



# China Carbon Forum | 中国碳论坛

*An independent platform to foster trust and cooperation among China's stakeholders for climate action*

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## The Role of Emissions Trading in China's Low-Carbon Transition

### Executive Summary

On December 7<sup>th</sup>, 2017, China Carbon Forum, together with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the International Carbon Action Partnership (ICAP), co-organised an event titled "***The Role of Emissions Trading in China's Low-Carbon Transition***". The event was the 27<sup>th</sup> event in the China Low Carbon Leadership Network (LCLN) event series, jointly organized by CCF and GIZ since 2010.

The LCLN events aim to encourage communication among leading local and international experts in China's climate change sector. The event series are funded by the German International Climate Initiative on behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

The event featured a keynote address from Mr William Acworth, ICAP, followed by a distinguished expert panel which discussed the role of ETS in China's low-carbon transition, including Dr Felix Matthes, Öko-Institut, Dr Teng Fei, Tsinghua University, Mr Stefano De Clara, International Emissions Trading Association and Dr Frank Jotzo, Australian National University, moderated by Ms Li Lina, ICAP.

## Keynote speech

*A keynote speech was provided by Mr William Acworth, Project Manager, ICAP, for about 20 minutes. Below is a summary of the key points discussed during the presentation.*

- ICAP is an intergovernmental forum for jurisdictions that have implemented a mandatory Cap-and-Trade system, currently including 31 members and 4 observers.
- The mission of ICAP is to share best practices, and provide a forum for policymakers to learn from each other's experience.
- ICAP's work includes technical dialogue between members; capacity building work (including 16 courses on ETS since 2009 with 400 alumni globally, more than a quarter of which are in China); and knowledge sharing, including publications and online platform.
- China has characteristics of both an emerging and a developed economy, leading to a high degree of interest internationally.
- ICAP has an ongoing capacity building program that covers China, working together with partners like GIZ. Other important collaborations involve a forum for China, Japan and South Korea to discuss carbon markets.
- An ETS should lead to price discovery, which provides information about the cost of emissions reduction that we didn't have before. However, for this price discovery to emerge, there needs to be an active market for allowances. The price then communicates to market participants the cost of emissions reduction.
- Some regular auctioning is important in order to communicate the value of allowances to the market. California has used consignment auctions.
- Price discovery is important, given that in the early stages of a carbon market, most covered entities often receive their full allocation for free, and don't have a strong sense of the long-term market direction. Hence, the absence of price discovery can create uncertainty surrounding the value of their allowances, making them less willing to trade.
- The measures that China takes in relation to price discovery will be important. There is some suggestion that China may implement a growing share of auctioning in the power sector, however this is still an open question.

- Each of the longest running carbon markets has experienced both price crashes and price volatility. Banking and borrowing can be used to reduce volatility to some extent. Price management tools are also operating in North American markets, providing upper and lower bounds on market prices. The EU ETS will have a market stability reserve from 2019, helping to provide better price certainty. In the Chinese ETS pilots and Korean national carbon market, there are institutional arrangements to intervene in the market at certain times in order to address price volatility.
- ETSs do not operate in isolation and are affected by many other policies which may not be well coordinated. If the ETS cap does not account for these other policies, it may cause a drop in prices with no additional mitigation.
- In response, policymakers can do the following: improve policy coordination; create built-in adjustment mechanisms such as a market stability reserve or a price floor; and, encourage market participants to focus on the medium to long term rather than short term.
- China's pilots have employed both ex-post adjustment of allowances and output-based allocation. There is not much experience of this approach to-date, and China's experience will be watched in order to identify challenges and opportunities.

## **Record of Discussion**

*The following is an edited synthesis of the discussion that took place at the event among panellists (around 60 minutes) and open Q&A with participants (25 minutes). As per convention, individual's comments are not attributed.*

The panel began by discussing the progress of emissions trading internationally, with 19 such systems in place to-date, 12 years after the first system was introduced in the EU in 2005. Since 2012 China has developed seven ETS pilots and has been preparing for its national ETS. The panel noted that the world is therefore looking at China, as it is now leading in the transformation of its energy system and developing a national carbon market.

Providing a framework for the discussion, the panel described four pillars of a 'low-carbon transition': paving the way for renewable energy options, an exit strategy for high-carbon assets, making innovation work in time, and triggering necessary infrastructure adjustment with sufficient lead times. Except the last of these, carbon pricing (including emissions trading) has a role to play for each.

