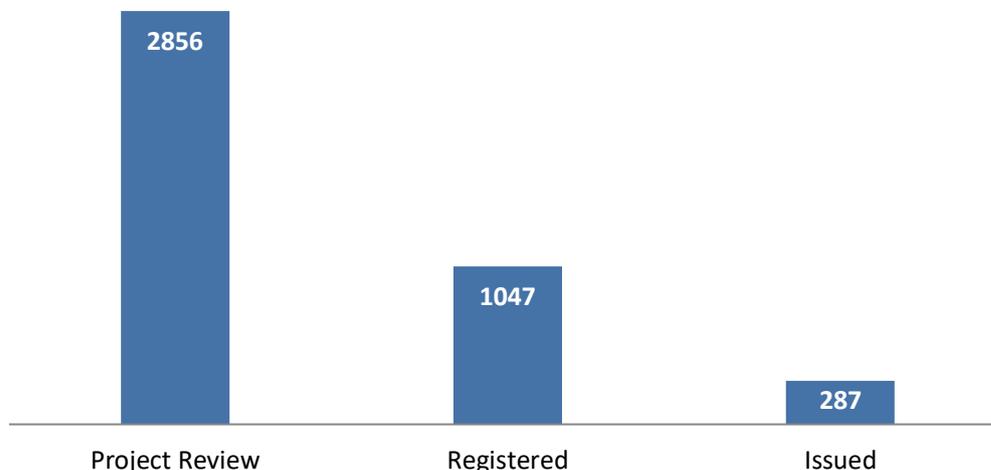


Figure A-1 Number of CCER projects.

Of these 254 projects, 139 are Type I (18.9 million tons of CCERs issued), 17 are Type II (3.7 MtCO₂e), and 98 are Type III (30.3 MtCO₂e).¹¹ 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
MtCO ₂ e	12.5	13.4	2.7	6.3	52.9

Table A-2 Publicly detailed CCER projects, as of Oct 30, 2020

¹¹ 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.

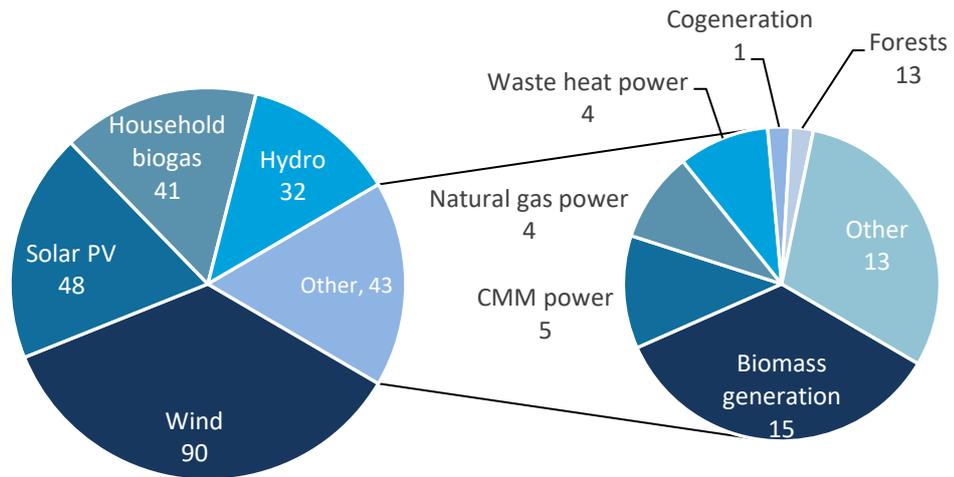


Figure A-2 CCER projects by type (number of projects issued)

