

Understanding carbon markets in China

November 2021

China's National carbon market has launched

China Mainland (“**the Mainland**”) has now launched its National emissions trading scheme (“**ETS**”), anticipated to become the world’s largest carbon market by trading volume and value.

Whilst a unified National ETS is new to the Mainland, the concept and operation of a carbon market is not. The Mainland started to explore carbon emission trading a decade ago when the National Development and Regulatory Commission approved several regional pilot markets for trading carbon emissions allowances (“**CEAs**”) in 2011. Those pilot schemes have been successful and continue to operate in parallel with the new National ETS. The long term goal is for the regional pilots to be consolidated into the National ETS which will be a cornerstone in the Mainland’s policy for combatting climate change.

In this alert, we explain how the National ETS works and consider what’s ahead, looking at the key questions our clients are asking:

- how does the National ETS work;
- how will the regional pilot schemes be consolidated into the National ETS;
- what barriers are there to foreign investor participation and how will these be overcome;
- what we can expect to see in relation to the development of innovative financial and derivative products for trading on the National ETS; and
- how does the National ETS compare to the current largest carbon market in the world – the European Union’s ETS?

Why?

But first, why? Why does China need a National ETS?

The Earth’s climate is changing rapidly. The science tells us that we have a chance of avoiding the most dangerous and irreversible effects of climate change, but we must limit warming to well below 2°C above pre-industrial levels to do so. The Paris Agreement set the goal at 1.5°C.



The Earth is 1.1°C warmer than it was in the 1800s. On the current path, temperatures could increase by 4.4°C by the end of the century.



2010-2019 was the warmest decade on record. Bushfires, tropical cyclones, coastal inundation, heatwaves and more are now common news occurrences, they are neither theoretical nor rare.



We are not on track to meet the Paris Agreement target to keep the global temperature from exceeding 1.5°C above pre-industrial levels.



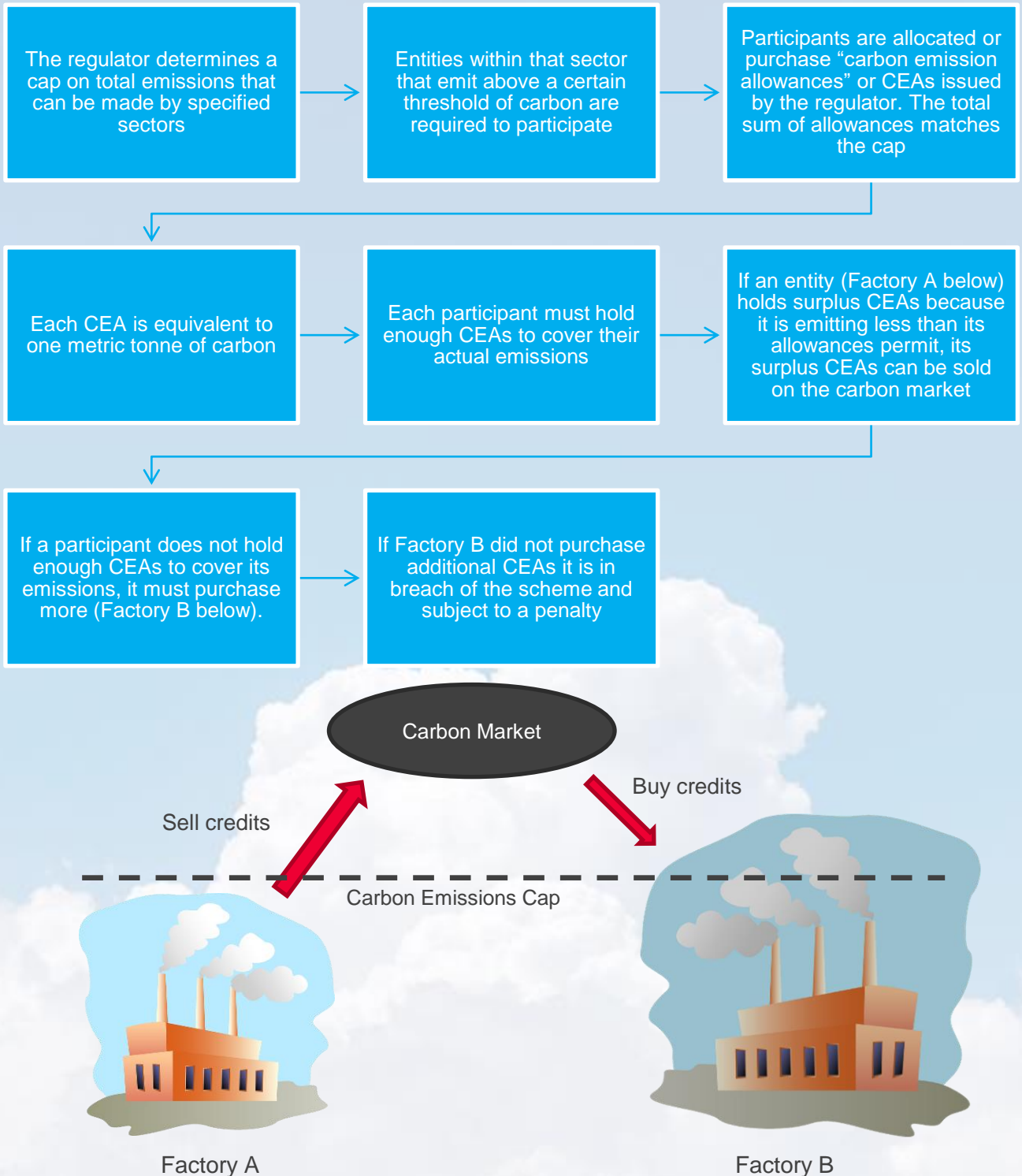
Science shows that the Paris agreement goals are achievable only if emissions are cut by around 50% by 2030 and reduced to net-zero by 2050.