The panel noted that there are no generic emissions trading systems. Instead, each system is unique to its institutional and economic environment. In an environment like China where pass-through of carbon cost is limited, the key function of ETS will be to facilitate the exit of high-carbon assets, but only trigger some incentives for renewables. For innovation, the key issue is the time horizon, and if that time horizon is not long-term, then there will be limited additional incentive for innovation.

In a heavily regulated electricity sector, where pricing plays a limited role in affecting investment, the impact of a carbon pricing instrument will be limited. This will be a key issue for implementation of ETS in China, as well as reform of the governance of the power sector. In the process, China can learn from the EU, where it was found that designing a textbook ETS was not adequate, and a steep learning curve led to lessons about what can work in certain regulatory environments. China can demonstrate to the world what an ETS looks like in China's particular economic conditions.

In Europe, the conventional wisdom has been that the power sector is the ideal sector for cost pass-through, given its lack of trade exposure and deregulated consumer prices. Other sectors such as steel and chemicals, on the other hand, face trade exposure and are therefore shielded from the carbon price to some extent. In China, the power sector may only achieve cost pass-through later, if at all, as its recommended-reform since 2015 is still an ongoing process. China's steel and chemical sectors, however, are the global price makers. After the national carbon market has started, we may detect a carbon price impact on global prices in these sectors. If that does occur, it could change the international debate in relation to free allocation of allowances. This will be an issue worth watching closely.

The panel pointed out that in China, the carbon market should be seen in the context of other important markets. The coal market is probably the most liberalised energy market in China. The oil, gas and electricity markets are still highly regulated, but are undergoing reforms. Therefore, China is not fully a market economy yet. The development of national ETS in China should add to momentum for its energy sector reform, so that market participants can respond appropriately to both commodity and carbon prices.

The panel noted that the main carbon emitting enterprises in China are state-owned enterprises. These companies are also undergoing internal reforms, in order to improve responsiveness to market conditions rather than political directives. Currently, they have some responsibility to ensure

economic stability at the local level. For the carbon price to function well, these companies need to behave in a more market-based manner.

On the issue of local economic stability, the panel described the challenge of considering the potential political economy impacts of carbon pricing. For example, energy-intensive enterprises provide a large part of the tax base for many local governments. If carbon pricing leads to a redistribution of interests between local regions, and between local and central governments, these issues will need to be considered.

China also suffers from insufficient institutional capacity. This is part of the reason that data quality is a significant challenge for the carbon market. In particular, different sectors have highly varying levels of data quality. The panel suggested that the relatively higher quality of data for the power sector may be the reason that it would be included first in the national ETS in its initial phase.

Given the issue of data reliability, the panel speculated that the government may consider that the credibility of the market is more important than its scope. If the market is opened too much at an early stage to sectors for which data reliability is not high enough, it could cause problems. It makes more sense, therefore, to start small, build a solid foundation, and then expand the scope over time.

On the issue of price volatility, the panel noted that fluctuations in economic growth are much larger in China than for more mature markets. This is reflected in the fact that China's carbon emissions increased this year, after a few years without any significant increase. While the average improvement in the carbon intensity of China's GDP is about 4% per year, in recent years it has been closer to 7% or 8%. This year it will return to about 3%. If this kind of variation is not managed, it may lead to a high level of price volatility in the carbon market, which would lead to concern by decision makers over the negative price impacts on enterprises.

The panel was cautious in relation to the speed of development of China's carbon market. It may be better to maintain a moderate speed of market development, because if it progresses too fast, it may not reach the intended destination. The panel, therefore, endorsed a staged phase-in strategy. This would see the sectors with better data quality introduced first. It could also consider including more developed regions earlier, although this would lead to concerns around carbon leakage.

At the same time, the panel also expressed optimism, in the sense that China is introducing a carbon market before it has reached a 'rich country' status, and still has a mixed economy with an

energy sector which is heavily regulated. This shows that the central government is ambitious in its efforts to reduce carbon emissions.

In relation to a staged approach, the panel pointed to the example of Australia, which implemented a scheme that was intended to be a fully functioning carbon market from its early stage. Given that lessons had been learned from the EU, it was considered that there was no need to go through a similar learning process. However, the Australian system did not survive politically, perhaps suggesting that a staged approach can help to build consensus and needed support for carbon market over time.

The Australian system was also found to be effective, but only in affecting short-term operational decisions, not in affecting long-term investment decisions. The reason for this was that industry did not believe that the system would survive long-term. In China, on the other hand, a gradual approach may lead to more long-term certainty that the system will impact on investment. The *2017 China Carbon Pricing Survey* also reflects this consideration among China's carbon market stakeholders. By 2025, a large proportion of survey respondents expect that the carbon market will have a significant impact on investment decisions.

