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# POLICY BRIEF

## CARBON PRICING IN CHINA, JAPAN, AND SOUTH KOREA

NOVEMBER 2019

# Policy Brief: China's National Carbon Market

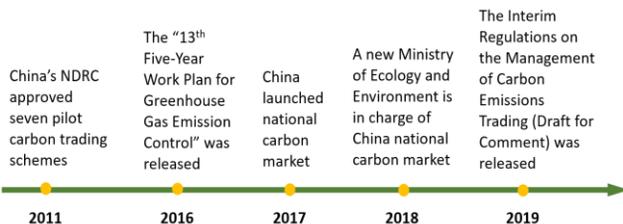
## Key Messages:

- The upcoming simulation trading phase of national ETS is expected to begin around the end of 2019 or early 2020;
- The current pilot ETSS are in operation stably with low carbon price;
- In March 2017, the Chinese government suspended the acceptance of the filing and application for Chinese Certified Emission Reductions (CCER) due to unclear policies;
- In mid-2019, China filed application to ICAO to include CCER as an eligible emission reduction unit under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA).

## The development of China national Emissions Trading System (ETS)

After a series of preparatory work in the recent years (Figure 1.), the National Development and Reform Commission (NDRC) issued the “*Work Plan for Construction of the National Emissions Trading System (Power Sector)*” in 17 December 2017, marking the official launch of China’s national unified carbon market.

**Figure 1. The development of China ETS**



In March 2018, the institutional reform plan was approved by the National People’s Congress of China, including the establishment of a new Ministry of Ecology and Environment (MEE) to replace the Ministry of Environmental Protection to be responsible for climate policy (including ETS development). In April 2019, MEE released the “*Interim Regulations on the Management of Carbon Emissions Trading (Draft for Comment)*” for public consultation, which is one of the key preparations for China’s national ETS.

China is currently in the first phase of its national ETS implementation – the completion of market infrastructure. In September 2019, MEE released a trail plan for allocating emissions allowances to

the power sector. This plan is expected to be the basis for further refinement of the allocation plan for the upcoming simulation phase, which is expected to begin around the end of 2019 or early 2020.

## The characteristics of China national ETS

### • Part to Whole

In terms of the space scope, the development of China’s national ETS is a form of development from region to country (from pilot to national). At present, China has seven emissions trading pilots and one newly added non-pilot area of Fujian.

### • Simplicity to Complexity

China national ETS currently will start from the power sector due to its good quality of emission data and a relatively easy accounting method. With the further development of China national ETS, the industry coverage will be gradually extended to include other carbon-intensive sectors such as petrochemical and steel.

## The status quo of eight regional ETSS

Till now, the cumulative trading volume of the eight ETSS was 364 million tons, with a total turnover of 7.98 billion yuan; In terms of carbon price, the average carbon price is concentrated mostly within the range of \$2.85-\$5.69, while Beijing has the highest carbon price (\$11.38) Chongqing has the lowest, at \$1.42. Even the carbon price in each ETS shows a stable trend, it is still low for effective emission reductions.

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## Main issues in China national ETS

- **Top design needs to be strengthened**

At present, China national ETS is a spot market transaction, whether it is a carbon allowance transaction or a Chinese Certified Emission Reduction (CCER) transaction. The trading of carbon financial derivatives is very limited. Based on functions of MEE, it can only develop the carbon spot trading market. From the experience of several internationally active ETSs, the futures market which can provide investors with long-term stable expectations is the main market for carbon trading, as it can enrich carbon trading varieties and activate the carbon market.

- **Data lack of transparency and accuracy**

Except for power sector, other high-emissions sectors are difficult to set a unified accounting standard, hindering the identification of the corporate's real emissions data and further affecting the quota allocation method. The enterprise quota allocation and transaction related data, and the transaction price of the CCER of the exchanges are not disclosed in eight regional ETSs, which is quite unfavorable for the healthy development of national ETS.

- **The mechanism from the pilot market to the national unified market is undecided**

For the current power enterprises in the pilots, the most pressing question is whether the allowances retained in the pilot market can continue to be circulated in the national unified market, or is it written off by local authorities? As the degree of economic growth, allowance allocation rules, and trading rules vary from region to region, the national ETS must abide by the same rules by considering the balance and coordination of interests.

- **Capacity building remains weak**

Due to institutional reform in March 2018, MEE recruited new personnel responsible for climate work, while these personnel did not engage in related work, hence a new round of capacity building is imminent. In addition, many carbon-intensive enterprises in the pilot ETSs have not established specific carbon asset management departments. Inadequate market preparation will pose a obstacle to the readiness of enterprises participating in the ETS.

