International Carbon Action Partnership

China - Guangdong pilot ETS

General Information

ETS Description

The Guangdong ETS was launched in December 2013. With broad sectoral coverage, the Guangdong ETS is the largest of the Chinese ETS pilots in terms of market size and spot trading volume. Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions or free allocation.

The Guangdong ETS covers emissions from almost 400 entities in the cement, steel, petrochemicals, paper, and domestic aviation sectors. Since its launch, its scope has expanded to include ceramics, textiles, and data centers. The ETS has an absolute cap that is announced annually. Allowances are primarily allocated for free, although ad hoc auctions have been held since 2017. In recent years, the Guangdong ETS has introduced new measures to enhance market liquidity and is one of the regional pioneers for allowance forward trading in China.*

The Guangdong ETS was the fourth largest ETS in the world before the power sector was transferred to the Chinese national ETS in 2020. As the national ETS expands to new sectors, covered entities in these sectors will be integrated into the national ETS.

* China is still in the exploratory and research stage of carbon futures trading; according to the “Administrative Regulations on Futures Trading” document, futures can only be traded on approved professional futures exchanges. Regional ETS pilots thus cannot introduce futures trading; however, a few have developed their own unique carbon forward trading products.

ETS Status

in force

Jurisdictions

Guangdong

Year in Review

In January 2024, the Guangdong Ecology and Environment Bureau (EEB) released the 2023 allocation plan, expanding coverage to ceramics production, ports, and data centers. According to the allocation plan, 222 new entities from these three sectors are covered from 2023. The Guangdong ETS also covers airports and textile companies above the threshold, though on a voluntary basis.

In August, the Guangdong EEB released a work notice to freeze the allowance for power, steel, cement sectors, to ensure a smooth transition from Guangdong ETS to the national ETS. These sectors cannot trade allowances before Guangdong EEB releases a transition plan for these allowances in the 2024 allocation plan.

In September, the Guangdong EEB announced that all 391 covered entities fulfilled their compliance obligations in 2023.

Sectoral coverage

Domestic Aviation
Industry

Revenue usage

General budget, including debt reduction

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO2e)

693.5 $MtCO_2$ (2020)*

* No data is publicly available for recent years. Data here is provided by local experts.

GHG reduction targets

By 2025: 20.5% reduction in CO_2 intensity compared to 2020 levels (in line with central government requirement) (Guangdong Province 14th Five-Year-Plan for Tacking Climate Change)

By 2030: Peak carbon emissions (Guangdong Province Implementation Opinions on Implementing the New Development Concept and Promoting Carbon Neutrality)

By 2060: Climate neutrality (Guangdong Province Implementation Opinions on Implementing the New Development Concept and Promoting Carbon Neutrality)

Current Allowance Price (per t/CO2e)

Average secondary market price: CNY 51.37 (USD 7.14) (updated prices available here)

Size & Phases

Covered emissions (2021)

40.00%

GHGs covered

CO2

Phases

PHASE 1: Three years (2013 to 2015)

PHASE 2: Five years (2016 to 2020)

PHASE 3: Ongoing (2021 to present)

Cap or total emissions limit

A cap limits the total emissions allowed in the system. Guangdong is one of few pilots in China that announces its annual emissions cap. Within the annual cap, the government also keeps a certain amount as a reserve for new entrants and market stability (see 'Market Stability Provisions' section).

PHASE 1:

2013: 388 $MtCO_2$ (including 38 $MtCO_2$ reserves)

2014: 370 $MtCO_2$ (including 38 $MtCO_2$ reserves)

2015: 408 $MtCO_2$ (including 38 $MtCO_2$ reserves)

PHASE 2:

2016: 386 $MtCO_2$ (including 21 $MtCO_2$ reserves)

2017: 422 $MtCO_2$ (including 23 $MtCO_2$ reserves)

2018: 422 $MtCO_2$ (including 23 $MtCO_2$ reserves)

2019: 465 $MtCO_2$ (including 27 $MtCO_2$ reserves)

2020: 465 $MtCO_2$ (including 27 $MtCO_2$ reserves)

PHASE 3*:*

2021: 265 $MtCO_2$ (including 13 $MtCO_2$ reserves)

2022: 266 $MtCO_2$ (including 13 $MtCO_2$ reserves)

2023: 297 $MtCO_2$ (including 14 $MtCO_2$ reserves)

* The drop from 2020 is largely due to the transfer of the power sector into the China national ETS.