The panel explained that the effectiveness of emissions trading depends first on ambition, in terms of the government's willingness to financially affect high carbon emitting industries. If and when the government is prepared to impact on those industries, the carbon price may have an effect. Also, industry expectations are important. Once industry believes that the system will remain for the long term, they will consider it in their investment decisions.

The audience heard that internationally, many companies support being covered by a carbon market, because it provides a signal that can be factored in to their investment plans and long-term strategic planning. Carbon markets are also a cost-effective way to achieve emission reductions. However, enterprises that support carbon markets prefer them to have a high level of transparency and data availability so that they can make informed planning decisions. They also want involvement of the business community in the policy development process, and predictability in policy development. Clear rules are also important, in relation to how the system will reward and penalise companies.

The panel suggested that, while it is impossible to create a perfect ETS from the beginning stage, improvements need to be made in a predictable manner, that the rationale of changes is explained to the business community, and the manner of their implementation made clear.

While it was broadly agreed that an emissions trading scheme should aim to provide a 'strong price signal', it was suggested that this does not necessarily mean a high price. Rather, the system should aim to provide a healthy market balance that creates a price signal that is predictable over the long term, without too much volatility. This is more important than a high price per se.

The panel also discussed the European experience of introducing a carbon market in a non-liberalised power sector, which was still undergoing a liberalisation process at the beginning of the system. The panel warned of the risk of carbon market design actually incentivising high-carbon investment. In the EU, this happened because power utilities were provided with full free allocation, but also able to pass the carbon cost on to consumers. China may also need to be aware of this risk. The panel suggested, therefore, that the focus should be on clear and accountable targets. Without that, the carbon pricing instrument may not end up serving its intended purpose.

The panel also suggested that it is important to be clear about the precise role that carbon pricing is intended to play. For example, is it a fall-back instrument, as it has effectively been in California, or is it the key driver of emissions reduction, as intended in the EU. Based on this, we can better understand what role carbon pricing should play in strategic terms. This is a more fundamental question than the detailed implementation issues of an ETS. With this question answered, authorities can afford to be flexible on the detailed design issues such as allowance allocation methodology. California has been relatively good so far in setting accountable strategies, the EU is lagging somewhat, and there is currently a lack of clarity in relation to China.

In China, it is important to understand how the power dispatch process works. Basically, at the beginning of each year, local governments sign contracts with local generators and dispatch operators mostly follow those contracts guaranteeing a certain number of generation hours to plant operators. The contracts are generally designed on the basis of equal generation hours for the same type of generation technology. Because of this arrangement for electricity dispatch, other policies focussed on energy efficiency or renewable energy may have limited impact, unless they directly affect the contracting process between local governments and generators.

Even with well-designed benchmarks for each of the power generation technologies, an ETS may also have no significant effect on the merit order of dispatch and therefore the emissions performance of the power sector. The panel suggested, therefore, that the central government should consider that allowance allocation not only be directed at enterprises, but also involve local governments. They could be asked to incorporate emissions benchmarks in to the annual contracts with generators, thereby involving one of the key stakeholders in the process. Without this element, the impact of the ETS may be limited.

The panel proposed that robustness of an ETS should be defined in terms of its impact on investment decisions. This means that companies take the future carbon price in to account for their cost-benefit considerations when they consider projects. It was suggested that this would not be the case if the price is very low. While price is not the sole measure of robustness, a very low price is unlikely to affect long-term investment considerations.

The panel also said that the carbon price should ideally reflect changing circumstances in the cost of emissions reduction. For example, if new technology is made available that makes emissions reduction easier, the carbon price may reduce. Faster than expected economic growth, on the other hand, should lead to a higher emissions price. However, the price in the ETS should not vary dramatically in relation to policy changes. Ultimately, the carbon price should become part of the normal business considerations of emitting enterprises.

A mature carbon trading system requires strong business engagement, in order that companies fully comprehend the system and they can optimise their participation. This means that financial officers need to be in touch with factory managers in order to understand the company's exposure, and allow informed investment decisions to be made. This also allows for innovation to be encouraged throughout the company, and carbon pricing to become part of the internal company processes.

The panel engaged with the issue of whether an ETS can provide both short-term and long-term incentives. It was suggested that the carbon price has an important role to play in changing short and medium-term merit order considerations, and encouraging de-commissioning of high carbon assets. However, there may be a need for some guiding mechanisms which support decision making for long-term investments. A good example of this could be the price floor in the UK.