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# Carbon pricing for the transition toward net-zero of Asia

~With China's national ETS as a focus~

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# Submitted paper contents and focus of this presentation



- Carbon price levels needed for the decarbonization (i.e., USD 30 /t-CO<sub>2</sub> immediately, rising to around USD 100 /t-CO<sub>2</sub> by 2030 and then going much higher by mid-century)



- The latest progress of carbon pricing in Asia (Carbon tax in Japan and Singapore; **national ETS in Korea and China**; and, local ETS in Japan)



- Domestic voluntary carbon crediting mechanisms in Asia (China, Korea, Japan, Thailand)



- Suggestions for carbon pricing toward net-zero in Asia (Experiences and lessons learnt; and, recommendation for better practices)

# Position of China's national ETS

25/09/2015

“U.S.-China Joint Statement on Climate Change”

- Announced to start a national ETS from 2017 (In reality, the construction formally started from the end of 2017)

22/09/2021

“Opinions on Fully and Accurately Implementing the New Development Concept and Achieving Carbon Peak and Carbon Neutrality” (CCPCC, State Council)

- As one of the important measures, construction of a national carbon market will be accelerated, the market scope, trading types and trading methods will be gradually expanded, and the allocation management of emission allowances will be improved.

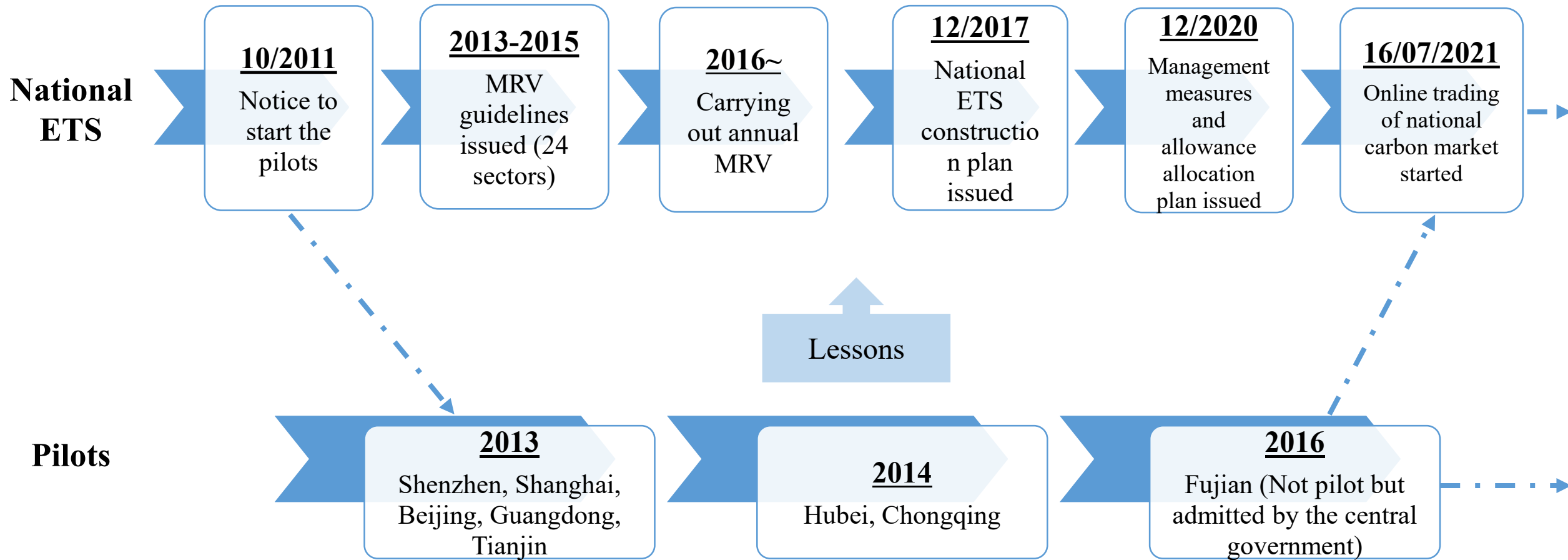
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“Carbon Peak Action Plan before 2030” (State Council)

- To accelerate the development of a unified carbon emission statistics system, play the role of the national carbon market, improve related systems, and expand the industries covered by the market.
- To promote the construction of market mechanisms and strengthen cooperation among carbon emissions, energy consumption, and electricity trading market.

