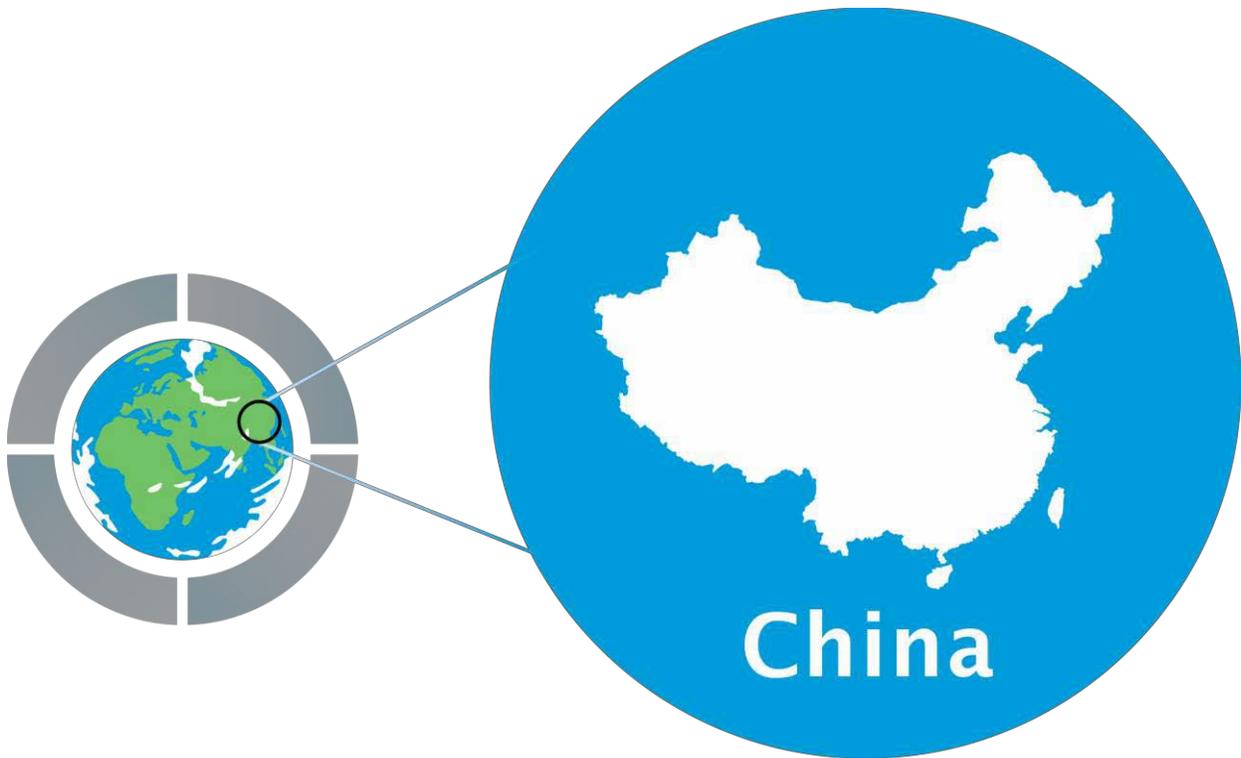


CHINA: AN EMISSIONS TRADING CASE STUDY



China: An Emissions Trading Case Study

September 2016

This case study incorporates all Chinese government measures over the past six years related to the development of China's emissions trading policies. The author has reviewed the most relevant government documents to inform this case study. It is divided into two parts: a summary of the seven ETS pilots in China to date, followed by a progress report on China's national emissions trading system (ETS) which is currently under development.

