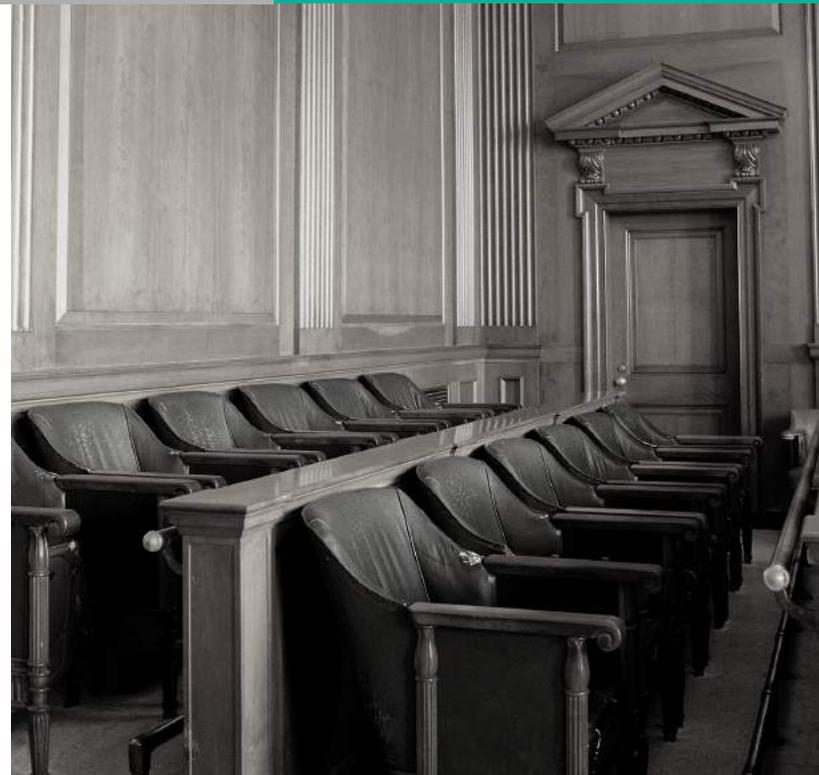




Governance of China's National Carbon Market

Leveraging Finance for Green Policy Briefs

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ABOUT THE AUTHOR



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EXECUTIVE SUMMARY

China's national carbon market, also known as its emission trading system (ETS), was launched in December 2017 and is the centerpiece of China's climate mitigation policies. It is both an environmental policy tool and an artificial financial market with dual objectives—to achieve an environmental target and to do so at cost-effective levels. In any financial market or in any design of an effective environmental policy, a clear governance system is essential to ensure proper implementation and enforcement, and to create incentives for compliance and risk certainty for long-term strategies.

An ETS governance system must be overseen by a high-level central government entity with the legal mandate to authorize and implement a regulatory agenda for market operations, monitoring, reporting, and verification (MRV) systems, and for compliance assessment. It should also provide strategic guidance for continued development of the national market and implement robust regulatory processes for governance of the national ETS, which would effectively be the basis for carbon price-setting. Together, standardized guidelines and infrastructure at the central government level should provide the foundation for ETS work at the regional and local levels.

Currently, the governance of China's national ETS is in the hands of the newly established Ministry of Ecology and Environment's (MEE) Department of Climate Change, formerly housed within the National Development and Reform Commission. In order for China's ETS to be effective, MEE regulators must coordinate not only with sub-national governments, but also with central financial regulators to set broader market policies, trading regulations, and oversight of carbon trade exchanges. In addition, the range of stakeholders and interests are broad and should be accounted for in the design of an effective national ETS governance for China.

In this early phase of ETS development, it is prime time to offer counsel for consideration. In light of global and regional carbon market experiences, the following recommendations are proposed to help guide the development of the governance structure for China's ETS.

- Establish a high-level working group reporting directly to the State Council to have primary responsibility for carbon market design, to facilitate cross-ministry dialogue and decisions, and to maintain policy cohesion between carbon markets and other political and economic agendas.
- Engage with stakeholders to ensure buy-in. This includes external outreach to industry and sector organizations, regional climate and environment agencies, and other environmental, energy and economic policy makers, and internal connections with other regulatory agencies.
- Leverage existing infrastructure to provide a strong foundation for the ETS. This would include adding carbon allowances as another type of permit in the current platform for the pollutant emission permitting system in the MEE's Department of Environmental Impact. The environmental enforcement functions in place under the Environmental Protection Law could be engaged for compliance.
- Establish a multidisciplinary task force to provide independent opinions and recommendations and to facilitate timely adjustments to the ETS.
- Emphasize transparency to promote confidence in the ETS. National ETS risk evaluations should be conducted to effectively design supportive financial regulations.
- Establish a national carbon trading system to realize fair exchanges and transparent prices and to put a price on carbon for market players.