Positioning the national ETS as one of the pillar policies contributing to the achievement of carbon peak and carbon neutral targets, while improving the implementation

# Regional pilots to the operation of national carbon market



# The overall frame of China's national ETS

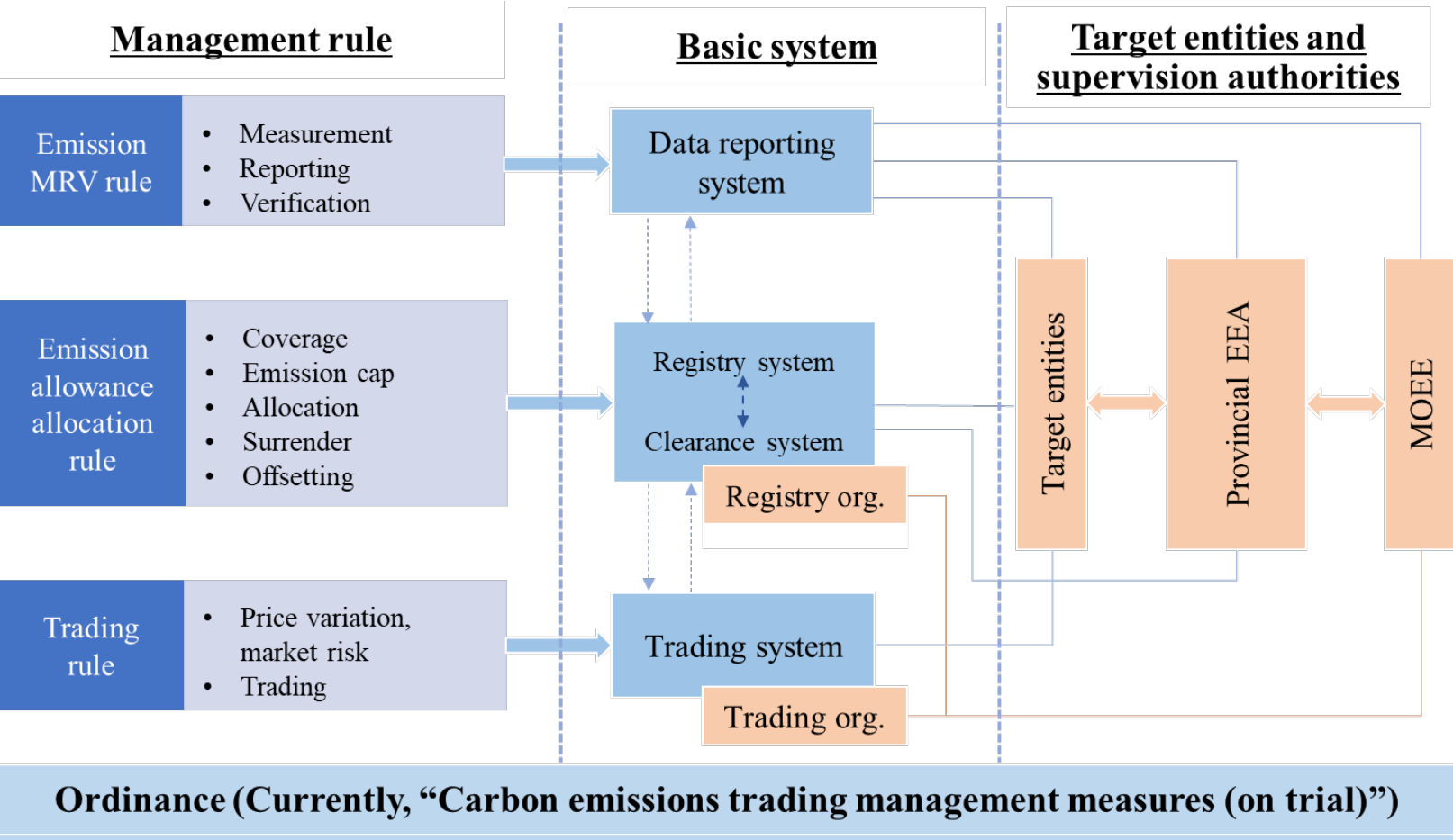


Fig.1: The overall frame of China's national ETS.

Institution	Major role
MOEE	<ul style="list-style-type: none"> <li>Formulation of target gas types and industries, emission allowance setting and allocation plan, and related technical guidelines</li> <li>Organization of establishment of the national carbon emissions allowance registration institution and the national carbon emissions trading institution, and the registration system and trading system.</li> <li>Supervision, management and guidance of related activities</li> </ul>
Provincial EEA	<ul style="list-style-type: none"> <li>Decision of the list of target entities</li> <li>Organization, supervision and management of related activities like emission allowance allocation and surrender, and emissions MRV</li> </ul>
Municipal EEA	<ul style="list-style-type: none"> <li>To carry out specific related tasks in cooperation with provincial EEA</li> </ul>

Table1: The role of three-tiered authorities.

Source: IGES working paper, “The progress and prospect of China's national ETS” (April, 2021)

# Target entities of the national ETS at the initial stage

- Initial stage target: Business entities in the power generation sector (Including captive power plants in other industries) with CO<sub>2</sub> emissions of 26,000 tons or more in any year from 2013 to 2019.
- According to the list of target companies announced by MOEE on December 29, 2020, the total number was 2,225 (See Fig.2 for geographical distribution) → 2,162 companies finally fixed.
- Annual emissions are approximately 4.5 billion t-CO<sub>2</sub>, about 40% of the country's total emissions.
- During the 14<sup>th</sup> FYP (2021-2025), expanding to about 8,000 companies, including those from petrochemicals, chemicals, construction materials, steel, non-ferrous metals, paper making and aviation sectors.