TIMELINE TO A NATIONAL ETS

- **November 2010:** The State Council announced its 12th Five-year plan (2011-15) requiring the development of emission trading systems (ETS) in China.
- **October 2011:** the NDRC published a Notice on carbon emissions trading pilots in which Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen and Tianjin were assigned as ETS pilots.
- **November 2011:** State Council decision to gradually promote the establishment of a carbon emissions trading market.
- **June 2013:** Shenzhen launched its ETS, the first in China.
- **November 2013:** Shanghai and Beijing launch their ETSs.
- **December 2013:** Guangdong and Tianjin launched their ETSs.
- **April 2014:** Hubei launches its ETS.
- **June 2014:** Chongqing launches its ETS.
- **November 2014:** Joint Sino-US statement on climate change where both heads of state announced their respective action on climate change beyond 2020.
- **December 2014:** The NDRC released the *Provisional measures for the administration of carbon emission rights trading* (high-level regulations on the national ETS).
- **January 2015:** The NDRC announced the launch of the national registry for voluntary emission trading.
- **September 2015:** President Xi Jinping, on an official visit to the United States, announces on the White House Lawn that China will launch its national ETS in 2017.
- **January 2016:** The NDRC launches an official administrative notice to all government agencies on China with the essential steps to prepare for the national ETS.

RECENT DEVELOPMENTS

China began to first progressively strengthen its commitment to climate change mitigation with the development of the country's first global warming policy initiative issued by the National Development and Reform Commission (NDRC) in June, 2007. The *National Climate Change Program*, which highlighted policy measures that can lower GHG emissions to achieve a reduction target of 20% below 2005 levels by 2010 in energy consumption per unit of GDP. In November 2009, the State Council announced two 2020 targets during the UNFCCC's 15th Conference of the Parties to the Convention in Copenhagen (COP15):

- Reduce CO₂ per unit of GDP by 40-45% relative to 2005.
- Increase the ratio of non-fossil energy to 15% of primary energy consumption.

The following year in November, the State Council announced its 12th Five-year plan (FYP12 – from 2011 to 2015) in which, for the first time, a national carbon intensity reduction target was explicitly introduced. Chapter 21 of the FYP12 calls for the

implementation of market-based mechanisms such as emissions trading systems (ETSs) as a tool to achieve the energy and carbon intensity goals of the Plan. In October 2011 the NDRC published a Notice that assigned the task of establishing ETS pilot programs to five cities (Beijing, Chongqing, Shanghai, Shenzhen and Tianjin) and two provinces (Guangdong and Hubei). In November 2011, the State Council also released a white paper detailing *China's Policies and Actions for Addressing Climate Change* which outlined their intention to:

- Implement *low-carbon development pilots* by exploring local low-carbon development modes, policies, systems and mechanisms and speed up the establishment of industrial systems and consumption patterns and,

Gradually implement a *carbon emissions trading market* by taking into account international experience in order to “*realize the objective of controlling greenhouse gas emissions at minimum cost*”.

The main objective of the establishment of pilot ETS programs was to learn lessons through experience and to facilitate the development of a national ETS which is expected to commence in 2017. The seven pilots each started their operations between June 2013 and June 2014 ([see section on ETS pilots](#)). In November 2014, the United States and China released a joint-statement on climate change where both heads of state announced their respective action plans on climate change beyond 2020. China's statement involved measures including the following-which formed the foundation for China's INDC:

- Peak its CO₂ emissions by 2030 and try to reach this peak as early as possible; and
- Raise the share of non-fossil fuels in primary energy consumption to 20% by 2030;

In December 2014, the NDRC released the *Provisional measures for the administration of carbon emission rights trading* that are the first legal elements of the national ETS that will be implemented from 2016. This announcement was completed in February 2015 by the NDRC's notice covering the national market plan framework and its timeline. In March 2015, funding from the World Bank's Partnership for Market Readiness (PMR) project began, which is helping to develop the national ETS. To sum up, China now has over a decade of policy experience with carbon markets- through the CDM, the establishment of voluntary emissions trading, the implementation of seven ETS pilots and its preparations for a national ETS next year.

