China National Carbon Market

Fact Sheet

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A carbon market or emissions trading systems (ETS) is one of the main types of carbon pricing. A carbon market is designed to cap the total level of greenhouse gas emissions and allow those industries with low emissions to sell their extra allowances to larger emitters. By creating supply and demand for emissions allowances, a carbon market can effectively advance market price discovery for greenhouse gas emissions. The cap helps ensure that the required emission reductions will take place to keep the emitters (in aggregate) within their pre-allocated emission allowances.

China's national carbon market started online trading on July 16, 2021, a significant step to help the country peak before 2030 and achieve carbon neutrality before 2060. Carbon emissions from more than 2,000 power companies covered in the first batch of trading are estimated to exceed four billion tonnes per year, making the market the world's largest in terms of the amount of greenhouse gas emissions covered.

Key Elements

Climate Goal	China aims to have CO_2 emissions peak before 2030 and achieve carbon neutrality before 2060.
Compliance Period	2019-2020 is the first compliance period that requires all covered entities to fulfill their compliance by the end of 2021
Covered GHGs	Carbon Dioxide (CO_2)
Covered Industries for data reporting	Power Generation, Petrochemical and Chemical, Building Materials, Iron and Steels, Nonferrous Metals, Papermaking, and Aviation
Covered Industries for Emissions Trading and Compliance	Power Generation Industry
Covered Key Emitting Entities	2,162 key emission power generation entities
Thresholds	The key emitting entities emitted 26,000 tonnes of carbon dioxide equivalent and above in any year from 2013 to 2020
Carbon Price (Listed Transaction)	From July 16th to August 11th, the lowest price was $7.4 US (￥48 Chinese Yuan), and the highest price was $9.42 (￥61.07).
Allowances Allocation	Free Allocation based on the Allowance Allocation Implementation Plan

Price Control	The price of listed transaction shall be between ± 10% of the closing price of the previous trading day. The price block trade shall be between ± 30% of the closing price of the previous trading day.
Offset Mechanism	According to Measures for the Administration of National Carbon Emissions Trading (Trial), key emitting entities may use China Certified Emission Reductions (CCERs) to offset up to 5% of their annual carbon emission allowances that should be surrendered.
Penalties	The national level Regulations on the Administration of Carbon Emission Trading is still under review. According to Measures for the Administration of National Carbon Emissions Trading (Trial), key emitting entities make false reports will be subject to a fine of more than ￥ 10,000 but less than ￥ 30,000. The key emitting entities that fail to surrender carbon emission allowances will be subject to a fine of more than 20,000 yuan but less than 30,000 yuan and will be allocated the emission allowances for the next year that deducted the amount equivalent to allowances not surrendered.
MRV	Key emitting entities shall prepare annual GHG emissions reports specifying the quantity of their GHG emissions as well as report this information to the provincial ecological and environmental authorities for their place of business before March 31 of the following year. Key emitting entities shall be responsible for the authenticity, completeness and accuracy of their GHG emission reports. Provincial ecology and environment authorities shall organize the verification of GHG emission reports of key emitting entities and shall notify key emitting entities of the verification results as a basis for their surrender of carbon emission allowances. Provincial ecology and environment authorities may entrust technical service agencies to provide verification services through government procurement. Such technical service agencies shall be responsible for the authenticity, completeness and accuracy of submitted verification results.

Timeline

2009-2017: pilots

Acting in accordance with international requirements for green development, China passed the Resolution on Climate Change at the 10th Meeting of the Standing Committee of the 11th National People's Congress on August 27, 2009. The resolution proposed to adopt favourable policies and measures to take active steps on climate change, while strengthening energy conservation and conventional pollutants emissions reduction efforts, and striving to control greenhouse gas (GHG) emissions. The "Decision of the State Council on Accelerating the Cultivation and Development of Strategic Emerging Industries" issued by the State Council on October 10, 2010 (No. 32 [2010]) explicitly proposed to "speed up the establishment and the development of a trading system for major pollutants and carbon emissions," from which the nation emissions trading scheme (ETS) came to fruition.

In 2011, to encourage enterprises to undertake GHG emission control targets, China started to develop pilot carbon markets. The State Council and the National Development and Reform Commission subsequently issued documents approving the pilot work of carbon

emission trading in seven provinces (cities) including Beijing, Shanghai, Tianjin, Hubei, Chongqing, Guangdong and Shenzhen, in preparation for the later "establishment of a unified national carbon market."

The first pilot carbon market was launched in Shenzhen in 2013, and all seven pilots were launched before the end of 2014. In addition, a voluntary regional carbon market in Fujian went into operation in 2016. These provincial and city level carbon markets are still in operation and provide experiential knowledge for the establishment of the national carbon market in China. These markets will still operate once the National Market is open for business.

In April 2016, China signed the Paris Agreement, which agreed that China would slash its carbon dioxide emissions per unit of GDP by 60-65% in 2030 compared with 2005 levels. A carbon market was identified as one of the key means to achieve this new NDC emission reduction goal.