Sectors and thresholds

PHASE 1*:* Power, iron and steel, cement, and petrochemicals

PHASE 2:

2016: Power, iron and steel, cement, aviation, and petrochemicals

2017 to 2020: As above, plus papermaking

PHASE 3*:*

2021: Iron and steel, cement, papermaking, aviation, and petrochemicals

2022: As above, plus ceramics, textiles, and data centers

2023: As above, plus ceramics (building and hygiene) and transportation (ports)

INCLUSION THRESHOLDS:

2013 to 2021: Emissions of at least 20,000 tCO_2 per year or energy consumption of 10,000 tce per year

2022 onwards: Emissions of at least 10,000 tCO_2 per year or energy consumption of 5,000 tce per year

Point of regulation

Point source (industry); downstream (indirect emissions from electricity and heat consumption).

Type of entities

Companies

Number of entities

391 existing entities, 26 new entrants (2023)

Allowance Allocation & Revenue

Allowance allocation

FREE ALLOCATION: Allowances are distributed primarily via free allocation through grandparenting based on historical emissions or emissions intensity, or benchmarking.

Benchmarking: Benchmarking is applied to industrial processes in cement, paper, steel sectors, data centers and aviation.

Grandparenting: Grandparenting on the basis of total historical emissions is applied to some processes in the cement and steel industries, the whole petrochemicals industry and textile industry. Grandparenting on the basis of historical emissions intensity is also applied to some products in the cement industry, captive power plants in the steel industry, special paper and paper product manufacturers, enterprises with pulp manufacturing, other aviation enterprises, ceramic industry (building and hygiene) and ports.

Ex-post adjustments based on real production data of the respective compliance year are also applied for those sectors that use benchmarks and emissions intensity methods.

PHASE 1:

2013 and 2014: 97% free allocation for all sectors;

2015: 95% free allocation for the power sector,

97% free allocation for other sectors.

PHASE 2*:*

2016 to 2019: 95% free allocation for the power sector, 97% for other sectors.

2020: 95% free allocation for the power sector, 100% for aviation,

97% free allocation for other sectors.

PHASE 3*:*

100% free allocation for aviation, 97% for ceramic, ports, data center and textile,

96% for other sectors,

6% for new entrants (since 2023).

AUCTIONING: Guangdong auctions a small share of allowances. In the first compliance year, entities were required to purchase allowances at auction to be eligible to receive their freely allocated allowances. This requirement was terminated in 2014.

Quarterly auctions were held until 2016; since 2017, they have been held on an ad hoc basis. Auctions are also subject to a reserve price (see 'Market Stability Provisions' section).

The allowance volume available for auction was adjusted from 2 million (until 2018) to 5 million for 2019. The last auction took place in April 2020 for the 2019 compliance year, with a floor price of CNY 25.84 (USD 3.59). Only 400,000 allowances were sold at CNY 28.20 (USD 3.92).

Total Revenue

CNY 815.46 million (USD 113.3 million) since the beginning of the program

Use of Revenues

Revenues are attributed to the provincial treasury.

Flexibility & Linking

Offset credits

The use of offset credits, namely Chinese Certified Emissions Reductions (CCERs) and Tan Pu Hui Certified Emission Reductions (PHCER) stemming from a local offset program introduced in 2017, is allowed.

QUANTITATIVE LIMITS: The use of offset credits is limited to 10% of covered entities' annual emissions. In addition to the quantitative limit applied to individual entities, Guangdong sets an upper limit on the total volume of offset credits allowed. In 2020, entities could use up to 1.5 million offset credits towards compliance obligations, with priority given to CCERs and PHCERs from projects within Guangdong. In 2021 and 2022, entities could use up to one million offset credits for compliance. For 2023, no quantitative limit was announced.

QUALITATIVE LIMIT: At least 70% of offset credits used by each covered entity must come from within Guangdong province. Pre-CDM credits are not eligible. Offset credits from hydropower and from most fossil fuel projects are also not eligible. Offset credits generated in other Chinese ETS pilot regions are not eligible. To be eligible, projects must relate primarily (i.e., more than 50%) to the reduction of CO_2 or CH_4 emissions.

OFFSET CREDIT AUCTIONS: Guangdong employs auctioning for PHCERs in addition to the existing secondary market trading, with an auction reserve price set by the local exchange and offset project developers. In 2021, six PHCER auctions were held. No auctions were held in 2022. In 2023, four PHCER auctions were held.

Banking and borrowing

Banking is allowed.

Borrowing is not allowed.

Links with other Systems

Guangdong plans to explore the feasibility of the construction of a joint or linked carbon market within the Guangdong-Hong Kong-Macao Greater Bay Area. Details of such a plan are not yet available.

Guangdong and Hubei explored linking their pilot markets in 2012 and 2013, but this did not materialize.

Other carbon pricing instruments in the jurisdiction

ETS: National Chinese ETS

Domestic crediting mechanisms: Tan Pu Hui local offset credits in Guangdong (PHCER)

Domestic crediting mechanism (national): Chinese Certified Emissions Reductions (CCER)

Compliance

Compliance mechanism

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

Compliance Period

One calendar year. Covered entities have until June or August of the following year to surrender allowances.