These recommendations are not an exhaustive list and should be considered as a starting point for debate and experimentation. Governance is just one part of the equation for the design of China's national ETS, yet it is a key structural component for success.

INTRODUCTION

China has emerged as a champion of climate action and an advocate for sustainable development. There are countless theories about its motivations, but the most likely reasons are the highly visible environmental effects of unchecked air, soil, and water pollution, and of widespread deforestation spurred by rapid economic development. President Xi has been vocal about environmental protection, identifying it as one of China's "three tough battles". In his speech at the 19th Chinese Communist Party Congress in October 2017, Xi said China is "taking a driving seat in international cooperation to respond to climate change". He has also recently mentioned environmental goals at key policy speeches including his 2019 New Year's address regarding 40 years of opening up and reform. But as China seeks to find solutions, it will have to balance the call for environmental protection and the demand for robust economic growth.

The national carbon market, or emission trading system (ETS), has emerged as the centerpiece of China's climate mitigation policies. The intent to establish a national carbon market was announced during President Xi's state visit to the United States in 2015, though pilot regional carbon markets had been in operation since 2013, and it was subsequently included in China's 13th five-year plan. The commitment from the highest levels of government to a robust ETS is clear, which should indicate a broad and continued official effort.

By nature, national ETS design and development is a formidable undertaking. The complexities are rooted in the dual role of China's ETS as both an economic instrument and an environmental policy tool. In China, the government is committed to leveraging more market-based instruments (MBI) to advance the country's clear environmental and climate goals. As the world's largest MBI experiment by far, China's ETS will demonstrate the value of MBIs, and so the design and implementation of this program can provide valuable experiences to other emerging MBIs.

The official launch of China's national ETS in 2017 sent a long-term signal to carbon emitters that they would have to take responsibility for their emissions. The design of the national ETS must account for both China's economic and environmental goals, and anticipate effective allocation of governance responsibilities among the respective authorities. As such, the entire ETS compliance cycle, including emissions data monitoring, reporting, and verification (MRV), cap-setting and allowance allocation, is a work in progress. However, this is an especially valuable discussion for both regulators and regulated entities at the onset of policy development.

This policy brief explores the functions and roles of various stakeholders and examines feasible governance structures as the national carbon market continues to take shape. The following sections will provide a lay of the land for the governance of the ETS including the regulatory actors that have been mandated to establish the national ETS and the policies that have been ratified to enable the development of the systems and procedures around the market. After an exploration of some important questions in designing a comprehensive governance ecosystem for the national ETS, this brief will offer recommendations to consider.

It is both an environmental policy tool and an artificial financial market with dual objectives—to achieve an environmental target and to do so at cost-effective levels.