A key mechanism to achieve the Paris Agreement 1.5 °C goal is each jurisdiction’s Nationally Determined Contributions. China’s Nationally Determined Contribution is to achieve “carbon neutrality” by 2060 (ie balancing human emissions and absorption of carbon, with the goal of achieving net zero carbon emissions) and “carbon peaking” by 2030 (ie peaking carbon dioxide emissions with an annual decline to follow). Introducing a National ETS aims to provide a market mechanism for achieving the required emissions reductions.

How does a regulated carbon market work?

In our alert [Carbon trading - Practical insights](#) we described the difference between regulated and voluntary carbon markets. The Mainland's new National ETS is a regulated carbon market, otherwise known as a "cap and trade" scheme.

How a cap and trade scheme works is summarised below.



An overview of the Mainland's carbon markets

Trading on the Mainland's National ETS commenced on 16 July 2021. Whilst the National ETS is new to the Mainland, emissions trading is not. The Mainland's journey into emissions trading started in 2011, when the National Development and Regulatory Commission approved seven pilot markets for trading "carbon emissions allowances", a further pilot was later added.

Each approved regional scheme has different features, including sector coverage, the types of participants allowed and pricing but they all operate under the same idea of a regulated cap and trade market. CEAs in different exchanges cannot be traded on a cross-exchange basis, so the local exchanges are all currently segregated markets. On a long term basis, it is expected that the regional pilots will be combined into the National ETS to allow trade between regions.

National ETS

1

Operational phase launched in February 2021

2

Trading commenced mid-July 2021

Regional ETS pilots

1

Beijing - November 2013

2

Shanghai - November 2013

3

Shenzhen - June 2013

4

Tianjin - December 2013

5

Guangdong - December 2013

6

Hubei - April 2014

7

Chongqing - June 2014

8

Fujian - September 2016

National ETS legal framework

In March 2019, the Ministry for Ecology and Environment of China ("**MEE**"), the governing body for the National ETS, announced the draft Tentative Regulations for the Administration of Trading of Carbon Emissions Rights (Revised Draft) ("**Tentative Regulations**"). The Tentative Regulations were updated in March 2021 and are expected to be finalised soon by the State Council (the highest executive body in China). Once in force, this will be the primary overarching legislation for the Mainland's National ETS.

In January 2021, the Measures for the Administration of Trading of Carbon Emissions Rights were issued ("**Trial Measures**"). The Trial Measures set out the general rules and provisions related to, for example, allowance allocation and registration, emissions trading, compliance, offsets, supervision and penalties for non-compliance. In May 2021, detailed implementation rules for the registration, trading and settlement of CEAs ("**Implementation Rules**") were issued.

The Trial Measures and the Implementation Rules form the basis for operating the National ETS pending promulgation of the Tentative Regulations.