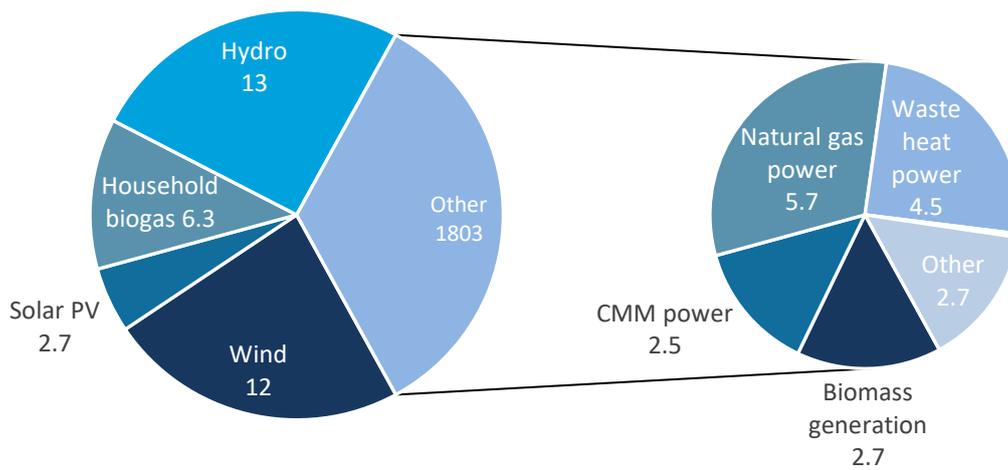


Figure A-3 CCER trading volume (million tons)

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 organizes 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 and low carbon related services. The firm has offices and energy/climate experts in the U.K., China, India, Nepal, Europe and North America. ICF has over 1,500 professional employees dedicated to the study of climate change, energy, and environmental issues. ICF's Beijing office, brings in-depth knowledge of the key energy, environment, economic, and policy issues in China with a 20-year plus track record of continuous climate policy capacity building in China and an extensive network of partners and relevant stakeholders. ICF was awarded the best Advisory/Consultancy in China Carbon Markets by Environmental Finance Magazine in the "Annual Market Rankings" for two years in a row (2017 and 2018).

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 Norwegian Environment Agency is working for a clean and diverse environment. Its primary tasks are to reduce greenhouse gas emissions, manage Norwegian nature, and prevent pollution. It is a government agency under the Ministry of Climate and Environment and has 700 employees at its two offices in Trondheim and Oslo and at the Norwegian Nature Inspectorate's more than sixty local offices. It implements and gives advice on the development of climate and environmental policy. It is professionally independent. This means it acts independently in the individual cases that it decides and when it communicates knowledge and information or gives advice.

Project funders



The Royal Norwegian Embassy

China and Norway have worked together on environment and climate issues for more than two decades. Through the Norwegian Embassy in Beijing, the Norwegian Ministry of Foreign Affairs supports projects that contribute to 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.



Environmental Defense Fund

Founded in 1967 and headquartered in New York, Environmental Defense Fund (EDF) is one of the world's leading environmental organizations. EDF has more than 2.5 million members, a staff of nearly 700 professionals, and 12 offices around the world including the United States, China, United Kingdom, and Mexico. Areas that EDF works in include: climate and energy, oceans, ecosystems, health, etc. Since inception, EDF has been guided by principles of science and economics to find practical and lasting solutions to the most serious environmental problems.



Energy Foundation China is a professional grantmaking charitable organization registered in California, U.S. It has been working in China since 1999 and is dedicated to China's sustainable energy development. The foundation's China representative office is registered with the Beijing Municipal Public Security Bureau and supervised by the National Development and Reform Commission of China.

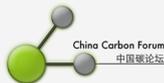
Our vision is to achieve prosperity and a safe climate through sustainable energy. Our mission is to achieve greenhouse gas emissions neutrality, world-class air quality, energy access, and green growth through transforming energy and optimizing economic structure. We deliver the mission by serving as a grantor, facilitator, and strategic advisor.

As of 2019, Energy Foundation China had funded 2,893 projects operated by over 760 grantees in China, with total funding amount over 330 million dollars. Our grantees include leading policy research institutes, academies, industry associations, local energy efficiency institutions, and NGOs in China and abroad, such as the Development Research Center of the State Council, the Energy Research Institute of the National Development and Reform Commission, the National Center for Climate Change Strategy and International Cooperation, the Chinese Academy of Environmental Planning, the Chinese Academy of Sciences, the Chinese Academy of Social Sciences, Tsinghua University, the Institute of Public and Environmental Affairs, the Innovation Center for Energy and Transportation.

2020 CHINA CARBON PRICING SURVEY



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