FIRST STEP: ETS Piloting

NDRC guidelines

In October 2011, the NDRC published a Notice on carbon emissions trading pilots regarding the launch of the seven pilot systems, which all started between June 2013 and June 2014. The seven ETS pilots cover five cities and two provinces that together represent 26.7% of China's 2014 GDP. Over 57 million tonnes of carbon have been traded under the pilots until July 31, 2015 which is valued at \$ 308 million. Each pilot has been designed locally by a combination of the relevant provincial and municipal Development and Reform Commission's (DRCs), local emissions trading exchanges and thought leaders in universities and think tanks. Together these agencies worked to design and implement the seven ETS pilots.

The provinces and municipalities of these pilot programs were carefully selected. The selection of the seven pilots was based on two main factors: one was the willingness of provincial leaders to have an ETS pilot within their territory; the second was the need to represent a variety of Chinese economic, social, and geographic criteria. Indeed, the seven pilots cover a wide range of different economic, industrial and geographic circumstances. Together, they comprise about 25% of the country's annual GDP, and they represent the spectrum of economic development and wealth within the country.

Cities included in the pilot ETS's are under the National Central Authority and thus have the same level of independence as the provinces. The NDRC guidelines help structure the overall design of the pilot programs by requiring that each of the two provinces and five cities set:

- an emissions cap;
- an allowance allocation methodology;
- a monitoring, reporting and verification (MRV) system;
- an emissions registry, covering allowances and Chinese Certified Emission Reductions (CCERs) trades; and,
- an emissions trading platform (for allowances and CCERs).

Common features of the seven ETSs

Whilst each province and municipality government has the flexibility to design its ETS pilot's features according to local circumstances, there are some common features among them. These can be considered as common "*basis*" features: common sectoral coverage, the use of free allowances, CCERs, and flexible provisions such as banking of allowances. Furthermore, all seven pilot ETSs cover both direct emissions from fossil fuel use and emissions attributable to electricity use, including those from electricity generated outside their boundaries.

All seven pilot systems also cover the power sector and a wide array of industries. Further details are outlined in the table below.

Carbon trading and price outlook in 2014

By the end of October 2014, the total trading volume of CO₂ reached 13.75 million tonnes of CO₂ and the turnover was more than 500 million yuan. A total of 15.21 million quotas have been sold in 2014 at various ETS pilot auctions for a financial sum of 760 million yuan. Current prices in China range from €1.75 to €7 per tonne, but have risen to over €15 in the Shenzhen pilot.

