

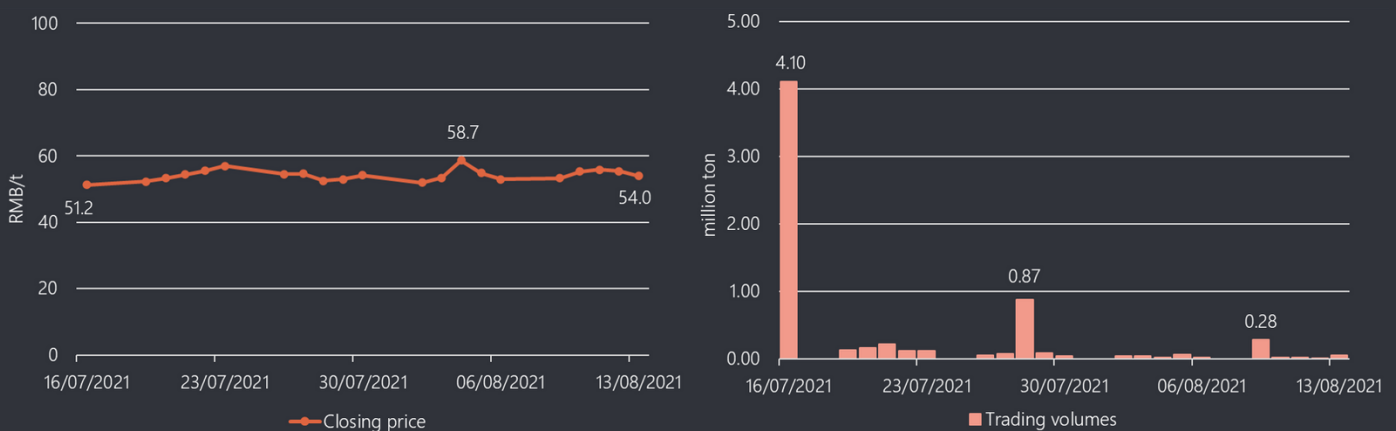
China national ETS officially starts trading

- overview and outlook -

After a decade in the making, China's national Emissions Trading System (ETS) officially started trading on 16 July 2021. It initially involves only the power sector, covering around 4.5 Gt of CO₂ emissions and 2,162 enterprises. The 31 December 2021 will be the compliance deadline for the first period (2019-2020), all allowances are currently handed out for free. The Ministry of Ecology and Environment (MEE) has handed out preliminary allocation to cover enterprises by end of June, and will finalize the allocation plan by 30 September, based on actual power generation data of 2019 and 2020. The national carbon trading platform is hosted by Shanghai Environment and Energy Exchange.

During the first month of trading, large state-owned energy enterprises including PetroChina, Sinopec and big-five power groups are actively participating. The China Emission Allowance (CEA) price remains at just above RMB 50/t. As the 2019-2020 allocation plan is seen as rather lax, majority of enterprises shall have enough allowances. Therefore, the national ETS may see slight surplus in the beginning due to generous allocation rules for the power sector, and the carbon price may not be very high in comparison to the EU ETS (currently at around RMB 380/t). In the short term, the price of Chinese Certified Emission Reduction (CCER) could act as a floor for the China national ETS price since enterprises are allowed to use offsets for up to 5% of yearly emissions for compliance.

