

# China National ETS

## General Information

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### ETS Description

China's National Carbon Market began operating in 2021, with the objective of contributing to the effective control and gradual reduction of CO<sub>2</sub> emissions. China's National Carbon Market is the world's largest in terms of covered emissions, estimated to cover around 8 billion tCO<sub>2</sub> – or more than 60% of the country's CO<sub>2</sub> emissions.

The China National Carbon Market regulates more than 3,300 companies from the power, steel, cement, and aluminum smelter sectors with annual emissions in excess of 26,000 tCO<sub>2</sub>e. Covered entities must surrender allowances for all their covered emissions. The allowances in the China National Carbon Market are 100% freely allocated using an output-based approach. Compliance obligations are currently limited and vary between different types of facilities. The system's coverage will expand to other sectors over time.

In January 2024, China relaunched its national GHG voluntary emission reduction trading market, the Chinese Certified Emissions Reduction scheme (CCER). This came after six years of suspension, during which time it was reformed. This could contribute to the implementation of an offsetting scheme in the domestic ETS (see 'Offset Credits' section).

The National Carbon Market builds on the successful experience of regional carbon markets implemented in eight regions. These pilots continue to operate in parallel with the National Carbon Market, covering sectors and entities not included in the national system.

### ETS Status

in force

### Jurisdictions

China

### Year in Review

In December 2024, 99.98% of the covered entities in the National Carbon Market surrendered their compliance units for the 2023 compliance year.

In August 2025, China's highest authorities – the General Office of the CPC Central Committee and the General Office of the State Council – issued the "Opinions on Advancing Green and Low-Carbon Transformation and Strengthening the Development of the National Carbon Market". This policy sets out a roadmap for transitioning from an intensity-based cap to an absolute cap and expanding the National Carbon Market's coverage.

In November, the Ministry of Ecology and Environment (MEE) published the allocation plan for the steel, cement, and aluminum smelter sectors for 2024 and 2025. According to the plan, all covered entities in these three sectors will receive free allowances equivalent to their verified emissions in the 2024 compliance year. In 2025, free allocation will be based on a more differentiated, performance-based approach (See 'Allowance Allocation' section).

In November, China submitted its 2035 NDC, committing to reduce economy-wide GHG emissions by 7-10 % from peak levels by 2035. It is the first time China has committed to reducing its absolute GHG emissions. The new NDC also aims to establish a more effective and dynamic National Carbon Market. It envisages expanding the coverage and introducing auctions in the National Carbon Market.

## Sectoral coverage

Industry

Power

## Emissions & Targets

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### Overall GHG Emissions excl. LULUCF (MtCO<sub>2</sub>e)

14,314 MtCO<sub>2</sub>e (2021)

### GHG reduction targets

**Before 2030:** Peak CO<sub>2</sub> emissions; reduction of CO<sub>2</sub> emissions per unit of GDP by over 65% from 2005 levels (“1+N’ policy framework”; NDC 2.0)

**By 2035:** Reduce economy-wide GHG emissions by 7-10 % from peak levels (NDC 3.0)

**Before 2060:** Carbon neutrality (‘1+N’ policy framework; NDC 2.0)

### Current Allowance Price (per t/CO<sub>2</sub>e)

Average secondary market price (2025): CNY 70.78 (USD 9.85)

## Size & Phases

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### Covered emissions (2024)

60.00%

### GHGs covered

CO<sub>2</sub>

CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub> (only for aluminum smelter sector)

### Phases

There are currently no specific phases for the Chinese national ETS.

### Cap or total emissions limit

The cap is the sum of the bottom-up total allowance allocation to all individual covered entities. It is adjusted according to the actual production levels.

The National Carbon Market is estimated to have had an annual cap of ~4,500 MtCO<sub>2</sub> in 2019 and 2020, ~5,100 MtCO<sub>2</sub> in 2021 and 2022, ~5,200 MtCO<sub>2</sub> in 2023 and ~8,000 MtCO<sub>2</sub> in 2024.