Summary of key policy features for each ETS

	Beijing	Chongqing	Guangdong	Hubei	Shanghai	Shenzhen	Tianjin
Reduction Goal (intensity-based)	18% over 2010 levels	17% over 2010 levels, with a further goal of increasing	19% over 2010 levels	17% over 2010 levels	19% over 2010 levels	21% over 2010 levels	19% over 2010 levels, with a further goal of less than 1.69 Ton/CO ₂
Trading period	2013 - 2015	2013 - 2015	2013 - 2020	2013 - 2015	2013 - 2015	2013 - 2015	2013 - 2015
Greenhouse Gases Covered	CO ₂ Direct (electricity generation and heating) and indirect (manufacturing, public buildings)	CO ₂ (direct and indirect), CH ₄ , N ₂ O, HFCs, PFCs, SF ₆	CO ₂ (direct and indirect)	CO ₂ (direct and indirect)	CO ₂ (direct and indirect)	CO ₂ (direct and indirect)	CO ₂ (direct and indirect)
Threshold	+ 5,000 tonnes CO ₂ per year as the average from 2009 to 2011	+20,000 tonnes CO ₂ per year from 2010 to 2014	+ 20,000 tonnes CO ₂ per year from 2010 to 2012	+ 60,000 tonnes coal consumption for major sectors in 2010 or 2011.	+ 20,000 tonnes CO ₂ per year for industrial sectors in 2010 or 2011 Above 10,000 tonnes per year for other sectors	+ 3,000 tonnes CO ₂ per year and any building larger than +20,000 sqm	+ 20,000 tonnes CO ₂ per year in any year since 2009.
Allowances Issued for 2013-2014	Not released	About 125 Mt CO ₂ , 4.13% annual reduction	388 Mt CO ₂ /year for 2014 (350M allowances + 28M reserve)	324 Mt CO ₂ for 2014	About 150 Mt CO ₂ for 2013, may be	About 100 Mt CO ₂ in total for 2013 - 2015	Not released
Cap coverage	40% of the city's total emissions: 543 companies (600 entities are expected) from heat supply, power generation, cement, petrochemical, car manufacturing, and public buildings	40% of Total Emissions covered: 242 companies, 6 sectors: electro-plated aluminum, metal alloy, calcium carbide, caustic soda, cement, steel & iron	55% of the province's total energy consumption: 211 firms are listed (power, cement, steel, ceramics, petrochemical, non-ferrous, plastics, paper)	35% of the province's total carbon emissions. 138 entities are listed (steel, chemical, cement, automobile manufacturing, power generation, non-ferrous metals, glass, paper and etc.)	57% of the city's total emissions: 190 entities are listed (steel, petrochemical, chemical, non-ferrous metal, power, building materials, textile, paper, rubber and chemical fiber industry)	38% of the city's total emissions: 832 entities listed from 26 sectors which cover various forms of industry in addition to power, gas and water supply; Participation open to any financial institution. 197 public use buildings	60% of the city's total emissions: 114 entities Iron and steel, chemicals, electricity, heat, petrochemical, oil and gas mining, civil construction
Other sectors	Transport, Airport and banks	-	Transportation, textiles, and buildings	-	Airlines, ports, airports, railways, large commercial shops, hotels and banks	Public transport	-
Baseline years	2009, 2010, 2011	From 2008 to 2012	2011, 2012	2010, 2011	2009, 2010, 2011	2009, 2010, 2011	From 2009 to 2013

	Beijing	Chongqing	Guangdong	Hubei	Shanghai	Shenzhen	Tianjin
Allowances Allocation	<p><i>Free allocation</i> in 2013 based on 2009 -2011 emissions levels. 2014 and 201 5 allowances allocated before May each year, based on verified emissions of previous year.</p> <p><i>Auction</i>: a small amount will be auctioned</p> <p><i>Carbon market adjustment reserve</i>: up to 5% of annual allocation. Reserve is used to adjust price between ¥20-150.</p>	<p><i>Free allocation</i> based on grandfathering</p>	<p><i>Free allocation</i> of 97 % in 201 3 , 97 % for industries and 95% for power in 2014 and 90% in 2015.</p> <p><i>Auctioning</i> is used as a complementary method (201 4 compliance floor price is ¥25 for the first auction of the y ear, climbing to ¥40 for the final one)</p> <p><i>Reserves</i>: 1. for new entrance 2. For adjustment.</p>	<p><i>Free allocation</i> of 92 % before May 30 each year.</p> <p><i>Reserve</i>: 8% of annual allocation. Only 3% of this reserve can be auctioned (floor price ¥20)</p>	<p>One-off and <i>free allocation</i> for 201 3 -2015 based on 2009 -2011 considering emissions growth. Benchmarking used for sectors when conditions allow.</p> <p><i>Auctioning</i> is used as a complementary method only to fulfill compliance obligation (201 4 price floor: ¥46)</p>	<p>One-off and free allocation for 201 3 -2015. 2014 and 2015 allowances to be allocated based on production capacity of the previous year.</p> <p><i>Auctioning</i> used as a complementary method only to fulfill compliance obligation (201 4 price floor: ¥35.4)</p> <p><i>Reserve for new entrance</i> (2 % of total allowances) and <i>market adjustment reserve</i> (2 % of total allowances)</p>	<p><i>Free allocation</i> of allowances each year with possible adjustment.</p> <p><i>Auctioning</i> will be used</p>
Borrowing and banking		No borrowing, banking is allowed during pilot period. Only spot trading allowed		No borrowing, banking is allowed during pilot period	No borrowing. Banking is allowed during pilot period	No borrowing. Banking is allowed during pilot period	No borrowing, banking is allowed: banked 2013 - 2015 quotas can be used for compliance until May 31, 2016