## Policy recommendations

- **Establish a clear timetable for building a national ETS**

China national ETS has been established slowly, lagging far behind market expectations. It is suggested that the competent authorities of the carbon market formulate and promulgate a clear timetable for the construction of the national ETS, including the time when other industries participate in the national ETS, and the unified time of the local pilot carbon market and the national carbon market. Only by setting a clear timetable can we include all sectors and market players to step up efforts to promote the national ETS.

- **Establish a carbon emission information disclosure system**

It is critical to establish a carbon emission information disclosure system to create a more open and transparent market environment. Chinese enterprises should improve disclosure of their carbon emission information, making the competitive environment more fair, fully utilizing the rules of the carbon trading market, accelerating the process of energy saving and emission reduction, and creating better returns for enterprises.

- **Accelerating the transformation of allowance allocation approach**

The current allowance allocation approach is mainly based on free allocation. However, because it may not touch the interests of enterprises, it is not conducive to strengthen enterprises' action on emission reductions. Hence, China needs to promote the auction-based allocation method early on, which would bring greater competition awareness to enterprises and reduce more GHG emissions.

- **Establish a timetable for the acceptance of CCERs**

In mid-2019, China applied to ICAO to include CCER as an eligible emission reduction unit under the CORSIA; however, the registration of CCER projects has been suspended by the authority since 2017. Therefore, establishing a timetable for CCER's "return" can reduce uncertainty and make efforts to the national ETS and CORSIA. We expect to see the future CCER could be more robust and transparent by considering environmental integrity and sustainability.

# Policy Brief: Japan's Carbon Pricing

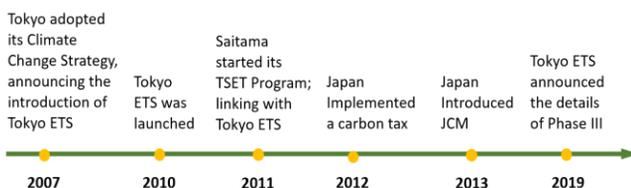
## Key Messages:

- In March 2019, the Tokyo government has finalized regulations for the Phase III (2020-2024) of its ETS which aims for a 30% reduction below 2000 levels by 2030;
- Japanese carbon tax rate remains very low at less than \$3 per/ton;
- The Japanese government is currently working on a carbon pricing proposal about its national emissions trading scheme;
- The Joint Crediting Mechanism (JCM) is currently established with 17 partner countries to promote climate action.

## The development of Japan's carbon pricing policies

Since the Kyoto Protocol was released in 1997, Japan has been pushing for the adoption of measures to combat climate change. Carbon pricing is one of the efficient policy tools to achieve Japan's climate commitments. Although Japanese government has not yet adopted a nationwide emissions trading scheme (ETS), the Tokyo metropolitan government introduced the Tokyo Cap-and-Trade Program (Tokyo ETS) in 2010. One year later, the Saitama Prefecture launched the Target-Setting Emissions Trading (TSET) Program and started linking with Tokyo ETS. In addition, Japan implemented a carbon tax on oil, gas and coal imports in 2012, with revenues going towards measures to curb CO2 emissions. Besides, Joint Crediting Mechanism (JCM), a project-based bilateral offset crediting mechanism, was introduced in 2013 (**Box. 1**).

**Figure 1. The development of Japan's carbon pricing**



Currently, both two ETSs are in operation during the second compliance period. In March 2019, the Tokyo government has finalized regulations for the Phase III (2020-2024) of its ETS which aims for a 30% reduction below 2000 levels by

2030, with a fourth compliance period yet to be announced. As for carbon tax in Japan, the price of this remains very low at under \$3 CO<sub>2</sub>e/ton.

Japan's environment ministry is currently working on a carbon pricing proposal (Japan's national ETS) after a study released by an expert committee on carbon pricing in 2018 assessing how carbon pricing could help Japan achieve its long-term targets, although opposition remains in parts of the government, especially from the Ministry of Economy, Trade and Industry (METI).

## The characteristics of Japan regional ETSs

### • The Tokyo ETS

#### 1. Designed for office buildings

The main target of Tokyo ETS is office buildings. In Tokyo, many manufacturing facilities moved to other regions because of stringent environmental regulation in the 1970s, therefore, the majority of GHG emitters in Tokyo belong to commercial or office sector, accounting for approximately 80 percent of regulated facilities.

#### 2. Financial sector plays a limited role

The Japanese industry association was against the introduction of ETSs, as they believed that an ETS would invite speculation by financial companies, weakening its effectiveness. In response to this criticism, the Tokyo government allows that only emitting entities can participate in trading, and that one can earn credits only after achieving emissions reduction.

#### 3. Unique method for measuring GHG emissions

The majority of emissions from commercial and

office buildings are from their electricity usage, as indirect emissions, which is different from other ETS such as EU ETS focusing on emissions from fossil fuel combustion.