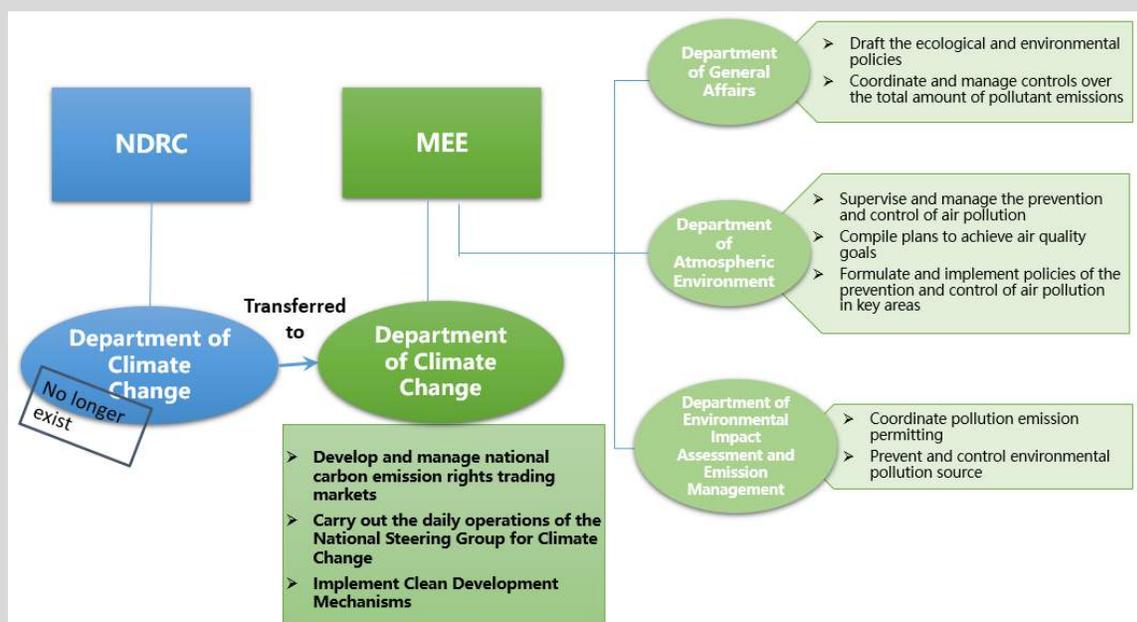
ETS GOVERNANCE LANDSCAPE

The establishment of a strong and efficient national carbon market is China's key to triumph in the battle to address environmental concerns, particularly climate change. The ability to tackle the emission of carbon at scale and with market-competitive pricing would be a vital tool to help China achieve its dual objectives—to reach an environmental target and to do so at cost-effective levels that promote low-carbon growth.

To master these objectives, a clear governance system is essential. This will ensure proper implementation and enforcement of the program, and create the proper incentives for compliance. Various market participants, from obligated entities to investors, also need the certainty provided by a well-defined and communicated governance system in order to inform their short-term actions and long-term strategies.

In March 2018, China announced a bureaucracy restructuring plan, that included significant environmental governance reorganization, which consolidated environmental policymaking, including climate change, into the newly formed Ministry of Ecology and Environment (MEE), headed by Minister Li Ganjie. The Department of Climate Change, which is the national ETS regulator, has moved from the National Development and Reform Commission (NDRC) to MEE under this shift, but still reports to Vice Premier Han Zheng. This move is expected to better streamline the overlapping functions between MEE's traditional responsibilities and as ETS regulator.

In August 2018, the MEE's Plan on Responsibilities, Departments, and Staff was approved, which officially confirmed that the Department of Climate Change would be in charge of climate mitigation actions and policies. This effectively confirmed that the Department of Climate Change will be the regulatory body for the national ETS under MEE.



An intricate web of stakeholders with entrenched interests are involved in the national ETS that was announced in 2017, which is in a design and development phase with high expectations for 2020. The current ETS is mandated to start by focusing solely on the thermal power generation industry, and is subject to existing guidelines governing rights-trading markets.

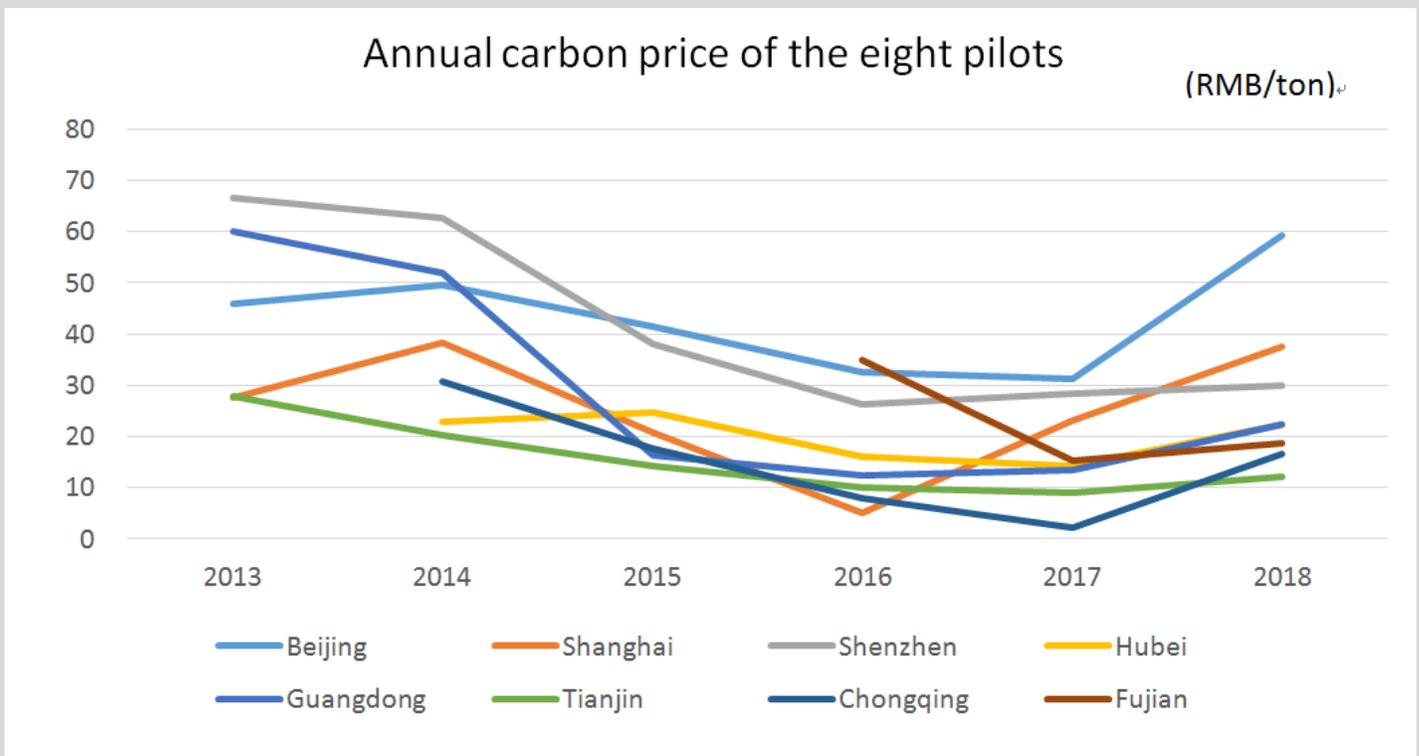
With an understanding of the major elements that comprise the governance of the national ETS, there are some strategic issues to discuss if 2020 will feature an operational market for power-sector carbon trading. The oversight management of the national ETS together with the current regulatory governance regime will need to address designations of carbon allowances, delineations of central and regional government responsibilities, best practices for streamlining MEE functions, and fostering the enabling environment for ETS governance.