	Beijing	Chongqing	Guangdong	Hubei	Shanghai	Shenzhen	Tianjin
Offset Usage	5%, but at least 50% must be located within the Beijing	8%	10%, but 70% of the total amount must be located within Guangdong	10% for new entrants* 15% for pilot ETS participants	5%	10%	10%
Penalties	<p>Non-Compliance: Each missing allowance has to be paid for at 3 to 5 times the market price of the last six months;</p> <p>Not submitting reports: rectification and up to ¥50,000.</p>	<p>Non-Compliance: 3 x average market price of the last month before the compliance deadline;</p> <p>Not submitting reports: ¥20-50,000.</p>	<p>Non-Compliance: 3 x average market price (up to ¥50,000) and have twice the level of the over emissions deducted for the next year allowances;</p> <p>Not submitting reports: ¥1 0- 30,000;</p> <p>Resisting verification: ¥1 0- 50,000;</p> <p>Non-publishing information and non-implementing risk</p>	<p>Non-Compliance: 3 x average market price (up to ¥1 50,000), have twice the level of the over emissions deducted for the next year allowances and administrative penalty;</p> <p>Not submitting reports: ¥1 0- 30,000;</p> <p>Resisting verification: halve following year's</p>	<p>Non-Compliance: ¥50-1 00,000;</p> <p>Not submitting reports: ¥1 0-30,000;</p> <p>Resisting verification: ¥30-50,000.</p>	<p>Non-Compliance: 3 x average market price of last six months' price and deduction of the insufficient portion from the following year's allocation;</p> <p>Not submitting verification report: ¥1 0- 50,000 (for error or overdue) or ¥50-1 00,000 (for serious circumstances);</p> <p>Fraud: fines for insufficient portion 3 x</p>	Not submitting report: loss Governmental Funds in 3 years.
Registry and Exchange	Beijing Environment Exchange	Chongqing Carbon Emission Exchange	Guangdong Emission Exchange	Hubei Carbon Emission Exchange	Shanghai Environment and Energy Exchange	Shenzhen Emission Exchange	Tianjin Emission Exchange

SECOND STEP: IMPLEMENTING A NATIONAL ETS

At the end of 2014, the NDRC released a document on the *Provisional measures for the administration of carbon emission rights trading* outlining basic guidelines on the framework and design of a national ETS but does not include technical specificities. In February 2015, the NDRC supplemented the document with a notice covering a national market plan framework accompanied by a timeline for its execution. China's FYP13 (2016-21) also includes specific references to the National ETS Plan which is expected to launch next year.

NDRC national ETS implementation roadmap

The NDRC divides the development of a national ETS in three periods:

- **The preparation phase (2014–15):** During this phase the State Council established the design and conditions of the ETS, as well as finalized the national system by:
 - Issuing supporting details and technical standards;
 - Determining GHG accounting methods and standards for all covered sectors;
 - Defining the national ETS features;
 - Completing the national registry.
- **The operational improvement phase (2016-20):** This phase is divided into two stages:
 - First Stage (2016-17): This period will begin with a test run where all the regulations pertaining to the national ETS will enter into force. In October 2016, the first allowances are expected to be distributed and market operations will commence whereby all 33 Chinese provinces and other regions will be expected to blend policies with the national system by the end of Q1 2017.
 - There may be up to 10,000 companies in China that will be included in the national ETS during the first stage. The actual number has not been published at the time of writing.
 - Second Stage (2017-20): At this stage the ETS will be fully implemented and adjusted to enhance market stability.
- **The stabilization and maturation phase – beyond 2020:** The objective of this stage will be to increase the number of trading products in order to further stabilize the national ETS and to enable the enhancement of the ETS's market capacity and the exploration of linking with other existing ETS's.