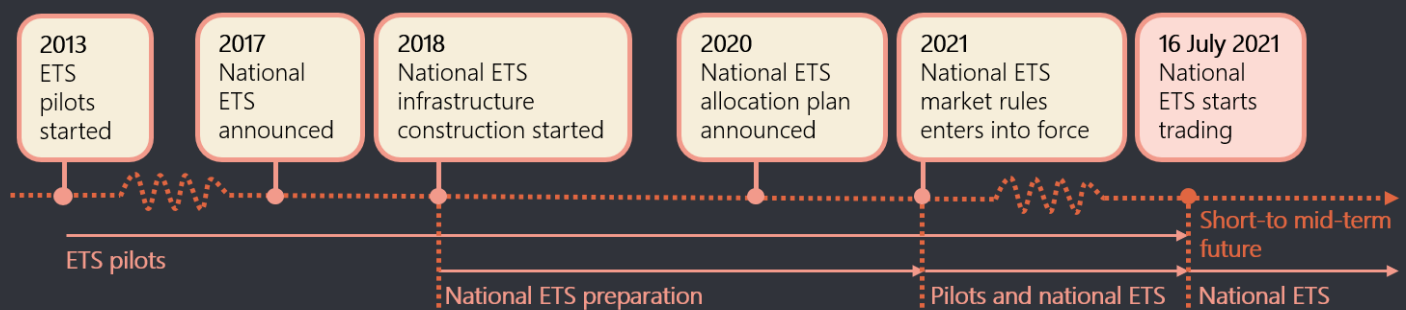
The daily closing price (left) and trading volume (right) of the first trading month in the China national ETS



Source: Shanghai Environment and Energy Exchange, accessed in August 2021

The MEE has entrusted Building Materials Federation to facilitate the GHG data collection and benchmarks calculation, thus cement and flat glasses sectors may be the next batch to be involved. Aluminum, steel and other sectors will follow. By 2025, the national ETS is expected to expand to cover industry sectors and more than 70% of China's total carbon emissions. The market balance is expected to gradually tighten with more industry sectors being included and benchmarks turning stricter, reflecting China's carbon peak and neutrality pledges.

China national ETS timeline



Note: Redrawn from Refinitiv's graph. Source: State Council, National Development and Reform Commission (NDRC), Ministry of Ecology and Environment (MEE), accessed in July 2021

Comparison of China national ETS and EU ETS

| | China national ETS | EU ETS |
|--------------------------|--|---|
| Authority in charge | Ministry of Ecology and Environment (MEE) | Director General for Climate Action (DG CLIMA), European Commission |
| Covered emissions | 4.5 Gt CO ₂ (power sector only), accounting for around 40% of national carbon emissions in 2020 | 1.4 Gt CO ₂ , accounting for around 40% of EU total GHG emissions in 2020 |
| Covered Sectors | Only power sector at first, including combined heat and power (CHP) and captive power plants; expected to expand to oil refinery, chemicals, building materials, iron and steel, non-ferrous metals, pulp and paper, and aviation sectors by 2025 | Power, industry and aviation (intra-EU flight); Discussions on expanding the scope to include maritime, buildings and transport sectors in the Fit for 55 legislative proposals from 14 July 2021 by the European Commission |
| Threshold | Yearly GHG > 26,000 ton CO ₂ -eq | N/A |
| Cap determination method | The level of benchmark is determined based on the ambition of the target | Total cap, in line with 2030 GHG target |
| Cap | Intensity-based cap with benchmarks for coal/gas-fired power and heat generation <ul style="list-style-type: none"> - Four benchmarks for conventional coal plants below and above an installed capacity threshold of 399 MW (officially called 300 MW class), unconventional coal power plants including coal gangue, coal slime, and coal water slurry, etc., and natural gas - Main benchmark is 0.877 t CO₂/MWh for coal plants > 300 MW class <i>with a 20% upper limit on shortage*</i> - Gas plants do not have compliance obligation, they can sell surplus allowance and do not need to buy allowance if emit more than allocation | A single EU-wide cap for stationary installations of 1816 Mt <ul style="list-style-type: none"> - In 2020, which is annually reduced by a linear reduction factor (currently 1.74% or ~38.3 Mt) since 2013 (2084 Mt), the cap then declines 2.2% per year from 2021 to 2030 - The European Commission has proposed to increase linear reduction factor to 4.2% to in line with the new 2030 climate target of at least 55% reduction in emissions |
| Allocation method | 100% free allocation | ~50% Auctioning and ~50% free allocation |
| Offsets | CCER offsets up to 5% of annual emissions, renewable energy, carbon sinks, forestry and methane utilization projects are involved | No use of offsets from 2021 |
| Trading | Spot trading | Spot, futures and other derivatives |
| Trading participants | Emitters only, financial investors/individuals fulfilling certain criteria will gradually be allowed to participate | Emitters, financial investors, individuals |
| Non-compliance fine | RMB 20,000-30,000 | EUR 100/ton |