Oversight Management of the National ETS

Standing up a carbon market requires multiple components including but not limited to underlying procedural rules and regulations, emissions data management systems, and monitoring and enforcement mechanisms. The oversight management of all the parts that comprise a national ETS is therefore one of the first strategic objectives to address in order to have an efficient and effective ETS.

Design and Implementation Oversight

If the national carbon market in China is to be successful, the governance system must be overseen by a high-level entity with authority above MEE, with the legal mandate to permit and implement the regulatory agenda, including market operations, MRV systems, and compliance assessment. The high-level entity should also provide strategic guidance for the development of the market.



Among the existing ETS pilots in China, the most successful markets are supported by high-level government entities that have such legal mandates to operate their respective pilot markets and enforce its rules. In short, senior level political support facilitates strong program design that incorporates perspectives from both technical and political stakeholders. For example, Beijing and Shenzhen's ETS pilots have ETS regulations approved by local legislatures—standing committees of the local National People's Congress (NPC). While it is important to consider that these are two first-tier cities, the legal mandate and strong governance of these two pilots have nevertheless contributed to the development of the strongest carbon markets, as indicated by the highest and most stable trading prices.

There are international examples that support the need for a legal mandate and strong governance as well. California's cap and trade mechanism is the core of the state's climate change law – Assembly Bill 32 – signed in 2006. Further legislation authorized the Air Resources Board (ARB), the state's climate regulatory agency, to adopt cap-and-trade regulations in 2011. In 2017, California enacted a new climate law extending its carbon market until 2030.

The involvement of high-level government officials in the design and approval of California's carbon market demonstrated strong political support. The ARB has been given the legal authority to design, implement, and operate the cap-and-trade program. It had official support to design strong incentives for compliance and to enforce the rules, and its Chairwoman reported directly to the Governor, encouraging clear lines of communication and mechanisms for action.

In establishing its own national carbon market, MEE is pushing the proposed national carbon market regulations to be approved by China's top legal authorities, and there remains a need for a high-level working group led by the State Council or Central Financial and Economic Affairs Commission. It would have the primary responsibility for handling carbon market design, facilitating cross-ministry dialogue and decisions, and maintaining policy cohesion between carbon markets and other political and economic agendas.

Engagement and Transparency

As mentioned earlier in this brief, the MEE's Department of Climate Change is authorized to make decisions about the key features of the ETS, but is not able to design it effectively without engaging the right stakeholders at multiple administrative levels. Stakeholders include, but are not limited to, industry and sector organizations, regional climate and environment agencies, and other environmental, energy, and economic policy makers.