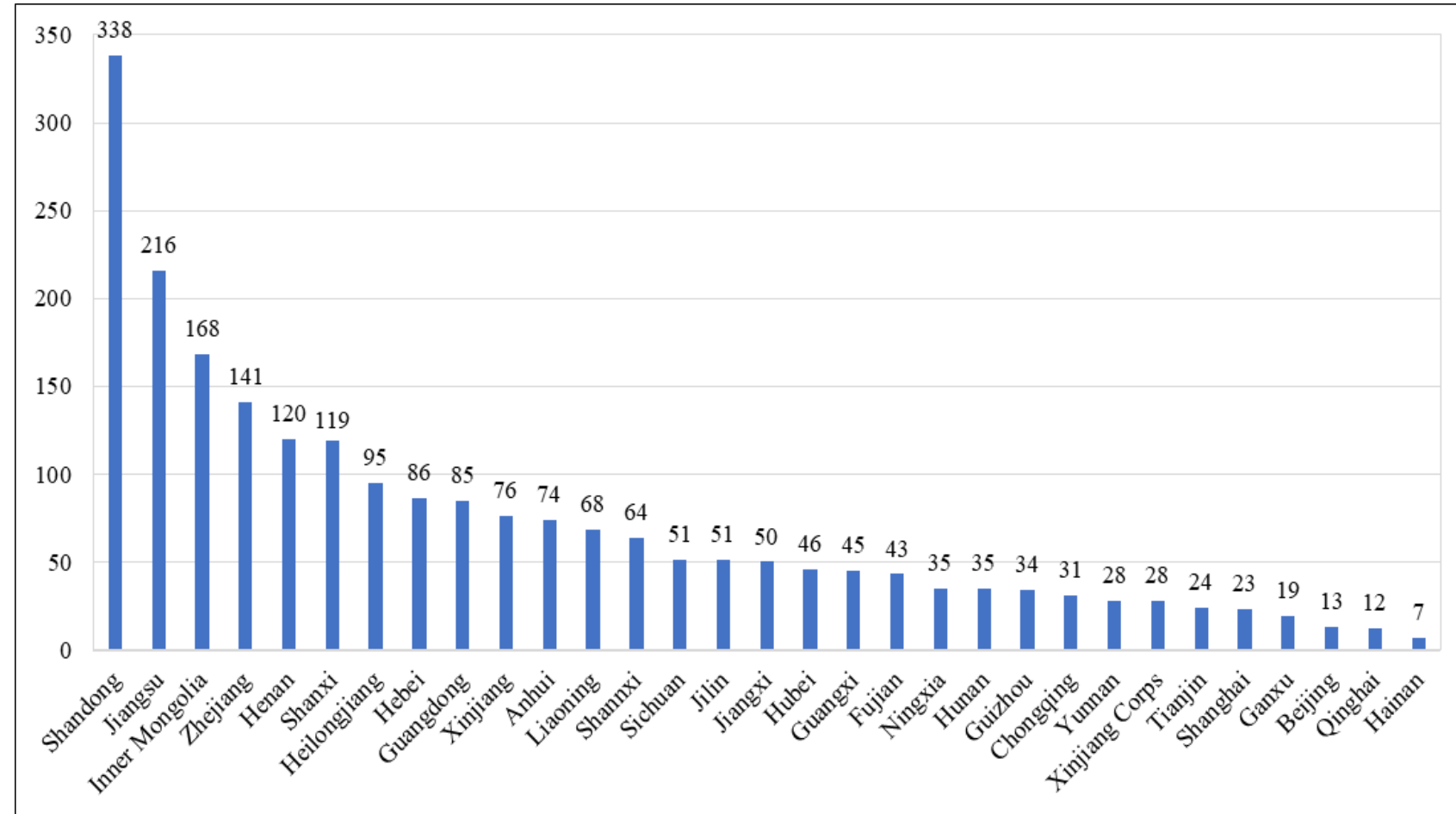


Fig.2: Number of target entities in power generation sector by provincial level regions.



# Outline of the national ETS at the initial stage

<b>Period</b>	<ul style="list-style-type: none"> <li>• <b>The first compliance cycle (2021):</b> Compliance of the obligations for surrendering emission allowances of 2019 and 2020.</li> </ul>
<b>Target</b>	<ul style="list-style-type: none"> <li>• MOEE decides the target gas types, only CO<sub>2</sub> for power generation sector.</li> <li>• Target units: coal-fired power generation and gas turbine.</li> </ul>
<b>Allocation method</b>	<ul style="list-style-type: none"> <li>• <b>Full for free by benchmarking</b>, will introduce allocation with payment in appropriate time.</li> <li>• The allowance is determined based on the actual power generation and heat supply for the year, but 70% of the allowance is allocated in advance based on the production of previous year.</li> <li>• After the verification of emissions in 2019 and 2020 was completed, the allowance was determined according to the actual power and heat supply, and the allocation of the allowance was adjusted.</li> </ul>
<b>Flexibility measures</b>	<ul style="list-style-type: none"> <li>• Coal-fired power entities only need to surrender allowances of up to 20% of verified emissions above the level of free allocation.</li> <li>• For gas-fired plants with higher intensity than the benchmark, the compliance obligation is limited to the free allowances.</li> <li>• CCER can be used to offset less than 5% of emissions.</li> </ul>
<b>Penalties</b>	<ul style="list-style-type: none"> <li>• Currently, penalty for non-compliance is 20,000 to 30,000 Yuan (1,500 to 4,500 USD) due to limitation of legal basis.</li> </ul>

# Trading methods, entities and commodities of national carbon market

## Trading methods

### Spot trading

- Less than 100,000 t-CO<sub>2</sub> declared in one transaction.
- Price variation limit:  $\pm 10\%$ .
- Trading time: AM9:30~11:30 and PM1:00~3:00 from Monday to Friday (Excluding holidays and non-working days).

