International Carbon Action Partnership

China - Hubei pilot ETS

General Information

ETS Description

The Hubei Pilot ETS was launched in April 2014. Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions or free allocation.

Hubei's system covers around 500 entities in a broad range of industrial sub-sectors and data centers. Unlike the other Chinese pilots, Hubei does not pre-define which sectors are covered under its ETS; rather, it sets a threshold which applies to all industrial sectors. Allowances have primarily been freely allocated, through both grandparenting and benchmarking, although several ad hoc auctions have been held since 2014.

Hubei has been one of the most active regional markets in China and has the second largest market, in terms of spot trading volume, after Guangdong. It is also one of the regional pioneers for allowance forward trading in China. Hubei has also played an important role in the National Carbon Market: in 2017, it was selected to lead the development of the registry for the National Carbon Market, which the China Hubei Emission Exchange has operated since the National Carbon Market began. In 2022, Hubei established the China Carbon Emissions Registration and Clearing Co., Ltd. in Wuhan to manage the registry and clearing system for the National Carbon Market.

The Hubei ETS operates in parallel with China's National Carbon Market. As the National Carbon Market expands, covered entities in these sectors are being integrated into the national system.

ETS Status

in force

Jurisdictions

Hubei

Year in Review

In November 2024, the Hubei Ecology and Environment Bureau (EEB) issued the "Work Plan for Establishing and Implementing Carbon Inclusive System (2024 to 2027)", which sets the roadmap to establish provincial offset credits system and link it to Hubei ETS. In June 2025, Hubei EEB conducted a public consultation for "Hubei Carbon Inclusive Emission Reductions Management Measures (Trial)", which will regulate the issuance, administration, and usage of the provincial offset mechanism.

In January 2025, Hubei announced that all covered entities surrendered their compliance units for compliance year 2023.

In June, the Hubei EEB issued the "Work Plan for expanding the coverage of Hubei ETS". It sets the plan to lower inclusion threshold, brings in certain transport sub-sectors and public buildings, and adds coverage of non-CO_2 emissions in selected sectors. The expansion will be implemented over compliance years 2025 to 2027.

In October, the Hubei EEB released the 2024 allocation plan, which applies similar allocation methods as the 2023 plan. For paper, automobile manufacturing, and phosphorus chemical industries, output-based benchmarking started to apply. It confirmed that covered entities from the steel, cement, and aluminum sectors have transitioned to the National Carbon Market.

Sectoral coverage

Buildings
Industry

Revenue usage

General budget, including debt reduction

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO2e)

372.8 $MtCO_2$ (2022)*

*Due to the lack of publicly available data, the data reported here is estimated by local expert based on public sources.

GHG reduction targets

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

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

Current Allowance Price (per t/CO2e)

Average secondary market price: CNY 31.47 (USD 4.38)(updated prices available here)

Size & Phases

Covered emissions (2022)

48.00%

GHGs covered

CO2

Phases

2014 and ongoing

Cap or total emissions limit

The total emission limit under the Hubei ETS changes as a function of production (output) and is the sum of the bottom-up output-based/installation-level emissions limits for all individual covered entities. The bottom-up emissions limits do not represent an absolute cap. Inclusive of reserves, the caps for past years were as follows:

2014: 324 $MtCO_2$

2015: 281 $MtCO_2$

2016: 253 $MtCO_2$

2017: 257 $MtCO_2$

2018: 256 $MtCO_2$

2019: 270 $MtCO_2$

2020*: 166 $MtCO_2$

2021: 182 $MtCO_2$

2022: 180 $MtCO_2$

2023: 179 $MtCO_2$

2024: 80.7 $MtCO_2$

*This decrease is mainly due to the transfer of the power sector into the National ETS.

Sectors and thresholds

Unlike other Chinese pilots, Hubei does not pre-define which sectors are covered under its ETS; rather, it sets a threshold which applies to all industrial sectors. Sub-sectors with entities above the threshold are then covered.

Those currently covered include heat supply, iron and steel, nonferrous metals, petrochemicals, chemicals, textiles, glass and other building materials, pulp and paper, ceramics, automobile manufacturing, equipment manufacturing, food and beverages, medicine producers, data centers and water supply. Until 2019, power generation was also covered, after which it was integrated into the National Carbon Market. Steel, cement, and aluminum were integrated into the National Carbon Market from 2024 onwards. From 2025, the Hubei ETS has started to cover certain non-industrial sectors, such as public buildings for data centers.