Key features of the regional ETS



Competent authority – the MEE is authorised to establish a National platform to register CEAs and a National platform to trade CEAs.



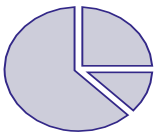
Exchanges – the National ETS uses two existing pilot exchanges to operate. The Shanghai Environment and Energy Exchange is responsible for trading and China Hubei Emission Exchange is responsible for registration.



Products – Only CEAs can be traded, this is by entering into private agreement, bidding and “other trading methods according to the rules”. China Certified Emissions Reductions (“**CCERs**”), another a form of carbon credit traded on the regional pilot, are not currently included. CCERs are project based voluntary carbon credits.



Participants – Only “Key Emissions Entities” subject to obligations to surrender CEAs are allowed to participate. Key Emission Entities are identified by the relevant provincial-level Ecology and Environment Bureau and approved by the MEE. Foreign investors are not currently permitted.



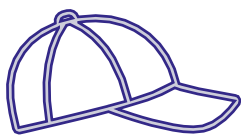
Allocation – CEAs are allocated to participants for free based on carbon intensity benchmarks. At first, participants will receive allowances at 70% of their 2018 output multiplied by a corresponding benchmark factor based on energy source (eg coal or renewable energy) and actual energy output.



Trade – Participants surrender CEAs to offset their actual emissions. Participants may then voluntarily choose to sell surplus CEAs. Those that do not have sufficient CEAs to cover their emissions may choose to purchase more on the exchange. Trade is only on spot delivery terms, over-the-counter transactions are not yet covered.



Compliance – participants surrender CEAs to offset emissions volume as the primary method of compliance. Up to 5% of verified emissions can be offset using CCERs on the regional markets.



Cap – The cap is set bottom-up, i.e., the sum of the total allowance allocated to all covered entities, informed by their output and applicable benchmarks, forms the cap. It is an intensity-based cap, which changes according to the actual production levels.



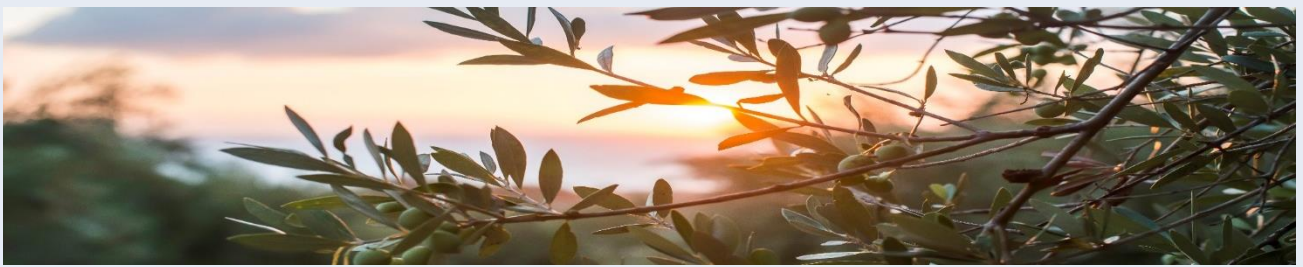
Price – determined by market factors

How will the National and regional ETSs be combined?

It is expected all existing regional ETS pilots will gradually transition into the National ETS although the roadmap and timeline are yet to be released by the MEE. In the meantime, existing regional ETS pilots will continue to operate in parallel to the National ETS. There are currently some key differences:

- **Sector** – the National ETS only includes the power sector, comprising 2,225 coal and gas-fired power plants. In the long term, other emission-intensive industries will be covered by the National ETS scheme, although this will take place on a gradual basis. The table below demonstrates the number of industries already covered by the pilot schemes.
- **Products** – only CEAs can be traded on the National ETS. By comparison, CCERs and other products can be traded on the regional ETSs. A new National market for trading CCERs is due to be established in future so it appears that there will be two separate National carbon markets, one dedicated to the trading of CEAs and one for CCERs.
- **Price** – certain local markets, such as Guangdong and Hubei reserve carbon emissions quotas which may be fed into the market to apply downward pressure on price, the National ETS does not have a similar mechanism. Each regional ETS has been designed based on the local industries, local carbon reduction targets and each has its own unique features that have led to different levels of liquidity and price. Price differences for the 2020 mid-range are shown e below.
- **Foreign investors** – are not currently permitted to participate in the National ETS. They are permitted in certain pilot schemes, as shown in the table below.