### Over the counter (OTC)

- No less than 100,000 t-CO<sub>2</sub> declared in one transaction.
- Price variation limit:  $\pm 30\%$ .
- Trading time: PM1:00~3:00 from Monday to Friday (Excluding holidays and non-working days).

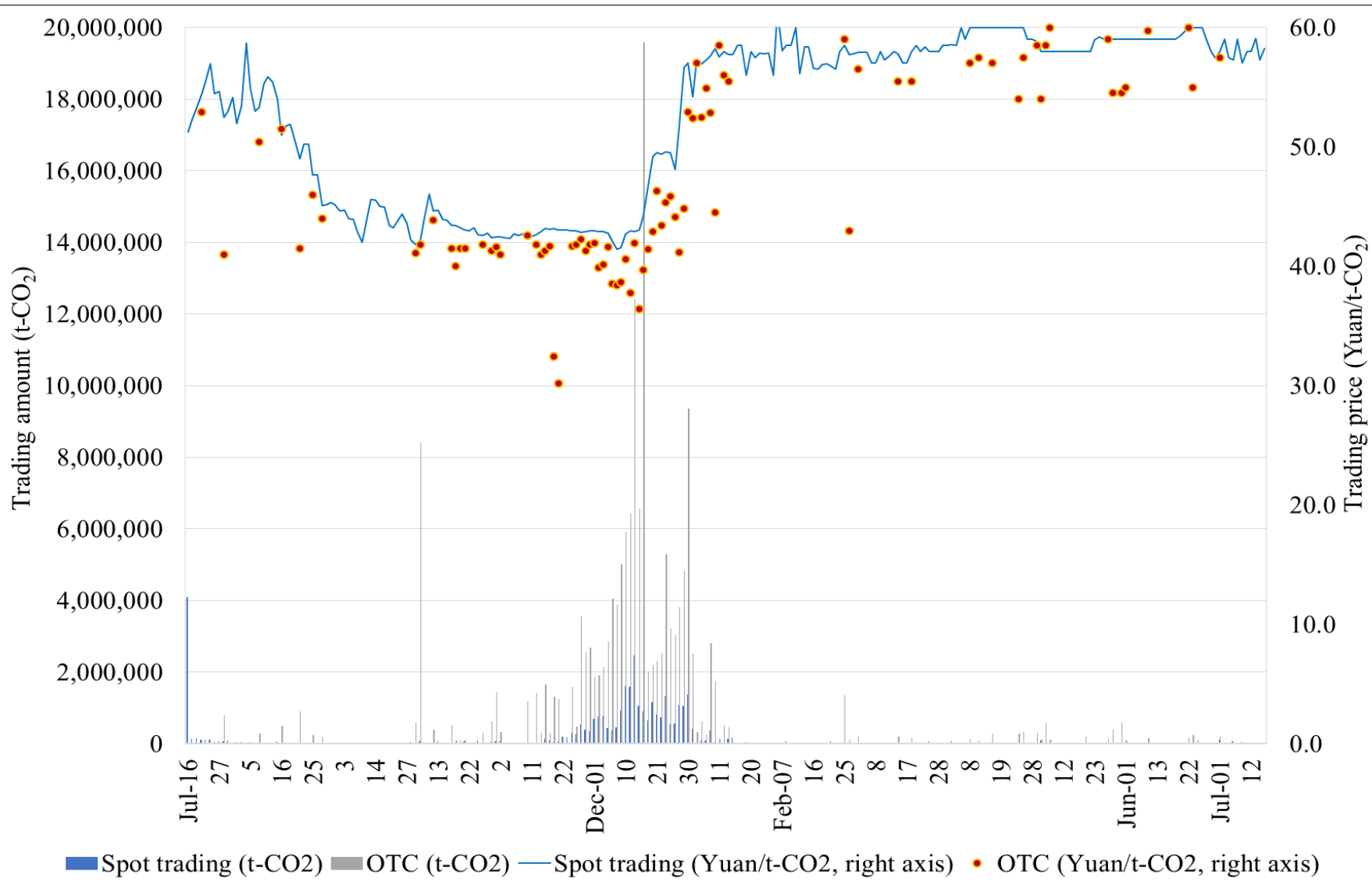
### One-way auction

- The trading system offers one-way auction function.
- The timing of the start will be separately announced by the exchange.

- Currently, the trading commodity is only CEA (China Emission Allowance), and the trading entity is only the target business.
- One trading entity has one trading account, but can apply for multiple operators and corresponding operating privileges.



# Trading result of the national carbon market (for 1 year)



- On the first day, about 4.1 Mt-CO<sub>2</sub> of CEA were traded, with a total value of about 210 million Yuan (Average price: 51.2 Yuan/t-CO<sub>2</sub>), indicating a smooth start.
- Operated for 114 trading days by December 31, 2021, with a cumulative 179 Mt-CO<sub>2</sub> of CEA traded and a transaction value of 7.661 billion Yuan.
- CEA obligation compliance rate was 99.5%.
- In one year by July 15, 2022, a total of 194 Mt-CO<sub>2</sub> were traded (Spot trading: 16.8%; OTC: 83.2%), with a total transaction value of 8.492 billion Yuan.
- Clearly at the initial stage of a carbon market, with transactions concentrated around the deadline for obligation compliance.

# Emissions reporting and verification timeline in 2022

## Power generation sector (Target)

- Measurement and reporting of 2021 emissions
- 2019-2020 emissions data disclosure
- Update of data quality management plan
- Monthly reporting of real monitoring data from April 2022

3 months postponed due to pandemic



- Completion of 2021 emissions verification
- Disclosure of 2022 target list and the changes
- Registration of newly added entities and documents submission for trading account opening



## Others (7 sectors)

- Measurement and reporting of 2021 emissions
- Completion of 2021 emissions verification