Source: MEE and Refinitiv, accessed in July 2021

**20% upper limit on shortage*

*20% upper limit on shortage means that if the actual emission is over 20% of the allowance, the allowance required to buy can deduct 20% of the actual emission. This special rule aims to release the stress of large-scale coal power plants at the beginning of the national ETS. Example: Emitter A receives 0.877 t CO₂/MWh x 1000 MWh = 877 t of carbon allowance, and its actual emission is 1500 t. Then the gap (623 t) is more than 20% of its actual emission (300 t). Therefore, emitter A only requires to purchase 623 t – 300 t = 323 t of allowance to compliance with its obligation.

Outlook of China national ETS with referable EU ETS experiences

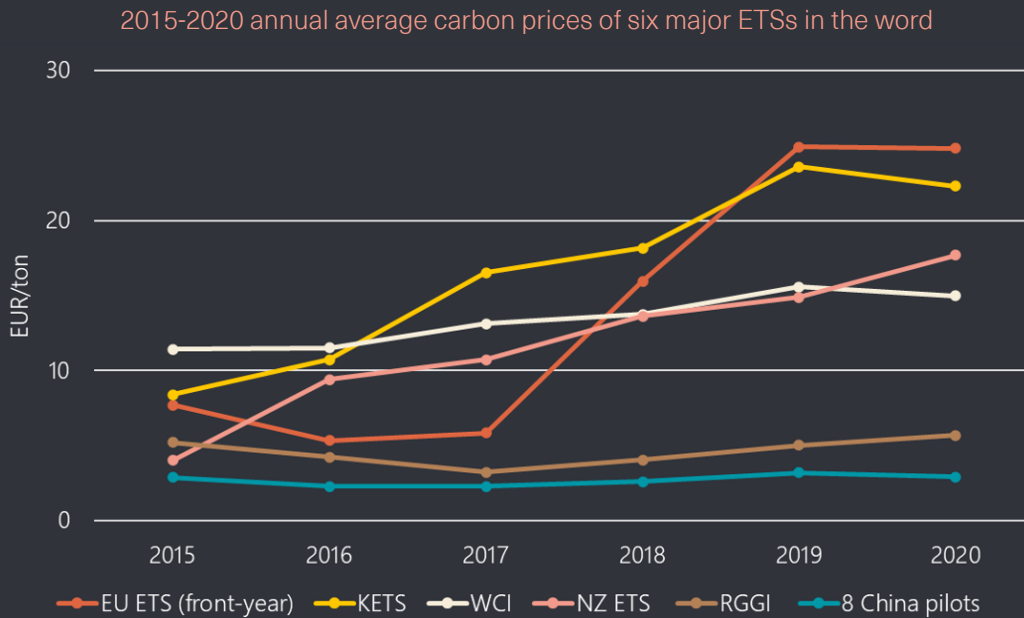
**The contents of EU ETS is provided by the Carbon Research Team of Refinitiv*

Q1 What will happen to the existing pilot ETSs?

Answers: China has established seven provincial/regional pilot ETSs and Fujian ETS since 2013. After the national ETS started in 2021, power sector enterprises will need to opt out from the pilot and be included in the national scheme. The MEE has clarified that when national ETS gradually expand to cover more sectors, enterprises in these sectors shall opt out from the pilot. No more pilot ETS will be established. The regulator has not clarified how to handle the surplus allowances in the pilot transiting to the national ETS. However, existing local ETS can still exist if they have own features and also if they cover sectors not in the national ETS. This leaves room for the pilot ETS to operate longer even if the national ETS cover both power and industry sectors by 2025. For example, Guangdong pilot ETS has stated that it plans to add five new sectors including buildings, transport, data center, ceramics and textiles.

Q2 What are the price expectations from the China national ETS?