The NDRC's National ETS Guidelines: A Summary

In 2015 the NDRC issued a notice on provisional measures for the set up of the national ETS. Those measures included:

- **Chapter 1 on general provisions** asserts that the State Council will be responsible for establishing and issuing regulations as well as enforcing compliance. Emissions trading will be established at the provincial level as well as in autonomous regions and cities. Allowance distribution and adjustments to their respective emission caps will be determined by the provinces and regions themselves. The scope of the national program is expected to gradually establish terms that will cover CO₂, CH₄, HFC's, PFC's, SF₆, and NFC. There is potential for the inclusion of sectorial coverage for CO₂ produced by the power sector, metallurgy, building materials and other key industries (detailed in the February notice).
- **Chapter 2 covers the cap, allowance distribution and management:** the State Council will set a national emissions cap which will then be broken down into a provincial cap based on historical emissions for each of the 33 provinces and administrative regions. Allowances will be distributed using free allocation which will decrease over time to incorporate the auctioning of allowances. The auctioning proceeds will be used to promote national carbon emission reduction and capacity building. The State Council will determine the allowance allocation system based on the specific circumstances of the covered sectors, emission data and international competitiveness among other factors. All allocation plans must be approved by the State Council

before they are sent to the provinces and regions. However provinces, autonomous regions and municipalities may implement allowance distribution methodologies featuring more stringent measure than the nationally prescribed standards

- **Chapter 3 – Emissions trading:** Allowances, early allowances and CCERs are available for entities to use as compliance tools in the National ETS with the prospect of integrating other products over time. The State Council will establish “regulatory mechanisms” to maintain market stability and a national registry will maintain records of all transactions undertaken by covered entities. NDRC will select the qualified exchanges that will serve as the national exchanges.
- **Chapter 4 – Monitoring, Reporting and Verification system:** the State Council will be responsible for releasing the national accounting and reporting standards for GHG emissions and for establishing verification procedures. The State Council will design templates for monitoring plans which Provinces and regions will be able to adapt to meet local conditions. Covered enterprises should surrender allowances to local DRC annually as their obligation which will be reported to the NDRC by the local DRCs.
- **Chapter 5 – Supervision and administration:** The State Council will be responsible for enforcing a ‘verification mechanism’ as well as a ‘trading mechanism’ in addition to managing compliance. Nevertheless, the NDRC will be the national authority for the management of the national ETS, and the local Development and Reform Commissions (DRC) will be responsible for the surveillance of their respective ETSs and system monitoring and reporting systems.
- **Chapter 6 – Non-compliance and legal liability:** non-compliance, not-submitting reports, resisting verification or fraud will be subject to penalties. Verification firms can also be found in non-compliance if they submit false or misleading verification reports. Civil servants in the provinces/regions can also be subject to punishment if they abuse privileges or share emissions for example.
- **Chapter 7 – Supplementary provisions:** This section sets all the definitions and outlines for equating emissions insofar as one tonne of GHG emissions, measured in CO₂ equivalent, will be equal to one Chinese Emissions Unit or Chinese CER.

The February 2015 notice also offers guidelines to improve capacity building, technical support and training. In addition, the notice also highlights that the establishment of a national ETS has to be integrated within national or regional economic and social development plans. Complementary policies such as fiscal or financial supporting policies must be improved for greater harmonization.