### Sectors and thresholds

Power (including combined heat and power, as well as captive power plants of other sectors), steel, cement, and aluminium smelter.

Compliance obligations are currently limited (see ‘Allowance Allocation’ section).

The scope is expected to be gradually expanded to cover other sectors: petrochemicals, chemicals, flat glass, copper smelter, paper, and aviation. Entities in these sectors have MRV obligation since 2015.

### INCLUSION THRESHOLDS:

**For 2019 to 2020:** Entities with annual emissions of 26,000 tCO<sub>2</sub> or greater in any year from 2013 to 2019.

**For 2021 to 2022:** Entities with annual emissions of 26,000 tCO<sub>2</sub> or more in any year from 2020 to 2021.

**From 2023:** Entities with annual emissions of 26,000 tCO<sub>2</sub> or more in the previous year.

### Point of regulation

Point source

### **Type of entities**

Companies

### **Number of entities**

~3,300 (2024)

## **Allowance Allocation & Revenue**

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### **Allowance allocation**

Allowances are distributed for free, using output-based benchmarking or output-based intensity method. The competent authorities update the allocation plans every year and the following information refers to the latest allocation plans.

**FREE ALLOCATION (Power sector):** Output-based benchmarking is used as the main allocation method, with four distinct benchmarks: conventional coal plants below 300 MW; conventional coal plants above 300 MW; unconventional coal; and natural gas.

A pre-allocation method is adopted for the annual allowance allocation. Allocation is then adjusted ex-post to reflect the actual production in the respective compliance year.

Entities received allowances at 70% of their verified emissions in the previous year. Allocation was subsequently adjusted to reflect actual generation in 2023 and 2024. A unit load (output) adjustment factor distributed more allowances for coal-fired entities operating at load rates below 65%.

According to the 2023 to 2024 allocation plan, compliance obligations are limited. Gas-fired plants only need to surrender allowances up to their level of free allocation as per the benchmarks. Coal-fired plants with free allowance below 80% of their verified emissions will have their allocation adjusted upwards to 80% of their verified emissions. This means that 20% remains the maximum shortfall, similar to the previous compliance periods.

**FREE ALLOCATION (Steel, cement, and aluminum smelter sector):** For the 2024 compliance year, covered entities will receive free allowances equal to their verified emissions.

For the 2025 compliance year, the allocation method is intensity-based, designed to encourage efficiency improvements without immediately limiting overall emissions output or resulting in very large surpluses or shortages of allowances. For covered entities whose emissions intensity falls within 20% above or below the sectoral balance value, their allocation equals their verified emissions multiplied by one minus 15% of their deviation. For covered entities/facilities with deviations exceeding 20% in either direction, the adjustment is capped at 3% of verified emissions.

Production of certain products in the cement sector will receive annual allowances equal to their verified actual carbon emissions.

No pre-allocation for the 2024 compliance year took place. For the 2025 compliance year, entities received pre-allocation at 70% of their 2024 verified emissions. The final allocation was subsequently adjusted after the verification of emissions in 2025 to reflect actual output.

**AUCTIONING:** Allocation currently takes place through free allocation, but the Interim Regulations clarify that auctioning is to be introduced and gradually expanded. There is currently no timeline for this.

### **Use of Revenues**

There is currently no arrangement for the use of revenues generated by the scheme.

## **Flexibility & Linking**

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### **Offset credits**

The use of offset credits is allowed.

**QUANTITATIVE LIMITS:** Covered entities can use CCERs generated from projects not covered by the National Carbon Market for up to 5% of their verified emissions.

**QUALITATIVE LIMITS:** There were no additional project or vintage restrictions.

In 2012, the National Development and Reform Commission (NDRC) issued the “Interim Measures for the Management of Voluntary GHG Emissions Reduction Transactions”, which provided guidelines for the issuance of CCERs. The registration of CCER projects started in 2015, but the program was suspended in 2017 while regulations were reviewed. MEE launched the CCER system in 2024 with new methodologies, registry, verifiers, and exchange.

Only credits from projects registered in the new CCER program are eligible for offset use in China’s National Carbon Market after January 2025.