Significant interactions between the national ETS and other climate, environmental, and economic policies are expected. Therefore, the policy design of the ETS cannot be done in isolation from other policies. For instance, consider financial stability, which is another high priority on the government's agenda. While market players are eager to explore carbon financial instruments and other trading opportunities, it will be the responsibility of financial regulatory agencies to balance market liquidity and stability while setting rules and guidelines to parallel the cap-setting, allocation, and other policies implemented by environmental agencies.

Further, policies for the ETS should align with other carbon and local pollutant mitigation actions already in place and under discussion. Carbon allowance trading is only one of the four environment-related trading systems identified in the 13th Five Year Plan. These mechanisms can only be effective when these frameworks and their policy makers achieve coherence.

Many key elements of the ETS depend on buy-in from other agencies, which speaks to the importance of engagement from the start. The significance of buy-in is most evident in the debate over whether to auction allowances. Empirical and theoretical evidence show that this can be a better option than free distribution of allowances.

Yet institutional incoherence among relevant stakeholders makes the adoption of the auction argument difficult to rationalize. From the experiences of the established pilot zones, Guangdong is the only ETS with significant consignment auction of allowance successfully implemented, as modeled by California. Because revenue generated from auctions is directed to the general budget of local finance agencies, instead of the local authority of local Ecology and Environment Bureaus (EEBs) and/or local development and reform commissions (DRCs), auctions may not sufficiently incentivize carbon mitigation. This barrier also applies at the central level between MEE and the Ministry of Finance, and between the ETS policy makers and the country's treasury.

In short, senior level political support facilitates strong program design that incorporates perspectives from both technical and political stakeholders.

Review and Revision Oversight

An effective ETS will evolve over time. The existing carbon markets in the world did not start with a perfect design; China will not be an exception. It will be important to establish a set of protocols for policy makers to follow and keep a close eye on the system to make timely adjustments. Such protocols and rules should also be made available to the public to send a long-term signal to market players for planning purposes.

In addition to monitoring conducted by the ETS regulatory agency, it would be advantageous to establish a multidisciplinary task force to provide independent opinions and recommendations that contribute to the advanced design and operation of the ETS. The task force could be housed within MEE, and would be comprised of a variety of stakeholders from the Ministry of Finance, NDRC, China Securities Regulatory Commission (CSRC), and independent experts. The task force would be called upon to provide a formal annual review of the ETS and provide suggestions for improvement.

Among all the features of an operational ETS, review and revision of the cap is a particularly important one. Cap-setting is the process of identifying the maximum level of allowable carbon emissions for the ETS and is fundamental to the design of a carbon market because it defines the emission mitigation objectives. The task force should weigh in on the cap to provide an unbiased and multi-faceted perspective.

The cap is also essential in determining the allowance prices, which will be explained in the following section. The number of allowances issued to the market reflects the current and anticipated scarcity of the "goods." To garner more support for an ETS, many systems, including China's, launch with a less ambitious cap target. This often leads to over allocation, but the regulatory agency should make it clear that it reserves the right to adjust the cap according to a set timeframe.

Regulatory Governance of National ETS

The governance of the national carbon market in China is highly dependent on the role of carbon within the country's environmental regulatory system overall. With an increasingly highlighted focus on environmental governance from the most senior Chinese leaders, there is an opportunity to keep carbon top of mind.

Goals of low-carbon growth and carbon emission reductions are more attainable with robust regulatory processes in place for governance of the national ETS, which would effectively set the price for carbon. This starts with defining the legal nature of carbon allowances, the differentiation between central and regional governments, and streamlining MEE functions as related to the national ETS.

Legal nature of carbon allowances

The legal nature of carbon allowances has a significant influence on the governance of the national carbon market in China, and it has not been previously harmonized or clearly defined as in the other established carbon markets. Carbon allowances have been described variably as financial instruments, intangible assets, property rights, and state property or commodities.

It is important to define the legal aspects of carbon allowances because they will determine key elements of a functional carbon market, including, but not limited to:

- Who will rule on issuance, transfer, and cancellation of allowances;
- Whether allowances are subject to financial regulations; and
- How allowances will be treated in accounting rules.

Specifically, in China's case, there is a vigorous debate over the definition of carbon allowances as lawful private property, which is protected by the constitution. If the nature of carbon allowance is defined as a property right, then the government would have less flexibility to rule on the operation of the carbon market, which will affect the property rights protected by the constitution. The government's restricted ability to adjust certain rules to meet environmental objectives, including the amount of allowances issued over the short and long term, the price ceiling and/or floor, and MRV requirements, illustrates the downsides of this approach.