2017-2020: Building a National ETS

In 2015, the People's Republic of China decided to build a national carbon market to limit and reduce CO2 emissions in a cost-effective manner. In 2017, a teleconference for launched the construction phase of the national carbon market. Originally set to start during the 13th Five Year Plan[1] (2016-2020), the national carbon market would initially cover coal- and gas-fired power plants.

2020-2021: Looking Forward to the Launch of a National ETS

Climate action faced significant challenges in 2020, as COVID-19 unleashed major impacts on social and economic conditions in China. Yet, 2020 was a vital year to set targets and priorities for the 14th Five-Year Plan (2021-25). Despite the challenges of COVID-19, China not only honoured its climate commitments, but also announced a goal of peaking CO_2 emissions before 2030 and achieving carbon neutrality before 2060 in September. Together, these commitments provide strong political assurances for the establishment of national carbon market.

Since November 2020, the Ministry of Ecology and Environment (MEE) has issued five documents: "The National Measures for the Administration of Carbon Emission Trading (Trial)," "National Carbon Emissions Registration Transaction Settlement Management Measures (Trial)," "2019-2020 National Carbon Emission Trading Cap Setting and Allowance Allocation Implementation Plan (Power Generation Industry) (Draft for Comments)," "Guidelines for Enterprise Greenhouse Gas Emission Accounting and Reporting (Power Generation Industry) (Draft for Comment)," and "Guidelines for Enterprise Greenhouse Gas Verification (Trial)," for public consultation. These documents signal a sense of urgency on climate action that has not been seen since 2017.

On December 25, 2020, "The National Measures for the Administration of Carbon Emission Trading (Trial)," was passed by the Ministry of Ecology and Environment, and this policy has been officially enforced since February 1, 2021. On December 30, 2020, MEE also released "2019-2020 National Carbon Emission Trading Cap Setting and Allowance Allocation Implementation Plan (Power Generation Industry)" and "Name List of 2019-2020 Major Emitting Entities in Power Generation Sector," which require the listed 2,225 power generation companies to be covered under the national carbon market, and their 2019-2020 allowance pre-allocation information to be submitted to the MEE by January 29, 2021. The release of the above-mentioned documents marked the official launch of the first compliance

cycle of China's National Carbon Market, and the corresponding official documents were promulgated one after another thereafter[1].

Under direct leadership of the MEE, significant progress and improvements have been made to build the carbon market's infrastructure, develop a sector test run plan, improve the quality of carbon emission data at covered entity levels, and upgrade the greenhouse gas (GHG) data reporting system. On March 30, 2021, the MEE released the "Interim Regulations on the Administration of Carbon Emission Trading (Revised Draft)" for public consultation, which has been included in the "2021 Legislative Work Plan of the State Council of PRC".

China's national carbon market is the largest in the world, covering the largest scale of greenhouse gas emissions in the world. It initially involved only a portion of the power generation sector that covers emissions of over 4,000 $MtCO_2e$/year, with an inclusion threshold set for entities with annual emissions of 26,000 tonnes of carbon dioxide equivalent and above from 2013-2020. The scope is expected to be gradually expanded to cover a total of eight sectors: power generation, petrochemical and chemical, building materials, iron and steels, nonferrous metals, papermaking, and aviation.

Currently, China uses the benchmark allocation method for its national carbon market and limits the permitted emissions of carbon dioxide per unit of output. The national carbon market will allocate allowances based on a plant's generation output and its designated benchmark. The benchmarks are differentiated by types of fuel and generation technologies. If an entity emits less than allocated allowances, it can sell the surplus to another entity. Benchmark allocation will create incentives to increase the efficiency of existing coal-fired power plants.

Impact

Carbon markets will play a crucial role in lowering the cost of reducing GHGs during this process. Administrative means and market-based measures will be mutually supportive ways for China to reduce climate pollution significantly in the medium to long term in order to meet the targets of peaking GHG emissions before 2030 and carbon neutrality before 2060.

Covered Entities and Emissions

On July 16, 2021, China's Ministry of Ecology and Environment announced that 2,162 power generation companies, representing 4.5 billion tonnes of carbon dioxide emissions, are covered by the national carbon market. The inclusion of captive power plants is a testament to the fairness and comprehensiveness of the national carbon market management.

The number of covered entities has risen by about 500 since 2017, which extends the coverage of the power generation entities. This update reflects not only the determination of the national government to control the carbon emissions of the power sector through the emissions trading scheme as a whole, but also demonstrates an open, fair and just attitude towards the management of carbon trading.