The National Center for Climate Change Strategy and International Cooperation (NCSC) operates the CCER registry. The Beijing Green Exchange is dedicated to CCER trading platforms.

### **Banking and borrowing**

Borrowing was temporarily allowed in 2021 and 2022.

Banking was allowed with no limit in the first three compliance periods. Since 2024, covered entities in power sector are allowed to bank up to 10,000 tonnes plus 1.5 times their net sales over the period from 2019 to 2024. Covered entities in the steel, cement, and aluminum smelter sectors are allowed to bank up to 100,000 tonnes plus 1.5 times their net sales over the period from 2019 to 2024.

### **Links with other Systems**

The China national ETS is not linked with any other system.

### **Other carbon pricing instruments in the jurisdiction**

**ETS:** Regional ETSs in Beijing, Chongqing, Fujian, Hubei, Guangdong, Shanghai, Shenzhen, and Tianjin

**Domestic crediting mechanism (national):** CCER

**Domestic crediting mechanisms:** Local offset crediting mechanism in Beijing, Chongqing, Fujian, Hubei, Guangdong, Shanghai, Shenzhen, and Tianjin

## **Compliance**

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### **Compliance mechanism**

Covered entities must surrender one allowance per tCO<sub>2</sub>e emitted for all their covered emissions, and allocation is based on an emissions intensity benchmark.

### **Compliance Period**

Two calendar years from 2019 to 2022. One calendar year from 2023 onwards.

### **Monitoring, Reporting, Verification (MRV)**

MEE publishes an ETS work plan to set the timeline for MRV work each year. MEE published the 2025 work plan in April 2025.

**FRAMEWORK:** MRV guidelines, supplementary data sheets, verification guidelines, and other guidance are available for the eight sub-sectors to be covered by the ETS. This MRV framework has evolved continuously since 2013 (see ‘Sectors and Thresholds’ section).

**MONITORING:** Covered entities are required to set up and follow monitor plans.

**REPORTING:** Covered entities must submit a monthly emissions report within 40 calendar days after the end of each month, including fuel consumption, low-level calorific value, carbon content of the fuel, and purchased electricity, output products, as well as other parameters. Covered entities must submit the annual emissions reports by the end of March next year.

**VERIFICATION:** Provincial-level ecological and environmental authorities are responsible for organizing the verification of GHG reports. They may commission technical service agencies to provide verification services. Verification of 2024 emissions from the power sector must be completed by the end of June 2025. Verification of the 2024 emissions from the cement, aluminum smelter and

steel sectors should be completed before the end of August 2025. Verification of other key industries should be completed by the end of September 2025.

### **Penalties and enforcement**

The Interim Regulations enhanced enforcement measures and penalties for different parties. Covered entities face a fine for not reporting or cheating in reporting, ranging from CNY 500,000 (USD 69,542) to ten times the illegal gains. Failures in compliance obligations result in fines ranging from five to ten times the market value of the gap, a significant increase from the previous maximum fine of CNY 30,000 (USD 4,173). For those who refuse to surrender allowances after receiving a warning, deductions from the following year's allocation and potential production suspension are now in force.

Consultancy firms, third-party verifiers, and testing organizations involved in MRV data fraud may face penalties up to ten times the value of their illegal gains, as well as disqualification. Similar punishments also apply for market manipulation. The regulation rectifies the previous absence of penalties for misconduct by technical service providers and market participants.

Market participants involved in market manipulation behaviors may face penalties up to ten times their illegal gains, starting from CNY 500,000 (USD 69,542).

## **Market Regulation**

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### **Market Stability Provisions**

In May 2021, the MEE announced the option of establishing a market-regulating and protection mechanism. This would enable the MEE to respond to abnormal fluctuations in trading prices, for instance through buy-back, auctioning, or adjusting the rules related to CCER use. The necessary triggers and specifics of this mechanism are yet to be defined.

