

China - Tianjin pilot ETS

General Information

ETS Description

Tianjin launched its pilot ETS in December 2013. The Tianjin Pilot ETS covers emissions from 254 entities in steel, petrochemicals, chemicals, oil and gas exploration, papermaking, airport, building materials, food and beverages, non-ferrous metals, machinery and equipment manufacturing, mining, agricultural and food processing, pharmaceutical manufacturing, and electronic equipment manufacturing sectors. Covered entities must surrender allowances for all their covered emissions, which is based on either their historical emissions or historical emissions intensity.

Allowances are primarily allocated through grandfathering, based on either base year total emissions or emissions intensity. Auctions are also held, with the main purpose of providing covered entities with additional supply to meet their compliance demand. Between 2019 and 2021, Tianjin held five auctions.

Several measures were introduced in 2020 to strengthen compliance: companies that fail to surrender enough allowances will have double the amount of the shortfall deducted from the next year's allocation, and third-party verifiers found to not comply with regulations will be banned for three years.

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

ETS Status

in force

Jurisdictions

Tianjin

Year in Review

In February 2025, the Tianjin Ecology and Environment Bureau (EEB) published the "Work Plan for Expanding the Scope of the Coverage of the Tianjin Carbon Emissions Trading Market" after a public consultation in August 2024. It expanded the coverage to ports and maritime transport (See 'Sectors and Thresholds' section).

In June, the Tianjin Municipal People's Government updated the Interim Measure for Management of Emissions Trading in Tianjin to align with the National Carbon Market, and improve MRV and market oversight regulations.

In October, the Tianjin Pilot ETS completed the compliance process for compliance year 2024, with a reported 100% compliance rate.

The Tianjin EEB, the Tianjin Development and Reform Commission, and Tianjin Branch of the People's Bank of China jointly issued the "Action Plan for Deepening Reform of the Tianjin ETS" in October 2025. This plan sets out the development direction for the Tianjin ETS by 2030, with key priorities including:

1. lowering inclusion thresholds, expanding the sectors covered and other non-CO2 GHGs;
2. developing benchmarks allocation method, introducing incentives for the covered entities which successfully reduce air pollution or

increased energy efficiency;

3. increasing the proportion of allowances allocated via auction; and
4. cancelling the free allowances from the covered entities transferred to the National Carbon Market.

Over the next five years, the Tianjin EEB and other relevant departments will refine the design of the Tianjin ETS in accordance with this plan.

In December, the Tianjin EEB published the 2025 allocation plan, confirming the coverage of maritime transport and ports, with 40 million tonnes of total emissions allowances.

Sectoral coverage

Mining and extractives
Industry

Revenue usage

General budget, including debt reduction
Climate mitigation

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO₂e)

152.7 MtCO₂ (2022)*

*There is no publicly available data, the data reported here is estimated by local experts.

GHG reduction targets

By 2030: Reduction of carbon intensity by 65% compared to 2005; peak carbon emissions (Tianjin Carbon Peak Implementation Plan)

Current Allowance Price (per t/CO₂e)

Average secondary market price: CNY 34.15 (USD 4.75)

Size & Phases

Covered emissions (2022)

50.00%

GHGs covered

CO₂ only

Phases

Ongoing (2014 to present)

Cap or total emissions limit

The total emission limit under the Tianjin 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.

For recent years, the cap was as follows:

2021: 75 MtCO₂

2022: 75 MtCO₂

2023: 74 MtCO₂

2025: 40 MtCO₂

Sectors and thresholds

Iron and steel, petrochemicals, chemicals, oil and gas exploration, public building (airport), building materials, non-ferrous metals, medical and pharmaceutical manufacturing, machinery and equipment manufacturing, agri-food processing, food and beverage, salt-mining, rubber and plastic products.

In 2021, Tianjin expanded its ETS to entities above the inclusion threshold from all industrial sectors (without pre-selection of specific sectors).

Electricity production was covered until 2019, after which it was integrated into the National Carbon Market. The steel and cement sectors have been covered by the National Carbon Market since 2024.

Starting from compliance year 2025, the Tianjin ETS will cover ports and maritime transport.

INCLUSION THRESHOLDS: From 2013 to 2024, 20,000 tCO₂/year, considering both direct and indirect emissions.

Starting from the 2025 compliance year, the threshold for all sectors was lowered to 10,000 tCO₂/year.

Point of regulation

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

Type of entities

Companies

Number of entities

254 (2025)

Allowance Allocation & Revenue

Allowance allocation

Allowances are distributed for free, using benchmarking or grandfathering. The allocation plan is updated every year. For the compliance year 2025:

FREE ALLOCATION:

Grandparenting: Grandparenting method based on historical emissions intensity is used in the building materials, paper, and paper products sectors. It also applies to covered entities in the following sectors, provided that they have no more than three main products and have well-established metering and statistical conditions, and have been verified and approved to adopt this method: machinery and equipment manufacturing, agricultural and food processing, electronic equipment manufacturing, food and beverage, mining, rubber and plastic products, tobacco manufacturing, ports, waterway freight transport, and air freight transport.

The 2025 allowance for covered entities in those sectors equals:

$2025 \text{ production output} \times 2024 \text{ emission intensity} \times \text{reduction factor}$

Allowances are allocated based on historical emissions for chemical and petrochemical industries, oil and gas extraction, aviation (airports), non-ferrous metals, iron and steel, machinery and equipment manufacturing, agricultural and sideline food processing, electronic equipment manufacturing, food and beverage, pharmaceutical manufacturing, mining, rubber and plastic products, tobacco manufacturing, furniture manufacturing, textile, printing, ports, waterway freight transport, and air freight transport. For 2025, allocation was determined using emissions from 2024 as a base year.