	Sectors covered and foreign investment	Foreign investors	Price per t/CO ₂ e
Beijing	Industrial and non-industrial companies and entities, including electricity providers, heating sector, cement, petrochemicals, other industrial enterprises, manufacturers, service sector, public transport, and domestic aviation.	✗	USD 12-14
Shanghai	Airports, domestic aviation, chemical fibres, chemicals, commercial, power and heat, water suppliers, hotels, financial, iron and steel, petrochemicals, ports, shipping, nonferrous metals, building materials, paper, railways, rubber, and textiles.	✗	USD 5-6
Hubei	Different from other Chinese pilots, Hubei does not pre-define which sectors are covered under its ETS; rather, it sets a threshold which applies to all power and industrial sectors. Those sectors with entities above the threshold then are covered.	✓	USD 3-5
Guangdong	Power, iron and steel, cement, papermaking, aviation, and petrochemicals.	✓	USD 4
Chongqing	Power, electrolytic aluminium, ferroalloys, calcium carbide, cement, caustic soda, and iron and steel.	✗	USD 3-5
Shenzhen	Power, water, gas, manufacturing sectors, buildings, port and subway sectors, public buses, and other non-transport sectors.	✓	USD 3-5
Tianjin	Heat and electricity production, iron and steel, petrochemicals, chemicals, oil and gas exploration, papermaking, aviation, and building materials.	✗	USD 2-4
Fujian	Electricity, petrochemical, chemical, building materials, iron and steel, nonferrous metals, paper, aviation, and ceramics.	✓	USD 2-4



Foreign Investment

Will foreign investors be able to participate and what barriers first need to be overcome?

The Tentative Regulations provide for qualified institutions and individuals to participate in the National ETS but it remains unclear what the eligibility criteria will be. Foreign investors are not currently included. However, all signs point to the National ETS opening up to foreign investors in the future, with the Greater Bay Area (“**GBA**”) likely to feature strongly:

- In May 2020, the People’s Bank of China (“**PBOC**”), State Administration of Foreign Exchange (“**SAFE**”), China Banking and Insurance Regulatory Commission and China Security Regulatory Commission (“**CSRC**”) issued a joint circular laying out various financial support measures for the construction of the GBA. Two of the measures related to carbon trading. Firstly, an online environmental interests trading and financial service system will be established using Guangzhou ETS’s platform. Secondly, allowing qualified foreign investors (including institutional investors and individuals) to participate in carbon trading using RMB or foreign currency.
- In addition, reports indicate that Hong Kong is planning to establish a unified carbon emissions trading market in GBA leveraging the Guangdong ETS and Shenzhen ETS to attract foreign investors.

The key barriers to foreign participation relate to the Mainland’s capital controls. Policies will need to be adopted that allow funds to move in to, and out of, the Mainland with supporting currency conversion given the otherwise strict capital controls. In 2018, the PBOC released the Notice on Further Improving Policies for Cross-border RMB Business to Facilitate Trade and Investments (Yin Fa [2018] No.3) clarifying the procedures for foreign investors using RMB cross-border settlement for carbon trading in China. Foreign investors may open non-resident RMB account at onshore banks to deposit investment funds and returns. What is now needed is a national policy to allow settlement in foreign exchange and cross-border payment.

Will foreign investors be able to access the National ETS under the QFII/RQFII and QFLP Schemes?

There is no obvious alignment. Future markets are subject to oversight by the CSRC, not by the MEE. Following the expansion of investment scope in September 2020 qualified foreign investors are eligible to trade under the QFII/RQFII Scheme, among others, commodity futures contracts listed and traded on futures exchanges approved by the CSRC, or options listed and traded on futures exchanges approved by the State Council or CSRC.

Whether or not carbon futures will fall under the QFII/RQFII Scheme for “commodity futures contracts” is subject to determination by the CSRC and the State Council. The Guangzhou Futures Exchange (“**GFEX**”) is currently looking into carbon futures under the guidance of the CSRC. However, this is a separate market to the National ETS (and is not a pilot). We note the GFEX has signed a Memorandum of Understanding (MOU) with the Stock Exchange of Hong Kong for strategic cooperation in promoting sustainability and facilitating the development of “a green and low-carbon market” for the Guangdong-Hong Kong-Macao Greater Bay Area. The anticipated HKEX-GFEX cooperation may develop into another Connect channel to facilitate foreign investors access to onshore carbon futures and related derivatives trading.