INCLUSION THRESHOLDS:

Until 2015: Annual energy consumption of more than 60,000 tonnes of coal equivalent (tce) in any year between 2010 and 2011, applying to all energy and industrial sectors.

2016 to 2022: Annual energy consumption of more than 10,000 tce in any of the most recent two years, applying to all energy and industrial sectors.

2023 onwards: Entities with annual emissions of 13,000 tCO_2 or more.

2025: Previously covered sectors plus data centers with annual emissions of more than 5,000 tCO_2 or annual energy consumption of more than 2,000 tce. Methane (CH_4) in paper manufacturing, food and beverages, and pharmaceuticals is covered.

2026: Previously covered sectors plus public buildings with annual emissions of more than 10,000 tCO_2 or annual energy consumption of more than 4,000 tce; cargo ports with annual emissions of more than 5,000 tCO_2 or annual energy consumption of more than 2,000 tce. N_2O and fluorinated gases in industrial sectors will be covered.

2027 (upcoming): Previously covered sectors plus road freight transport with annual emissions of more than 5,000 tCO_2 or annual energy consumption of more than 2,000 tce and cargo ports with annual emissions of more than 3,000 tCO_2 or annual energy consumption of more than 1,000 tce. The threshold for industrial sector companies will be lowered to annual emissions of more than 8,000 tCO_2 or annual energy consumption of more than 3,000 tce.

Point of regulation

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

Type of entities

Companies

Number of entities

449 (2024)

Allowance Allocation & Revenue

Allowance allocation

Allowances are distributed for free, using benchmarking or grandparenting.

The allocation plan is updated every year. For the compliance year 2024:

FREE ALLOCATION:
Benchmarking: Benchmarking is used for plate glass, complete vehicle manufacturing, some paper types (toilet paper, printing paper and corrugated paper), and the phosphorus chemical industry.

Grandparenting: Grandparenting based on historical emissions intensity is used for heat production and supply, other paper making, glass and building materials, water supply, textiles, and equipment manufacturing, based on the previous three years' data.

Grandparenting based on historical emissions or emissions intensity is used for other sectors except data centers.

For compliance year 2024, covered data centers received the number of allowances equal to their verified emissions.

Ex-post allocation adjustments are applied, especially for those sectors that use benchmarks and emissions intensity. In this case, entities first receive a volume of allowances equivalent to 70% of their previous year's verified emissions; actual production data is then used to update allocation ex-post, after verification.

Hubei also uses a "market adjustment factor", which is applied to all covered entities to reduce overall allocation. This is determined based on the previous year's supply-demand balance, while taking the province's overall economic development and the achievement of its climate mitigation targets and strategies into consideration. For the 2024 compliance year, it was set at 0.9344 (as compared to 0.9706 for the previous year). Covered entities that demonstrate strong efforts in reducing both air pollution and carbon emissions and are not subject to environmental penalties in 2024, will apply 0.97 as market adjustment factor.

Hubei uses a capping mechanism for compliance obligations. If the difference between an entity's annual verified emissions and the allocation exceeds either 20% of the allocation or 200,000 tCO_2 (above or below the allocation), the cap will be adjusted accordingly to balance out the surplus or deficit.*

AUCTIONING: A small share of the annual cap can be auctioned. The main purpose of auctions is to promote price discovery and provide regulated entities with additional supply to meet their compliance demand. To date, auctions have been held on an ad hoc basis and took place in 2014, 2019, 2020, 2021, 2022, and 2023. Recent years have seen two auctions per year, with the first for covered entities only and the second open to all participants. The reserve price of the auctions is the weighted average spot market price of the previous two years. Allowances have sold at the reserve price or slightly above.

*Two types of limits, as opposed to only one, are set based on the consideration that 20% may suit smaller entities better while 200,000 tCO_2 may suit larger ones.

Total Revenue

CNY 430.81 million (USD 59.9 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 (CCERs) and green electricity certificates is allowed. The green electricity certificates are the proof of the environmental attributes of China's renewable energy power, which can be commercially transferred between power producers and consumers.

The use of Chinese Certified Emission Reductions is no longer allowed since compliance year 2024.

QUANTITATIVE LIMITS: Only covered entities with a shortfall can use green electricity certificates and provincial credits to offset their emissions. This use is limited to the shortage and maximum 5% of the annual initial allocation for each entity. Green electricity certificates cannot be banked to offset the emission in the future.

QUALITATIVE LIMITS: Green electricity certificates must be certified both by the China Hubei Emission Exchange and the Hubei Electricity Exchange

Banking and borrowing

Banking is allowed, but only for allowances that have been traded at least once.