An alternative legal definition identifies carbon allowances as tradable administrative permits. This definition may be a superior alternative due to the lack of legal foundation for the national ETS. By contrast, an existing law already provides authority for regulators to issue tradable administrative permits on pollution. The NPC passed the Administrative Permit Law in 2003, which instituted a legal foundation for issuing administrative permits and for auctioning as a means of distribution.

The Administrative Permit Law gives Ministries authority to set up rules to make these permits tradable. Under this framework, the Ministry of Environmental Protection (MEP)—the MEE's predecessor—published the Measures for Pollution Discharge Permitting Administration in 2018, which established the processes by which the Ministry will manage and operate pollution permits. This governance framework could be extended to cover carbon allowances.

Differentiation between central and regional governments

With President Xi's emphasis on promotion of green and sustainable development goals for future generations, most environmental and energy policies are designed and supervised by the central government; the national ETS will be no different. The central government takes on this role to ensure consistency and fairness, preserve environmental integrity, and ensure the resulting emission reductions are aligned and complementary with other nationwide policies, including Nationally Determined Contributions (NDCs) and other international commitments. The central authority can also prevent potential undermining of the system that might occur under a decentralized design.

The current plan suggests that the central government will provide standardized guidelines and infrastructure, such as the registry and reporting systems, which are the foundation for ETS work at the regional level. Having a centralized design and system can increase harmonization across different regions, especially on MRV rules, and can allow for the development of a single registry for all of China. This will reduce transaction costs for companies to comply with the national ETS. The EU ETS went through such an evolution, moving from a multiple emissions allowances registry to a single Union Registry. By replacing 31 national registry administrators with one single registry operated and maintained by the European Commission, the EU increased the accuracy and security of allowance transactions.

China's plans also suggest that the national ETS will eventually cover 7,000 companies from eight sectors. With limited capacity at the central level, there is a need for regional agencies to implement and enforce the ETS, including allocating allowances, validating emission reports, and assessing compliance. This is detailed in the Temporary ETS Regulatory Measures published by the NDRC in December 2014.

The administrative reorganization in 2018 moved the regulatory roles of ETS to local EEBs from local DRCs. However, predating this change, the capacity to operate the ETS was already insufficient in many regional DRCs, and now many of the staff who originally worked on climate change and ETS at regional DRCs have stayed with DRCs; they did not move to regional EEBs. There is significant capacity building needed at the regional level to ensure that the national ETS can be implemented properly at all levels.

In most provinces and cities, the staff that will operate the national ETS will be the staff that have conventionally worked on local pollutants, with little experience in climate change and ETS. Many of them have not been properly trained by various initiatives on ETS, which speaks to the demand for new and revised training programs to tailor their skillsets to carbon market management.

Streamline ETS Regulatory Governance with MEE's Functions

Formerly MEP, the MEE was officially announced in March 2018 and retains much of the MEP's routine responsibilities, ranging from implementation to enforcement. The pollutant emission permit and allowance management system, and the enforcement mechanisms that MEE currently has, potentially provide a foundational basis for the nascent national ETS.

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Permit/allowance management

The State Council released the Implementation Plan for the Licensing System to Control Pollutant Emission in 2016, which authorized MEP and its Department of Planning and Finance (DPF) to establish and manage a pollutant emission permitting system. Under the newly-formed MEE, it will be the Department of Environmental Impact Assessment and Emission Management (DEIAEM) that officially takes on this responsibility, which includes issuing local pollutant emission permits, monitoring actual emissions and its consistency with permits, disclosing permit information, and monitoring data.

As these are the same features needed for a carbon allowance management system, we suggest using the existing pollutant emission permitting platform and adding on a carbon allowance as another type of permit. For instance, under the current pollutant emission permitting system, DPF issues air pollutant emission permits, taking into consideration emission standards set by the Department of Air Quality Management. The carbon ETS could adopt the same model, whereby the total amount of carbon allowances and their allocation methodology would be determined by the Department of Climate Change and managed by DEIAEM. The DEIAEM could also be responsible for publishing company-level carbon emission data, which is currently lacking in China's climate policy arena.

Enforcement

China's new Environmental Protection Law, effective as of 2015, granted greater authority to the MEP, now MEE, and local environmental protection bureaus to supervise and sanction local pollution. The law established a much harsher penalty system, including continuous penalty on a daily basis for noncompliance, suspension of business, seizure of facilities, and administrative detention. But it does not monitor carbon dioxide or other greenhouse gases (GHGs) at this point.