# Future direction of China's national ETS

## Enhancement of legal basis

- Currently, operating based on the “Carbon emissions trading management measures (on trial)” issued by MOEE in December 2020.
- At the final stage for the formulation of “Tentative ordinance on carbon emissions trading management” (Ordinance of State Council).

## Expansion of target sectors

- The 2<sup>nd</sup> compliance cycle in 2022, and still target power generation sector only.
- High possibility to cover cement and aluminum from next year, then expanding to iron & steel, paper-making and glass industry.

## From intensity to overall emissions cap

- Allowance allocation by benchmarking may give incentive to companies with high efficiency but penalty to the laggard ones.
- Naturally shifting to the approach based on overall emissions cap along with the emissions peaking and completion of the reform on power market liberalization.

## Timing for starting allocation with payment

- At present, 100% free for allowance allocation.
- High possibility to introduce the allocation by auctioning after stable operation of the national ETS.

# Lessons learned from the process of China's national ETS

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## Political will and decision

- **Political leadership** is important (The president declared policy introduction in the U.S.-China joint statement on climate change and clarified decision at the political level).
- Consensus among stakeholders when determining roadmap and schedule for ETS construction.



## Stability and predictability

- **Stability and predictability of policy introduction process** is important (e.g., 3 to 5 years construction roadmap and the clear steps and timeline with feasibility).



## Learning by doing

- The importance of **gradual introduction, improvement and reinforcement** (From pilots to nationwide, from power sector to others).
- Process for the **capacity building of local governments and businesses** (Large-scale training and great efforts in communications with the industry).



*Thank you for your  
attention!*