What products are we likely to see in future on the National ETS?

Currently, only CEAs may be traded on the National ETS. Our clients are excited about developing new and innovative green products. Trading of such products is already available on certain of the regional pilots. For example, the over-the-counter ‘Shanghai Emission Allowance Forward’ contract, with central counterparty clearing is available on the Shanghai Environment and Energy Exchange in addition to carbon funds, carbon trusts, green bonds, and carbon margin trading.

Development of green derivatives and structured products is in principle encouraged by the Mainland Government. For example, in May 2021, China’s top financial governing body, the Central Committee for Overall Deepening Reform, issued a circular providing for the development of carbon emission trading futures. In August 2021, the CSRC’s spokesperson Gao Li stated that carbon emission futures, which are an integral part of carbon trading, will be rolled out when the market further matures. However, there are hurdles to including different financial products on the National ETS to be overcome first, including:

- **Classification of carbon assets.** The legal nature of carbon assets (whether as a property right or an administrative permission) remains uncertain and this could have implications on product design. For example, if a security is perfected over a CEA, what remedy and enforcement action is available to investors? What accounting rules and taxation rules apply?
- **Verification and credibility of emissions data.** There are concerns about the integrity of emissions data. Carbon emission based financial products require monitoring, reporting and verification of emissions, to ensure that the data underpinning the market operation is credible.
- **Lack of pledge / mortgage registration / deregistration system.** Unlike some regional ETS pilots, the National ETS does not have a pledge registration/de-registration system yet.
- **Lack of mature credit assessment methodology.** Fundraising on emission rights is new in China. Experience in other mature markets must be applied to the assessment of credit risks.
- **Primary underlying market has not matured.** Exchange based derivatives are usually standardised and developed. During the formative years of a market, OTC transactions allow participants to customise their transactions, which may enable new products to emerge that can become standardised over a long term before moving on to an exchange.

CCERs are carbon credits that are a product of domestic emission reduction projects which substitute, neutralise or reduce greenhouse gas emissions. Key Emissions Entities are not currently able to trade CCERs on the National ETS but they are permitted to offset 5% of their emissions allowances using CCERs purchased on other markets. It is also worth noting that a separate National market for CCERs is currently being planned. On 10 March 2021, the General Office of CPC Beijing Committee and General Office of Beijing People’s Government jointly issued the Beijing Municipality, Implementing Plan on Building a Modern Environmental Governance System which provides that Beijing will lead the establishment of a National CCER trading centre.

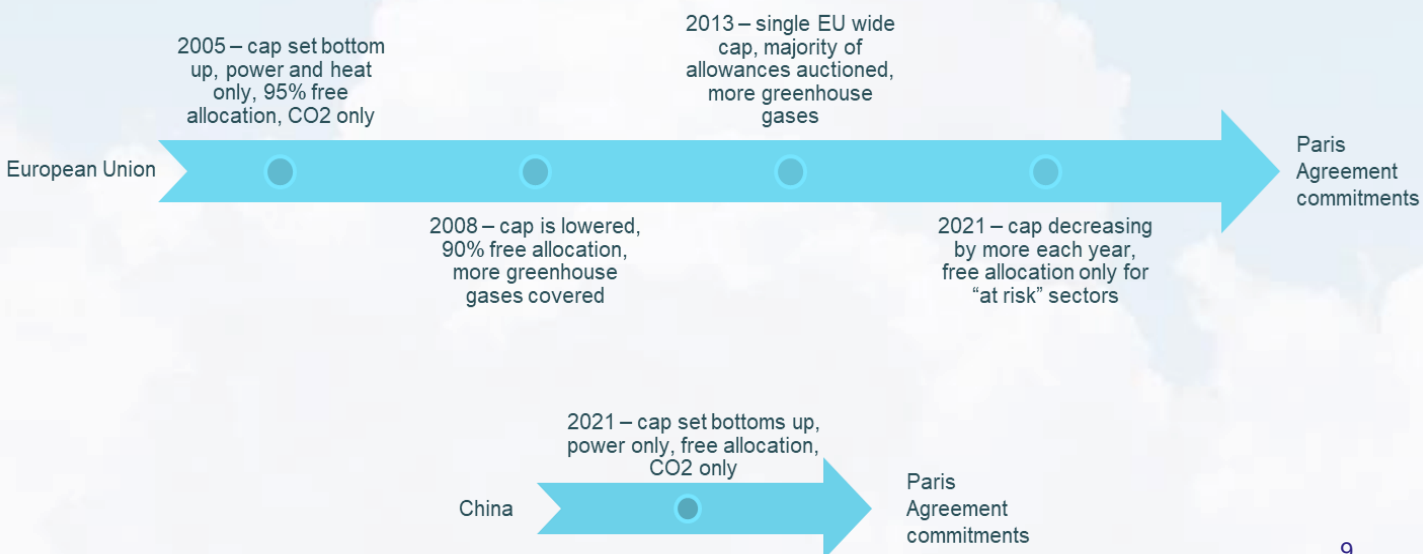
“Derivatives play an essential role in carbon markets. Companies subject to carbon compliance programs use carbon derivatives to meet their obligations and manage risk in the most cost-effective way. Derivatives can also be used by a variety of businesses that have financial positions indirectly tied to carbon prices. Investors can use the price signals from carbon derivatives to assess climate transition risk in their portfolios and can then access liquidity pools to manage risk and allocate capital to benefit from energy transition opportunities.” ISDA, the Role of Derivatives in Carbon Markets