In March 2015, under the Law, the local Environmental Protection Bureau in Suzhou issued its first bill of RMB 216,000 for a company's excessive discharge and refusal to address in a timely manner. As of the end of 2017, enforcement action by the Central Environmental Inspection Team, a body created by Xi with the directive to review and monitor local implementation of environmental policies, held 29,000 businesses and more than 18,000 people in violation. In 2018, the Team addressed over 60,000 environment-related cases and penalized over 8,000 individuals.

However, under the current ETS regulatory framework, the legal foundations to enforce noncompliance are generally weak and non-standard. For example, in the Tianjin ETS pilot, there is no penalty for noncompliance where companies fail to surrender sufficient allowances according to their actual emissions. In the Guangdong ETS pilot, companies that fail to comply face a maximum penalty of RMB 50,000. On the contrary, due to its authority under the Law, Guangdong Ecology and Environment Department issued penalties of RMB 440,000 on average for local pollution noncompliance, according to statistics during January and November 2018.

Since it will take longer to pass a similar law on climate change to regulate GHGs in China, we argue that leveraging existing environmental enforcement functions can provide a legal regulatory tool to enhance implementation and provide sufficient incentives for companies to comply under ETS. This could also translate into greater and faster standardization nationwide. It is worth exploring the possibility of revising the Law to treat GHGs as local pollutants, which are already covered, so the MEE would have the legal basis for regulating GHGs via policy tools like ETS.

Enabling Governance of ETS

Aside from environmental regulation responsibilities, the government should also ensure the systematic and efficient operation of carbon allowance trading and provide enabling conditions that facilitate market players' participation in the national ETS. This speaks to the aforementioned dual objectives of the ETS and thus the necessary engagement from the financial regulators.

In providing the strong governance for the national ETS, the coordination efforts and clarity between the MEE's Department of Climate Change and financial regulators becomes important in addressing conflicts with broader financial regulations for China's financial markets; building the national carbon registry; and establishing the national exchange and trading platforms.

Conflicts with broader financial regulations

Carbon exchanges are subject to existing guidelines governing the trading markets. The CSRC is responsible for enabling carbon allowance futures contracts and regulating exchange centers. Like the other financial regulatory agencies, it has a risk-based regulatory approach that leads to conflicts between its existing commodity market regulations and general applications for the ETS.

For instance, to enhance financial stability associated with the trading markets, the State Council published two documents in 2011 and 2012 that had significant implications for carbon trading exchanges. Following those guidelines, the CSRC currently does not allow the pilot markets to carry out standardized trading, continuous trading, or call auctions. This creates a very limited trading frequency environment that severely restricts market liquidity.

The CSRC, jointly with the MEE, is expected to conduct specific evaluations of risks related to the national ETS to better design the supporting financial regulations. As such, to establish a robust governance framework for carbon trading centers, these existing guidelines must be considered.

National Registry

A national registry is a common platform for establishing and tracking ownership of carbon allowances. This would be one registry for the single purpose of registering allowance balances for market participants nationwide—instead of having multiple registries on a provincial level. A single registry can improve the efficiency of the verification of each allowance, reduce transaction costs, and prevent potential fraud.

For reference, in the early stages of the EU ETS, it had a decentralized registry, where there were 31 national registries consolidated at the EU level. Such a structure created loopholes for fraudulent activities, including value-added taxes fraud and phishing scams. That is why the EU replaced it with a single union registry, operated and maintained by the European Commission at the supranational level.

Based on the latest information, the Department of Climate Change has commissioned the Hubei provincial government to develop the national registry with technical support from the Hubei Environmental Exchange, which leverages experiences from the pilot. So far, a work plan to establish the national registry has been completed and proposed by the Hubei provincial government. Once a national registry is established, then a national carbon regulatory agency should manage its operation. Carbon emission information tracked in the registry should also be made publicly available to increase the transparency of the national ETS and enhance confidence of market participants in the ETS.

Regarding the registry of China Certified Emission Reduction (CCER), which are credits generated through mitigation projects and accepted by ETS pilots for offsetting, it is the National Center for Climate Change Strategy and International Cooperation (NCSC) that hosts this registration process. Although it is unclear as to how these credits can be used under the national ETS, it is necessary to have a plan to harmonize these two registries of carbon allowances and CCERs.

Aside from environmental regulation responsibilities, the government should also ensure the systematic and efficient operation of carbon allowance trading and provide enabling conditions that facilitate market players' participation in the national ETS.