Borrowing is not allowed.

Links with other Systems

Though Hubei explored linking with the Guangdong ETS pilot in 2012 and 2013, this did not materialize and there are no further plans for linking.

Other carbon pricing instruments in the jurisdiction

ETS: Chinese national ETS

Domestic crediting mechanisms: Tan Pu Hui local offset credits in Hubei

Domestic crediting mechanisms (national): China Certified Emissions Reduction (CCER)

Compliance

Compliance mechanism

Covered entities must surrender one compliance unit (allowance or offset credit) per tCO_2e emitted for all their covered emissions.

Compliance Period

One calendar year; covered entities have until the last working day of November of the following year to surrender allowances.

Monitoring, Reporting, Verification (MRV)

FRAMEWORK: The Hubei government has released general rules on monitoring and reporting guiding for all sectors. It also released Verification Guidelines for Hubei Province Enterprise Carbon Emission Verification (Trial) to guide the verification agencies and verifiers.

MONITORING: Covered entities are required to set up and implement plans to monitor their emissions.

REPORTING: Annual. Covered entities must submit their emission reports to the Hubei EEB by the end of March in the year following the compliance year.

VERIFICATION: Third-party verification is required. Third-party verifiers may be involved in mutual evaluation of each other's verification reports. In addition, "fourth-party verification" is carried out by government-assigned experts to further enhance accuracy.

Penalties and enforcement

COVERED ENTITIES: Penalties for failing to submit an emissions or verification report on time range from CNY 10,000 (USD 1,391) to CNY 30,000 (USD 4173).

Between CNY 20,000 (USD 2782) and CNY 30,000 (USD4,173) can be imposed for non-compliance, in addition to the obligation to surrender the missing number of allowances.

TRADING INSTITUTIONS: Trade participants who manipulate the market face up to CNY 150,000 (USD 20,863) in fines.

THIRD-PARTY VERIFIERS: Verifiers submitting false verification reports face up to CNY 150,000 (USD 20,863) in fines.

Market Regulation

Market Stability Provisions

ALLOWANCE RELEASE AND REPURCHASE Instrument type: Price-based instrument

Functioning: In case of market fluctuations, severe supply-demand imbalances, or liquidity issues, the Hubei EEB –in consultation with an advisory committee consisting of government institutions and other stakeholders – can buy or sell allowances in order to stabilize the market. Specifically, the Hubei EEB takes action if the allowance closing price reaches a low or high point of the daily negotiation range six times during a 20-day period.

6% of the total cap is kept as a government reserve for market stabilization. The Hubei EEB can organize irregular auctions according to market demand, no fixed triggers are envisaged

EXCHANGE

Instrument type: Price-based instrument

Functioning: The exchange limits day-to-day price fluctuations to a 10% move in either direction for listed trading, as well as 30% for block trading. Only transactions within this price range can be successfully completed on the exchange.

Market Design

MARKET PARTICIPATION: Compliance entities; non-compliance entities such as domestic and international institutional investors; individual investors meeting the participation requirements of the relevant local trading exchange.

MARKET TYPES:

Primary: TheChina Hubei Emission Exchange organizes ad hoc auctions for the primary market. Since 2019, Hubei has held two separate rounds of auctions targeting different types of entities.

Secondary: Spot products include Hubei Emission Allowances (HBEAs) and CCERs. The HBEA spot forward product was introduced in 2016 but has not been traded since May 2017. The China Hubei Emission Exchange manages trading of all products.

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

Other Information

Institutions involved

Hubei Ecology and Environment Bureau (EEB): Responsible for establishing and overseeing the Hubei ETS after governmental restructure in 2019.

China Hubei Emission Exchange: Responsible for operating the trading platform and registry.

Regulatory Framework

Interim Management rules of Emission Management and Trading (2024)

Hubei Province Implementation Opinions on Implementing the New Development Concept and Promoting Carbon Neutrality (2022)

Hubei Pilot ETS 2024 allocation plan (2025)

Work Plan for expanding the coverage of Hubei ETS (2025)

Evaluation / ETS review

No information is publicly available regarding the evaluation or review system. However, research on improving the Hubei ETS has been undertaken every year, funded by the local government.

Disclaimer

In line with ICAP’s mandate, the ICAP ETS map exclusively covers cap-and-trade systems for greenhouse gas emissions. Information displayed on the map is regularly updated by ICAP Secretariat staff based on official and public information as far as possible and subject to annual peer review by government representatives from the covered systems. Although the information contained in the map is