### **EXCHANGE**

**Instrument type:** Price-based instrument

**Functioning:** The Shanghai Environment and Energy Exchange implements a system of limits on price increases and decreases for trading over the exchange. For listed trading (the maximum volume for a single transaction does not exceed 100,000 tCO<sub>2</sub>e), this is 10% above or below the reference price (the closing price of the previous trading day). For block trading (minimum transaction volume of 100,000 tCO<sub>2</sub>e), this is 30% above or below the reference price. Only transactions within this price range can be successfully completed on the exchange. It also sets the maximum position limit for the different market participants: the sum of their annual allocated allowances plus 1 MtCO<sub>2</sub> for compliance entities, 1 MtCO<sub>2</sub> for institutional investors, and 50,000 tCO<sub>2</sub> for natural persons.

### **Market Design**

**MARKET PARTICIPATION:** Compliance entities. The Interim Regulations indicate that other types of institutions or individuals may in the future also be allowed to participate in the market; however, there is no specific timeline for this.

### **MARKET TYPES:**

**Primary:** Allowances are currently only distributed by free allocation. The Interim Regulations state the intention to introduce auctioning, though without a specific timeline.

**Secondary:** China Emission Allowances (CEA) can be traded on a dedicated trading platform managed by the Shanghai Environment and Energy Exchange. CEAs for the 2019 to 2020 period, CEAs for 2021, CEAs for 2022, and CEAs for 2023 are categorized as four different products on the exchange, and have similar prices.

Due to financial market regulations, other products (i.e., derivatives) are currently not allowed.

**LEGAL STATUS OF ALLOWANCES:** Allowances are not considered financial instruments. For financial accounting purposes, the Ministry of Finance published an interim policy that categorizes only purchased allowances, and not those received for free, as assets in financial statements.

## **Other Information**

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## Institutions involved

The China National Carbon Market has a multi-level governance structure involving three levels of government:

**Ministry of Ecology and Environment (MEE):** Acts as the national competent authority setting the rules and overseeing the system, jointly with other national regulators.

**Provincial-level MEE subsidiaries:** Oversee the implementation of the ETS, including identifying covered entities, organizing MRV, hiring verifiers, calculating allowance, managing provincial registry account, and oversee compliance.

**Municipal-level authorities:** Responsible for managing covered entities directly.

**China Carbon Emissions Registration and Clearing Co., Ltd.:** Responsible for operating the CEA registry and clearing platform.

**Shanghai Environment and Energy Exchange:** Operates the CEA trading platform.

**National Center for Climate Change Strategy and International Cooperation (NCSC):**

Operates the CCER registry.

**The Beijing Green Exchange:** Responsible for operating the CCER trading and clearing platform.

## Regulatory Framework

[The National Measures for the Administration of Carbon Emission Trading \(trial\) \(2021\)](#)

[Allocation Plan for the Power Sector \(2023-2024\)](#)

[Management Measures for voluntary Greenhouse Gas Emission Reduction Trading \(Trial\) \(2023\)](#)

[Updated Guidelines for GHG Monitoring and Reporting for the power sector \(2023\)](#)

[Updated Guidelines for GHG Monitoring and Reporting for industrial sectors \(2023\)](#)

[Interim Regulations on the Administration of Carbon Emission Trading \(2024\)](#)

[Guidelines for GHG Monitoring and Reporting for Cement, aluminum smelter and steel industries \(2024 and 2025\)](#)

[Work Plan for National Carbon Market covering steel, cement and aluminum smelter sectors \(2025\)](#)

[Allocation Plan for the Steel, Cement and Aluminum Smelter Sector \(2024, 2025\)](#)

[Opinions of General Office of the CPC Central Committee and the General Office of the State Council on Advancing Green and Low-Carbon Transition and Strengthening the Development of the National Carbon Market \(2025\)](#)

[Progress Report of China's National Carbon Market \(2025\)](#)

## Evaluation / ETS review

An evaluation framework is currently under development. The MEE has published annual ETS progress reports since 2024. According to the 2025 progress report, the carbon intensity in fossil-fuel power generation in 2024 decreased 10.8%, compared to the 2018 level.

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