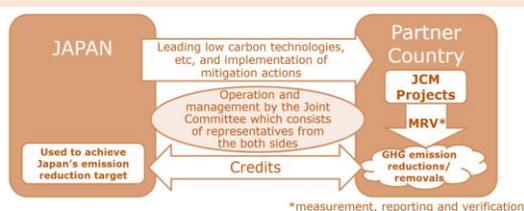
- **The Saitama TSET Program**

The Saitama TSET Program is very similar in many ways to the Tokyo ETS. However, unlike the Tokyo ETS – Japan’s first mandatory ETS, the TSET Program is a voluntary scheme and has no penalties, even when enterprises covered by the program are not in compliance with their emission targets.

**Box. 1 Joint Crediting Mechanism (JCM)**

The Joint Crediting Mechanism (JCM), an initiative of the Japanese government to facilitate the distribution of leading low- or zero-carbon technologies or activities in developing countries, is implemented under bilateral cooperation between Japan and partner countries.

**Figure 2. The rationale of the JCM**



Currently, the JCM is established with 17 countries, including Mongolia, Laos, Chile, Thailand and other developing countries, helping promote climate action and SDG implementation.

**Main issues in Japan’s carbon pricing**

- **Tokyo ETS may cause carbon leakage to other regions in Japan**

In the Tokyo ETS, some covered enterprises may have moved or shifted economic activities to neighborhood prefectures such as Kanagawa or Chiba from Tokyo to avoid compliance, as these regions have not introduced an ETS.

- **Tokyo ETS is not very active**

As mentioned above, only covered entities can participate in the Tokyo ETS and the financial

sector does not play a crucial role in the scheme; besides, unlike other ETSs, there is no centrally administered market platform in which credits can be traded. Consequently, the trades have been bilateral in many cases, further restricting market liquidity. Until now, there have been few transactions in the Tokyo ETS.

- **Tokyo ETS and Saitama TSET Program lack carbon price floors and ceiling**

In general, Tokyo and Saitama government do not control carbon prices. Although the Tokyo government offers offset credits for trading in case of excessive price evolution, the average carbon price in Tokyo ETS shows a sustained downward trend, declining from \$31.5 in 2015 to \$5.89 in 2018.

- **Low carbon tax rate**

Japan’s carbon tax rate is currently quite low at less than \$3 per/ton, hence Japanese carbon tax cannot act as the main pillar of Japan’s climate and energy policy to reduce emission.

**Policy recommendations**

- **Extending the scope to other sectors in the existing two ETSs**

The current covered sectors of both Tokyo ETS and Saitama ETS are industry and building sector. Extending the scope of coverage would allow a more comprehensive coverage and emission limitation, and a fairer distribution of emissions reduction responsibilities.

- **Phasing-in auctions for emission allowances**

Auction would send early price signals, make the polluter pay, and allow for the revenues to be used for climate mitigation and adaptation measures such as energy efficiency project.

- **Setting up a carbon price floors and ceiling**

Since the launch of Tokyo ETS, its carbon price has been falling continuously, while the Tokyo government does not control the price, hence it is conducive to set up a price floors and ceiling to stabilize the carbon price.

- **Revising the carbon tax policy**

Too high and too low carbon tax rate could not make significant impact on emission reduction, so the policy-maker needs to adjust carbon tax rate at an effective level by considering social just.

# Policy Brief: Korea's Emissions Trading Scheme

Kim Hyunwoo, Ha Vara

## Overview

The Emissions Trading Scheme is a greenhouse gas (GHG) reduction system as defined in Article 17 of the *Kyoto Protocol*, which allows the government to allocate annual emissions allowances to businesses that emit GHGs and to conduct emissions within the allotted range. The Korean government has introduced *The Emissions Trading Scheme* to replace previous *Target Management System* implemented for large GHG emitting firms.

Korea's emissions trading system (KETS) is based on Article 46 of "*the Framework Act on Low Carbon, Green Growth*" (January 2010), and the "*Act on the Allocation and Trading of Greenhouse Gas Emission Permit*" (May 2012) was enacted from January 2015 to support legal sanctions. The first planning period of the KETS is from 2015 to 2017, and the allocation standard considers that the businesses can accumulate policy experience and establish the trading system. The second planning period (2018-2020) is for the goal focused on contributing to a significant level of GHG emissions reduction.