Regulations and Rules of China National Carbon market

The table below indicates the critical elements of China ETS, and its corresponding policies. These policy documents just finished a public consultation process and are expected to be

[1] December 31, 2020, officially released " Measures for the Administration of National Carbon Emissions Trading (Trial)"; March 26, 2021, officially released of " Guidelines on Enterprises Greenhouse Gas Emissions Accounting and Reporting – Power Generation Facilities (Trial)"; May 17, 2021, officially released "Rules for the Registration and Management of Carbon Emission Rights (Trial)", "Rules for the Management of Carbon Emission Rights Trading (Trial)" and "Rules for the Settlement and Management of Carbon Emission Rights (Trial)"

released soon. For international carbon markets, the following critical elements are key components to ensure the success and efficient operation of the market.

ETS Key Elements	Regulation and Rules
Legislation	Interim Regulations on the Administration of Carbon Emission Trading (Revised Draft); Measures for the Administration of National Carbon Emissions Trading (Trial)
Covered Entities	Name List of 2019-2020 Major Emitting Entities in Power Generation Sector
Allowance Allocation	"2019-2020 National Carbon Emission Trading Cap Setting and Allowance Allocation Implementation Plan, (Power Generation Industry)"
MRV	Guidelines for Enterprise Greenhouse Gas Emission Accounting and Reporting, (Power Generation Industry); Guidelines for Enterprise Greenhouse Gas Verification (Trial)
Registration, Trading and Settlement	"Rules for the Registration and Management of Carbon Emission Rights (Trial)", "Rules for the Management of Carbon Emission Rights Trading (Trial)" and "Rules for the Settlement and Management of Carbon Emission Rights (Trial)"
Compliance	Measures for the Administration of National Carbon Emission Trading (Trial) (Draft for comment)

Comparison of regulations and rules between China national carbon market and other carbon markets

	China National carbon market	EU 2005-2012	EU after 2013	California	RGGI
Legislation	Interim Regulations on the Administration of Carbon Emission Trading (Revised Draft); Measures for the Administration of National Carbon Emissions Trading (Trial)	13/10/2003 - Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC	13/10/2003 - Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC	AB32	RGGI MOU
Covered Entities	Name List of 2019-2020 Major Emitting Entities in Power Generation Sector	Decided by Each Member State	Decided by Each Member State	CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS	NA
Auction	NA	NA	COMMISSION DELEGATED REGULATION (EU) 2019/1868 amending Regulation (EU) No 1031/2010 to align the auctioning of allowances with the EU ETS rules for the period 2021 to 2030 and with the classification of allowances as financial instruments pursuant to Directive 2014/65/EU of the European Parliament and of the Council		REGIONAL GREENHOUSE GAS INITIATIVE MODEL RULE

Allowance Allocation	“2019-2020 National Carbon Emission Trading Cap Setting and Allowance Allocation Implementation Plan, (Power Generation Industry)”	national allocation plans for the allocation of greenhouse gas emission allowances in accordance with Directive 2003/87/EC	COMMISSION DELEGATED REGULATION (EU) 2019/331 determining transitional Union-wide rules for harmonized free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council	NA
MRV	Guidelines for Enterprise Greenhouse Gas Emission Accounting and Reporting, (Power Generation Industry); Guidelines for Enterprise Greenhouse Gas Verification (Trial)	2004/156/EC: Commission Decision of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council	Corrigendum to Commission Regulation (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council; COMMISSION IMPLEMENTING REGULATION (EU) 2018/2067 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council	REGIONAL GREENHOUSE GAS INITIATIVE MODEL RULE
Trading and Compliance	"Rules for the Registration and Management of Carbon Emission Rights (Trial)", "Rules for the Management of Carbon Emission Rights Trading (Trial)" and "Rules for the Settlement and Management of Carbon Emission Rights (Trial)"; Measures for the Administration of National Carbon Emission Trading (Trial) (Draft for comment)	13/10/2003 - Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC	13/10/2003 - Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC	REGIONAL GREENHOUSE GAS INITIATIVE MODEL RULE

Environmental Defense Fund's Work

EDF introduced the concept of using market-based mechanisms to solve environmental problems into China in the 1990s. Cooperating with the State Environmental Protection Administration of China, EDF launched China's first pilot project for sulphur dioxide emissions trading.

Since 2011, EDF has assisted the competent government authorities in the design, training, and testing of the pilot carbon markets and the national carbon market, which has provided strong support for opening the fully operational national carbon market. For example, EDF participated in a series of trainings organized by the Ministry of Ecology and Environment for the allocation and management of national carbon market allowances from October to December 2019. More than 7,000 people participated in the trainings, using CarbonSim, a simulation trading software developed by EDF, to run through practical simulations for a deeper understanding of the carbon market operation. EDF's assistance enhanced the communication, exchange and publicity of carbon market experience between Chinese and foreign governments, and strengthened Chinese government's capacity to further improve the carbon market design, build the industry's capacity for participating in the carbon market, and deepen the international community's understanding of China's carbon market.

EDF's rich experience on market-based mechanisms for environmental issues provided solutions and support in the construction of China's carbon market, and helped China achieve its ambitious climate goals of carbon peaking and carbon neutrality as early as possible.