Monitoring, Reporting, Verification (MRV)

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING: Annual

VERIFICATION: Third-party verification is required. In addition, further verification was initially carried out by government-assigned expert groups in the first three compliance years. Onsite cross re-verification was conducted for entities with questionable verification reports, as well as for randomly selected entities.

A “fourth-party independent evaluation system” has been in place since the 2016 compliance period. “Technical evaluation organizations” selected by the government carry out technical review and evaluation of annual emissions and verification reports and undertake further onsite review and random inspection tasks. These organizations do not undertake regular third-party verification tasks. The government also conducts random checks on emissions reports.

FRAMEWORK: The Guangdong EEB revised reporting and verification guidelines for the compliance entities and third-agency verification sectors in 2022.

OTHER: Industrial enterprises with annual emissions of 5,000 to 10,000 tCO_2 are required to report their emissions. Verification is not required.

Penalties and enforcement

ENTITIES: Penalties for failing to submit emissions or verification reports on time range from CNY 10,000 (USD 1,389) to CNY 50,000 (USD 7,058). Companies failing to surrender sufficient allowances are deducted twice the number of allowances from the following year's allocation and fined CNY 50,000 (USD 6,947). Other non-financial penalties include negative impacts on access to bank loans and subsidy programs.

TRADING INSTITUTIONS: Penalties for failing to publish transaction information or failing to establish and implement a risk management system range from CNY 10,000 (USD 1,389) to CNY 50,000 (USD 6,947).

THIRD-PARTY VERIFIERS: Third-party agencies are fined between CNY 30,000 (USD 4,168) and CNY 50,000 (USD 6,947) for issuing false verification reports, material errors in verification reports, or for unauthorized use or publication of confidential corporate and emissions information.

Market Regulation

Market Stability Provisions

RAUCTION RESERVE PRICE

Instrument type: Price-based instrument

Functioning: In 2015, a "policy reserve price" was set as an effective reserve price, which links the auction reserve price with the secondary market price. Each year, 5% of allowances are set aside as government reserves for new entrants and market stability. The specific rules for market stability are provided by the "Trial Measures for ETS".

In 2016, the policy reserve price was set at 100% of the weighted average price for allowances over the previous three months. When auctions resumed in April 2020 for the compliance year 2019, the policy reserve price was set at 90% of the weighted average price for allowances over the previous three months, considering the impact of the COVID-19 pandemic. No auctions have been held since April 2020.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The China Emissions Exchange Guangzhou implements a system of limits on price increases and decreases for trading over the exchange. This is 10% above or below the reference price (the weighted average price of all transactions on the previous trading day) for listed trading, as well as 30% for block trading. Only transactions within this price range can be successfully completed within the Exchange.

Market Design

MARKET PARTICIPATION: Compliance entities; domestic and international institutional investors that meet the requirement of the carbon emission trading rules set by China Emissions Exchange (CEEX).

MARKET TYPES:

Primary: As the first Chinese region to introduce auctioning as a method for allowance allocation, Guangdong held quarterly auctions until 2016. Since 2017, auctions have been held on an ad hoc basis. The CEEX organizes auctions for the primary market.

Secondary: The Guangdong Emission Allowance is the main spot trading product in the secondary market. Bidding transfer was introduced in 2020 to organize auctions for covered entities to enhance market efficiency for the secondary market. CCERs and PHCERs are also traded in the secondary market. All products are traded on the CEEX.

Due to the financial market regulations in China, no standardized forward markets or derivatives are allowed. However, with the April 2021 establishment of the Guangzhou Futures Exchange, Guangdong is seeing new momentum to study and explore the launch of carbon futures and other innovative financial products.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

Other Information

Institutions involved

Guangdong EEB Province (EEB): Responsible for ETS affairs, including MRV.

China Emissions Exchange Guangzhou (CEEX): Responsible for operating the trading platform.

Guangdong Research Center for Climate Change: Responsible for administrating the registry.

Regulatory Framework

Guangdong Pilot ETS Implementation Plan (2012)

Implementation Plan of Guangdong Emissions Trading to Support Peaking Carbon Emissions and Achieving Carbon Neutrality (2023-2030).
Trial Measures for Carbon Emissions Trading in Guangdong (2014)
Guangdong EEB – Regulations of PHCER trading management

Guangdong EEB - Allocation Plan for 2023

Evaluation / ETS review

No public information about the evaluation or review system is available. However, the Guangdong Research Center for Climate Change has published a biannual/annual report on the Guangdong ETS with an overview of its performance from 2013 to 2023.* In addition, research on improving MRV and allowance allocation has been undertaken, funded by the local government.

* The latest iteration of this report is available at https://www.efchina.org/Reports-zh/report-lceg-20220427-zh.

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