National Exchange and OTC trading

Carbon trading can happen in organized markets/exchange or over the counter (OTC). Exchanges provide a common platform of information regarding the tradable commodity—carbon—for both market participants and regulators. This predictability of carbon trading on exchanges is reflected in rigid contracts that have standardized offers for carbon allowances, including an acceptable amount and type of collateral requirements in volume and time of future credits. In contrast, two parties directly execute OTC transactions, and this process is therefore more decentralized and less regulated. This type of trading which allows more flexible contracts with tailored offerings for participants and has no clearing house of information, requires more management.

While about half of the carbon allowance trading in China's pilot markets are OTC, the benefit of having an organized market/exchange is to enable fair-entry rules and prices that accurately reflect allowance value for market participants. A national exchange can also play a supportive role in ensuring an efficient market to carbon regulatory agency.

The Department of Climate Change has commissioned the Shanghai Municipal Government to build a national exchange and trading platform with technical support from the Shanghai Environment and Energy Exchange. While the Shanghai municipal government is developing a national trading platform, the central government is expected to take responsibility of its operation directly. In this scenario, the role of existing carbon trading exchanges might be extended to broker-dealers.

One precedence of existing national carbon trading exchange engagement is the Climex Alliance in the EU. Climex Alliance is comprised of six European regional exchange partners, with access to "the fully fungible spot carbon contract on the Climex platform creating a single pan-European pool of liquidity."

To optimize the practical experiences and resource advantages of the pilot markets, Shanghai and Hubei are tasked with leading the construction of the registration system and the trading system respectively, in coordination with the other regional pilots. Together with the national registry in Hubei, the carbon exchange and trading platform in Shanghai will be the two pillars of China's national carbon market. The national registry will be an information hub serving as a data resource for market participants, regulators, and other stakeholders. It will also support the overall efficiency of the national carbon exchange and trading platform where trading would occur.

RECOMMENDATIONS

China's national carbon market is officially in its second year. While the market remains focused solely on the emissions of the power sector, there is much anticipation for integration with other industries. How does China's national carbon market ultimately achieve those high expectations? What are the necessary steps to take and what are some of the foundational elements that must be addressed to begin to move toward a fully functional market that covers the power sector, and eventually the other industrial sectors, on a nation-wide scale?

The governance of the national carbon market is key to its success. By providing the regulatory guidance and framework to design, develop, and execute the national market, a thorough and systematic governance structure will provide a solid foundation to build upon as China's national carbon market experience matures. The following list of recommendations, far from an exhaustive list, are some suggested action items.

1. Establish a high-level working group reporting directly to the State Council to have primary responsibility for carbon market design, to facilitate cross-ministry dialogue and decisions, and to maintain policy cohesion between carbon markets and other political and economic agendas.
2. Engage with stakeholders to ensure buy-in. This includes external outreach to industry and sector organizations, regional climate and environment agencies, and other environmental, energy and economic policy makers, and internal connections with other regulatory agencies.
3. Leverage existing infrastructure to provide a strong foundation for the ETS. This would include adding carbon allowances as another type of permit in the current platform for pollutant emission permitting system in the MEE's Department of Environmental Impact. The environmental enforcement functions already in place under the Environmental Protection Law could easily provide the tools and incentives for ETS compliance.
4. Establish a multidisciplinary task force to provide independent opinions and recommendations and to facilitate timely adjustments to the ETS.
5. Emphasize transparency to promote confidence in the ETS. National ETS risk evaluations should be conducted to effectively design supportive financial regulations.
6. Establish a national carbon trading system to realize fair exchanges and transparent prices and to put a price on carbon for market players.

CONCLUSION

One of the key barriers to furthering climate mitigation actions is the underpricing of carbon emissions. Carbon trading can be one useful tool to correct this, and its success depends on clear and effective governance.

The multi-stakeholder nature of carbon trading makes its oversight and operation complex, both technically and politically. Since there is limited evidence of MBI governance in China, the design of ETS governance should be very carefully conducted.

Carbon market stakeholders need clear rules and stable regulatory frameworks to inform their decisions—in the short and long term. Well-established and aptly communicated regulations and decision-making procedures can simplify participation and reduce transaction costs for market players.

A national ETS alone will not propel China along the emissions reduction trajectory defined by the Paris Agreement. The ETS experiment and its governance will provide valuable experiences for other existing and emerging carbon policy tools. This mixture of command-and-control with market responsive economic tools can formalize a policy package that achieves effective carbon governance and gets China closer to reaching its national climate mitigation goals.