**Table.1 KETS operational plan by period**

	First period (2015-2017)	Second period (2018-2020)	Third period (2021-2025)
Main goal	Experience accumulation and trading system establishment	Significant GHG reduction	Ambitious GHG reduction
System operation	Increasing the flexibility of the system such as the scope of offset recognition; Establish infrastructure for accurate MRV implementation	Expanding the scope of trading system and raising targets; Developing various standards such as reporting and verification of emissions	Inducement of voluntary reduction preparing the start of new climate regime; Expansion of liquidity supply by participation of third-party trading system etc.
Allocation	Free allocation; Use the Target Management System experiences	Paid allocation started (* Free: 97%, Paid: 3%) Advanced allocation methods such as benchmark allocation	Expansion of paid allocation ratio (* Free: 90%, Paid: 10%) Settlement of Advanced Allocation Methods

KETS is subject to the firms with three years of average annual GHGs emissions of 125,000 tons or more or with the workplace of emissions of 25,000 tons or more and the firms which want to participate in voluntarily. There are six chemical substances to be managed: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCS, PECS and SF<sub>6</sub>. The standards of allocation methods are historical emissions-based allocation

(Grandfathering, GF) and benchmarks (BM). During the first planning period, 100% of the quota was free, and in the second period, 3% of the allowance are allocated as a paid quota. However, the companies with more than 30% of trade intensity or with more than 30% of the allowance cost compared to the amount of production still get the allocation free within the second period as the first period. Therefore, major GHG emitting industries such as steel, semiconductors, displays, electric and electronics, automobiles, shipbuilding, and cement are allotted free. As of the second planning period, 609 entities are eligible for emission allowances, with a total pre-allocation of 1.64 billion tons.

KETS includes some flexible mechanisms to increase the participation of companies and the applicability of policies. First, the allowances can be partially borrowed from other performance years in the planning period, when the companies need additional allowances. Second, the holding credits can be carried over to the next year within the current planning period. Third, the companies with an assigned amount of reduction may carry out reduction activities outside the business boundary, and it can be recognized as 'offset' reduction. The allowable offset is within 10% of the allowance that the company is required to submit to the Ministry of Environment.

## Quantitative Growth of the Emissions Market

The evaluation of the first planning period seems to be successfully stabled at least quantitatively. According to the government's evaluation report, credit trading price has doubled from 11,007 won(\$9.34) per ton in 2015 to 20,879 won (\$17.71) in 2017, the amount of trading emissions increased from 5.73 million tons to 29.32 million tons, and the transaction amount increased 10 times from 63.1 billion won to 612.3 billion won. During the first period, the total amount allocated to companies was 80% percent of the national GHG emissions. The performance rate of the emission allowances of the allotted companies was

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99.8%, and the three companies, which failed to submit the emission allowances paid the penalties.

In October 2019, the Korean government confirmed the *"Second Framework for Response to Climate Change"*, which includes the lines to strengthen the responsibilities of GHG emitting companies through KETS. Based on the *"2030 National GHG Reduction Roadmap"*, the total emissions and quotas for each company will be set, and the current 3% paid allocation rate will be increased to more than 10% in the third planning period beginning in 2021. In addition, the BM method, which allocates more to the company with more emission reduction efficiency, will be applied to 70% or more of the total emissions, and the government will introduce an in-market derivatives system to promote trading.

## Discussions

The interest groups show different and various opinions and evaluations on KETS. Environmental activist groups criticize that KETS releases too many allowances to reduce emissions so that it causes low trading prices and ineffective emission reduction. Businesses, on the other hand, complain that KETS over-regulates the firms to shrink production activities and that frequent changes in the government's detailed enforcement policies confuse and weaken the businesses.

Indeed, the managing department of KETS has changed many times between the Ministry of Environment and the Ministry of Strategy and Finance. As responsibilities on KETS are fluctuating, systems were difficult to manage properly in the early stages of implementation. The quotas for the second period were also announced later than the expected deadline so that many companies complain that committing in reducing emissions would rather lose money.

As a result, since the quota setting has emerged as a top concern for emissions trading, companies are also focusing on increasing their free quotas rather than introducing realistic reduction technologies and facilities. As no clear policy directions for reducing GHGs are provided according to the long-term roadmap, companies do not make any effort to realize the reduction.

At the start line, the Korea Emissions Trading Scheme was loosely designed to put a less burden on industries, so that the government is focusing on stabilizing emissions prices and allowance supply in consideration of the grievances of companies. This atmosphere causes the KETS could not change the market behavior of companies in relation to carbon emissions. Moreover, discussion forums discussing the problems and ways to improve KETS had been more prominent in lobbying companies than evaluating their contribution to GHG reduction.

To address these problems, experts have several suggestions. First of all, it is necessary to set long-term accurate reduction targets and to quickly switch to the BM method, and to provide bold incentives for active GHG reduction activities. Rather, others say that it is desirable to give up carbon trading system and introduce carbon taxes. The carbon tax makes it even easier for companies to respond because the market is not only transparent but also predictable for the future.

With Korea's emissions trading scheme already in place and entering the second period, it is unlikely that the inertia of the system will be removed. However, when Korea is failing to meet the GHG reduction target promised to the international community, it is impossible to postpone the full critical evaluation of the role that the KETS has played and the discussion of improvement measures.