NDRC ‘Landmark Notice’ on National ETS guidance

On January 19 2016, the NDRC circulated a notice about China’s national ETS to all provincial DRCs, government administrations, the civil aviation administration, state-owned enterprises (SOEs), and major industry associations in China. The notice, available in Chinese [here](#), specified that firms from 8 sectors and 15 sub-sectors which consume +10,000 tons of coal equivalent per year would be included in China’s national ETS. Those sectors include:

1. Power (generation, heat-power cogeneration, and grid operators);
2. Petrochemicals (crude oil refining and processing, ethylene);
3. Chemicals (methanol, ammonia, carbide);
4. Iron & Steel;
5. Non-ferrous metals (copper smelting, electrolytic aluminium);
6. Building production and materials (clinker, plate glass);
7. Pulp & Paper
8. Aviation (civil commercial, cargo, and airports)

The notice specifies that companies in each of these sectors should establish an internal ‘compliance plan’ for the national ETS this year. Provincial and municipal DRC’s submitted to the NDRC a list of the local specific companies in each of these sectors that meet the +10,000tce eligibility criteria by the end of February 2016. In parallel, those companies finished their historical data reporting and submitted a third-party verification of their historical emissions data by the end of June 2016.

2013-2015 will be the base years for historical emissions data reporting and reporting templates were attached in the notice sent out by the NDRC. Additional templates for collecting benchmark data were also circulated.

The notice also stressed that third-party verifiers should have no conflicts of interest in the national ETS. This bars these firms or their subsidiary companies from trading in the carbon market or performing carbon portfolio management services. Furthermore, verification firms will not be able to hire any staff who have worked at one of their clients during the last 5 years. Verifiers must also hold Chinese citizenship.

The notice also highlighted that the NDRC has recently launched a national MRV Q&A platform online and established a phone hotline. These services will help the NDRC's goal of having a unified MRV system known by all ETS participants by the end of 2016.

National ETS-Timeline update and State Council guidance

At the time of writing, the NDRC is waiting for China's State Council (which is the penultimate policy-making body in China's government) to issue it with legislative guidance. This guidance will enable the NDRC to issue allowances and penalties under the national ETS and assess how revenues from future allowance auctions will be used. The NDRC must first receive legislative guidance from the State Council before it can begin fully implementing the ETS as there is not yet any specific ETS legislation in China. It is expected that the guidance will be issued to the NDRC by the end of 2016.

Once the NDRC receives the State Council's guidance, it will begin a 'trial' allocation process by the end of 2016 which will carry on until 2017. The first compliance year will begin at some point in the 2017 calendar year under the first phase of the national ETS. This phase will continue until 2019. The second phase will then commence which will expand the coverage of the ETS and also explore linkage with other markets. It is not yet known when allowance auctions will begin.

The 7 ETS pilots will be allowed to opt-in to the national ETS starting in 2017. Shanghai, Guangdong and Beijing have all announced that their ETS programmes will continue for another compliance year (June 30 2016-June 30 2017) before opting in to the national ETS. The remaining 4 pilots have not yet disclosed if they will continue for another year (all of the pilots have an official timeline of 2013-2015, except for Guangdong which may continue its own ETS until 2020 subject to modifications of its local legislation). Several of the ETS pilots have also lobbied the NDRC to bank allowances from their ETS pilots to the national ETS. The NDRC is rumoured to be exploring a discount factor for allowances banked from the ETS pilots.

Defining the national emission cap

While the national ETS framework provides a glimpse into the overall potential and functionality of the system, there are several important elements with regards to setting **a national emissions cap** that have yet to be fully explored and communicated officially. As it does for scope, NDRC considers cap-setting an important element for an eventual national ETS, and both an absolute cap and an intensity-based cap are under consideration. When comparing the two, NDRC states:

"Each of them has its own pros and cons. But generally, the absolute cap is more favorable for controlling a system's cap when an economy is on a climbing trajectory, but it increases the abatement cost. The intensity target helps control the cost when an economy is booming, and address some problems like over-allocation and price collapse when the economy is waning. The majority of economists prefer an absolute cap. Because if the cap [were] framed in intensity terms, there would be uncertainty in the market about the number of permits available until after the GDP data for that year had been published."