From the 2025 compliance year, an emission reduction factor for chemicals, non-ferrous metals, and the medical and pharmaceutical manufacturing sectors was set at 0.94. The remaining sectors have an emission reduction factor of 0.96 instead.

Ex-post allocation adjustments, e.g., based on production data, are applied for those with historical intensity or benchmarking allocations. For the compliance year 2025, those covered entities received pre-allocated allowances equal to 70% of their 2024 emissions. Ahead of the compliance deadline in 2025, the competent authority adjusted the allowance based on the verified output in 2024.

AUCTIONING: A small share of the annual cap can be auctioned. Participation is voluntary and the purpose of auctions is mainly to provide compliance entities with additional supply. To date, auctions have been held on an ad hoc basis.

Tianjin uses a capping mechanism for compliance obligations. If the difference between an entity's annual verified emissions and the allocation exceeds 20% of the allocation in either direction, the cap will be adjusted accordingly to balance out the surplus or deficit.

Total Revenue

CNY 148.18 million (USD 20.6 million) since the beginning of the program in 2013

Use of Revenues

Revenues are attributed to the city treasury. Revenues are mostly used to support work related to the control of GHG emissions.

Flexibility & Linking

Offset credits

The use of domestic project-based China Certified Emission Reductions (CCERs) and Tianjin regional forestry offset credits is allowed. Non-fossil power bought through market-based methods may be used to offset part of their annual compliance obligation. Details are to be issued.

QUANTITATIVE LIMIT: The use of CCER credits is limited to 5% of the annual compliance obligation.

QUALITATIVE LIMIT: Credits must stem from CO₂ reduction projects, excluding hydroelectric power plants. The emissions reductions must have occurred after 2013.

Banking and borrowing

Banking is allowed. Borrowing is not allowed. The remaining free allowances for entities transferred into the National Carbon Market must be cancelled within three years.

Links with other Systems

The Tianjin Pilot ETS is not linked with any other system.

Other carbon pricing instruments in the jurisdiction

ETS: China's National Carbon Market

Domestic offsetting mechanisms: Tianjin regional forestry offset credits

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

Compliance

Compliance mechanism

Covered entities must surrender one allowance per tCO₂e emitted for all their covered emissions.

Compliance Period

One calendar year. Covered entities have until the end of October of the following year to surrender allowances.

Monitoring, Reporting, Verification (MRV)

FRAMEWORK: The Tianjin ETS follows the MRV guidelines of the National Carbon Market. Additionally, the Tianjin EEB developed "Guidelines for Greenhouse Gas Accounting and Reporting of Waterborne Cargo Transportation Enterprises".

MONITORING: Covered entities are required to set up and follow emissions monitoring plans.

REPORTING FREQUENCY: Annual. Covered entities must submit their verified emission reports by the end of April in the year following the compliance year.

VERIFICATION: Third-party verification is required. Covered entities cannot use the same verifiers for three consecutive years. Fourth-party verification is required if:

1. the difference between the emissions and the verification report exceeds 10% or 100,000 tonnes; or
2. the difference between the emissions of the current year and of the previous year exceeds 20%.

Penalties and enforcement

REGULATED ENTITIES: The “Tianjin Carbon Peaking and Neutrality Promotion Regulations”, which took effect in November 2021, introduced financial penalties for failing to submit emission reports as required, ranging from CNY 20,000 (USD 2,782) to CNY 200,000 (USD 27,817). Companies that fail to comply are subject to fines of between five and ten times the average market transaction price for the volume of allowances not surrendered.

THIRD-PARTY VERIFIERS: Third-party verifiers found not to comply with regulations (e.g., in the case of false verification reports) are banned from providing verification services for three years.

Market Regulation

Market Stability Provisions

RESERVE

Instrument type: Price-based instrument

Functioning: In the case of market fluctuations, the Tianjin EEB can buy or sell allowances (for a fixed price or through auctioning) to stabilize the market. 5% of the total cap is kept as a government reserve for market stabilization. The Tianjin EEB can organize auctions according to market demand, no fixed triggers are required.

EXCHANGE

Instrument type: Price-based instrument

Functioning: Tianjin Climate Exchange implements a system of limits on price increases and decreases for trading over the exchange. It is 10% above or below the reference price (the weighted average price of all transactions on the previous trading day).

Market Design

MARKET PARTICIPATION: Covered entities, institutional investors (domestic and international) and the carbon emission trading rules set up by Tianjin Climate Exchange.

MARKET TYPES:

Primary: Most allowances are freely allocated. The Tianjin Climate Exchange organizes ad hoc auctions for the primary market. Between 2019 and 2021, it held five auctions. No sales have been held since.

Secondary: Products include spot Tianjin carbon emission allowances and spot CCERs. The Tianjin Climate Exchange manages the trading of all products.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered as financial instruments. Invoices are issued as intangible assets (domestic and international), and individuals (domestic and international) that meet the requirements of

Other Information

Institutions involved

Tianjin Ecology and Environment Bureau: Responsible for establishing the Tianjin ETS after a governmental restructure in 2019.

Tianjin Climate Exchange: Responsible for operating the trading platform and registry system.

Regulatory Framework

[Interim Measure for Management of Emissions Trading in Tianjin \(2025\)](#)

[Tianjin Carbon Peaking and Neutrality Promotion Regulations \(2021\)](#)

[Action Plan for Deepening Reform of the ETS from 2026 to 2030 \(2025\)](#)

[Work Plan for Expanding the Scope of the Coverage of the Tianjin Carbon Emissions Trading Market \(2025\)](#)

[Allocation Plan for 2024](#)

[Allocation Plan for 2025](#)

Evaluation / ETS review

Research on improving the Tianjin ETS has been undertaken by supporting institutes such as the Tianjin Climate Exchange.

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