How does the National ETS compare to the European Union's ETS?

The EU's ETS is the largest regulated carbon market in the world. It covers all EU countries plus Norway, Liechtenstein and Iceland. Unlike China's National ETS that currently covers only the power sector, the EU ETS covers a number of energy-intensive industries including oil, steelworks, paper making and the civil aviation industry. One of the key differences that has attracted comment is the way in which the "cap" on emissions is set. We set out a comparison below.

EU's ETS	China's ETS
The EU uses a "top-down" approach, applying an absolute emissions cap for the EU as a whole. This means a set number of CEAs is available for allocation.	China's cap is set "bottom up". Each power plant receives 70% of their 2018 emissions output multiplied by a corresponding benchmark factor. The benchmark factor depends on how much energy it produces and the source of that energy. The total cap is the sum of those allowances that have been driven by actual emissions.
The EU wide cap has decreased year on year by 1.74% since 2013, from 2021 onwards its will decrease by 2.2%. This means the set number of CEAs available for allocation reduces year on year, inevitably leading to the price of CEAs increasing under usual supply and demand pressure.	Entities will initially receive allowances at 70% of 2018 output multiplied by the corresponding benchmark factor. Allocations will subsequently be adjusted in accordance with verified emissions for 2019-2020 as reported by the entities. Under this mechanism, the cap is not forced to reduce.
The default position is that allowances are auctioned so participants have to purchase them making them "pay to pollute". Certain allocations are still given for free but this is reducing. Power generators for example, do not receive free allocation as a default.	Allocation is free. There is no "pay to pollute" currently in place.

The question is how the National ETS will reduce emissions, the ultimate and necessary goal for tackling climate change. As is shown in the diagram below, the National ETS has started in a very similar place from where the EU did back in 2005 when its ETS launched with a bottom up approach, mostly free allocation and covering the power industry only. It makes sense that this is needed at the start to allow the scheme and those in it to continue to operate. Whilst China may have started late, it will build on knowledge gained through its regional pilots and no doubt draw from global experience in its development and expedite change needed to meet its Paris Agreement commitments.



The future for carbon trading in the Mainland

China's National ETS is now up and running, after a decade of learning and gathering data from the regional pilots. China may look to increase the liquidity of the market, enhance the impact on slowing climate change and accelerate achieving its Paris Agreement commitments by:

- expanding coverage to additional sectors, looking to the pilot schemes for methodologies in relation to other industries;
- covering other greenhouse gas emissions, rather than just carbon;
- setting an absolute cap on emissions that reduces in a linear fashion year on year, driving down total emissions;
- having participants pay to pollute by implementing an auction system for CEAs rather than free allocation;
- introducing a variety of market participants, including foreign investors;
- adopting diverse derivatives products; and
- exploring opportunities for international connections to other carbon markets, including the EU's ETS.

Next steps

As one of China's leading law firms, KWM is advising our clients on how they might participate in the seismic changes that are now taking place in China's emissions trading schemes.

Please contact us if you have any questions.

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