Answers: At present, China ETS limits daily price swings in trading to 10%, the price in the existing pilot ETS has also been low compared to other ETSs. This is mainly due to generous allocation rules. Chinese Power fleet's coal and emission intensity has been declining in recent years due to larger plants replacing smaller and older ones. For instance, the average coal consumption of thermal power decreased from over 320g/kWh to around 306g/kWh in the past decade. Although the national ETS benchmarks have had a soft start, it could tighten in the short-term future, reflecting the 30-60 carbon targets. Moreover, the draft ETS Trading Regulation in March 2021 stated that the regulator will establish market adjustment protection mechanism in the national ETS. In case of abnormal fluctuations in carbon prices, MEE can implement open market operations, adjust CCER usage, etc.



Note: EU ETS– Europe ETS; KETS – Korean ETS; WCI – ; NZ ETS – Newzeland ETS; RGGI – Regional Greenhouse Gas Initiative of the United State; 8 China pilots - Beijing, Shanghai, Tianjin, Chongqing, Shenzhen, Guangdong, Hubei and Fujian. Source: Refinitiv, July 2021

Q3 How can China's ETS contribute to reduce emissions ?

Answers: China's national ETS is one of the core instruments in achieving its climate targets. With the current intensity-based targets, the benchmark will mainly work to improve the efficiency of the thermal power fleet. China has pledged to peak emissions before 2030, leaving room for emissions to increase in the short term as economic growth currently boosts energy demand. Thus, the intensity-based target of the ETS can only marginally reduce emissions and cannot put power sector emissions on a declining path.

In the EU, ETS prices have been quite effective in reducing power sector emissions via boosting the competitiveness of gas-fired and renewable power generation, which then replaces coal-fired generation and leads to coal phase-out. China's power sector is different, both in terms of the dominance of coal in power mix and the lack of fully liberalized power market. Therefore, China's national ETS price will not be able to drive a coal-to-gas switch in the power mix as in Europe, although coal-to-gas in EU is also limited due to the high gas prices. Nevertheless, the launch of ETS has now established a national carbon price in China, which is a signal to incentivize clean energy especially renewable power generation. Gradual tightening of the allocation rules and eventually switching to absolute cap could increase the impact of the ETS and drive up allowance prices, thus enabling a low-carbon transition.

Q4 What are the effects of the non-compliance penalty?

Answers: The non-compliance penalty in China national ETS is currently only a lumpsum of RMB 20,000 to 30,000. This is low compared to the EUR 100/t (RMB 760/t) penalty in the EU ETS. Low penalty will be ineffective in preventing enterprises to report data or surrendering enough allowances. In the first phase of EU ETS, the penalty was set at EUR 40/t (RMB 300/t) and later increased to the current number. Significantly higher penalty will be more effective in deterring non-compliance behaviors in EU ETS and contributed to stronger enforcement. In the draft ETS Trading Regulation from March 2021, the non-compliance penalty is increased to RMB 100,000~500,000, and up to RMB 10 million severe misconduct such as market manipulation.

Q5 What about the interaction of China national ETS and EU ETS, especially after the European Carbon Border Adjustment Mechanism has been proposed?

Answers: Linking ETSs is complicated and unlikely to take place in near term. China's national ETS is designed rather similarly to the EU ETS, being both a cap and trade scheme. The EU has contributed a lot to capacity building of establishing China's ETS. However, China's national ETS currently adopts intensity-based targets, which is different from the absolute cap in EU ETS. Covered sectors are also different under both schemes. Until the two schemes become more compatible in design, linking them is unrealistic.

On the other hand, the ongoing discussion of Carbon Border Adjustment Mechanism (CBAM) in the EU could also influence further development in China's ETS. The CBAM will affect the Chinese steel and aluminum producers according to the current proposal. There is some room for deducting carbon costs that third-countries have also paid under carbon pricing schemes. Speeding up the inclusion of steel and aluminum sectors into China national ETS will both help the exporting enterprises to establish solid emissions data monitoring system and accounting for carbon costs.

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