MRV system development

On 27 November 2014, the national carbon emissions management standardization technical committee issued a notice on the GHG emissions accounting methods and reporting guidelines. These guidelines were submitted to public comments until 20 December 2014. If approved by the State Council, the guidelines would serve as a solid foundation on which to implement a national ETS. The notice includes national standards for power generation companies, power grid companies, magnesium manufacture, civil aviation and for several industries (steel, chemical, aluminum, glass, cement and ceramic). The guidelines were built on the 2013 guidelines for accounting and reporting GHG emissions for ten industries.

To continue the carbon emission reduction policy, in November 2014, the NDRC unveiled a draft notice for public comment on 10 national GHG emissions accounting methods and reporting guidelines.

Already four GHG accounting methods and reporting guidelines have been approved: oil production, petrochemical industry, coal mining and coking industry. Eight others are in development: building, transportation, paper-making, non-ferrous metal, food, ferrous metal, large machine manufacture and commonly-used guidelines. They all find their roots in the NDRC's Notice on carbon emissions trading pilot (October 2011).

Allocation

At the time of writing, China has not finished its allowance distribution process or methodology. It is currently reviewing whether or not it could stagger allocation by distributing allowances to different industry sectors at different times of the year. Auctioning could also take place during the first year of compliance with the national ETS, but it is unclear at the time of writing if the NDRC will pursue this for limited sectors or regions. China is also considering forward trading in the national ETS, something both IETA and EU governments have advocated for with the NDRC in the lead up to the launch of the system.

National Registry

With regard to registries, the goal is that national and local registries ensure smooth transfers and use resources efficiently. Analyses of the relations between national and local registries shall include: (1) determining whether local registries need to establish independent registries; (2) if local areas will require registries, clarify the positioning and functions of registries at both national and local levels; and (3) if local registries are not needed, identify the functions of relevant local organizations in the operation of the national registry.

The design and the construction of the national registry have been already accomplished. The registry was tested and NDRC launched the national registry for offsets (CCERs) trading in January 14th 2015. The start of the national registry is planned to have two stages:

- First stage: opening the registry for CCERs users (January 2015).
- Second stage: improving the registry in order to establish a carbon emissions trading registry.

CARBON MARKETS WITH CHINESE CHARACTERISTICS CHALLENGES

1. *Manage the overlapping policies challenge* – China started its policy on emission trading through a period of experimentation in order to learn lessons through experience and to facilitate the development of an ETS at national-. One question may be how the outcomes from the seven ETS pilots would deeply determine the nature and shape of the national system and at the same time, China should make sure that its national ETS does not overlap with other policies designed to address climate change and reduce emissions.
2. *Cost pass-through questions* – Due to the fact that China's electricity sector is heavily regulated, carbon ETS costs cannot be easily passed on to consumers, which may be a cause of market distortions. In order to establish an efficient carbon market, China may need to undertake deeper reforms such as a liberalization of the power sector to avoid economic uncertainties. A challenge for the government will be to impose on industries a potential absolute cap on emissions for those covered under the ETS versus an intensity-based cap for those not included in the national ETS. This could lead to possible economic distortions and competitiveness concerns.
3. *Setting a strong cap and stringent allocation process* – The ETS pilots have not been that active, due to generous allocation and limiting the total amount of sectors included in the pilots. China will have to work hard to ensure that the national ETS includes an ambitious cap and that it does not over-allocate emissions during the first and second phases.

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Disclaimer: Please note that this case study builds upon the 2015 version of the case study which was co-written with CDC Climat. The author encourages readers to please contact IETA with any corrections, additions, revisions, or any other comments, including any relevant citations. This will be invaluable in strengthening and updating the case studies and ensuring they are as correct and informative as possible.