THE 2017 CHINA CARBON PRICING SURVEY
ROUNDTABLE ON MONITORING, REPORTING AND VERIFICATION, AND ACCREDITATION (MRVA)

SUMMARY OF DISCUSSION

Introduction

On 11th April 2017, China Carbon Forum convened a second roundtable of the ETS Expert Panel, which will act to help inform the policy-making process of China's national ETS. The expert panel is part of the 2017 China Carbon Pricing Survey project, which is jointly implemented by China Carbon Forum and ICF, together with SinoCarbon, the Tsinghua University China Carbon Market Center, and the Dutch Emissions Authority. The 2017 China Carbon Pricing Survey project sets out to provide a transparent channel for China's policymakers, carbon market participants, investors and international observers to gain quantitative and qualitative insights in order to support domestic carbon market policy, design and implementation, increase the level of transparency and confidence in the National ETS, and motivate entity-level investment decisions in China's carbon market.

The second roundtable focussed on the topic of monitoring, reporting, verification and accreditation under the national emissions trading scheme, and involved a total of twenty-one senior experts and stakeholders in China's national ETS. Participants included representatives from: the National Centre for Climate Change Strategy and International Cooperation (NCSC); the Beijing Development and Reform Commission (DRC); industry representatives from the ferrous and non-ferrous metals, petrochemicals, chemicals, aviation, building materials and paper manufacturing sectors; experts from Tsinghua University, the Dutch Emissions Authority, Sinocarbon, ICF, China Carbon Forum and the Environmental Defense Fund; as well as observers from the Royal Norwegian and Dutch Embassies in Beijing.

This report follows a roundtable discussion in December 2016 on the topic of permit allocation. Finally, a report on the results of the 2017 China Carbon Pricing Survey will be released Autumn 2017.

Conclusions

- **Top-down management:** the NDRC has recently used two major forums to encourage an acceleration of efforts to prepare for the national ETS. In December last year, the NDRC held a National Carbon Market Seminar, at which Director Zhang Yong and Director Xie Zhenhua set out the guiding principles for the work remaining in the lead up to the national carbon market. In March 2017, the NRDC also convened a video-conference to discuss the government's climate change efforts. At this meeting, Director Zhang stressed the need to make greater efforts in relation to data collection and reporting work, as well as the accuracy of data.
- **Data integrity**: Large consensus about the importance of integrity of data and independence of verification, while unsurprisingly there are still several issues to be discussed further or resolved.
- **Cross-checking mechanisms**: The implementation of cross-checking mechanisms is necessary, but in many cases there is no reliable data that firms can use for such cross-checking
- **Public reporting of data**: A range of views were expressed. Some asked whether the current state of confidentiality of data is compatible with the need for reliable quota allocation. Perhaps data could at first be shared with all levels of government and expert advisors in order to facilitate their management of the market. The policy should indicate full data disclosure at a future point.
- **Management of verification agencies**: Managing verification agencies requires: First, the preparation of standards; second, establishing the means of supervision of national institutions and procedures; and third, the capacity of state regulatory departments.
- **Supervision**: A key aspect of oversight of verification agencies is a review process. The review process may be complex, and include specific principles, content and dedicated bodies. Decisions need to be made about whether the review should be conducted according to the level of emissions, according to the industry or according to the location (i.e. region with large amount of emissions)? Also, what do review bodies require? Experts can act as 'fourth parties'. Verification agencies can also interrogate and review each other's work.
- **Evaluating error**: Assessment of the accuracy of MRV depends on the level of management experience, as well as the integrity, of the personnel involved. Strengthening the capacity of institutions as much as possible is important for reducing error. There may be many small errors or bias in the data which is undetectable at small-scale. This requires third-party verifiers to ensure integrity of data, and quality control systems to provide assurance. Sampling of emissions data has found systematic bias between provinces, which may be due to differences in reporting boundaries.

The national ETS: Recent progress and upcoming priorities

This second roundtable focused on the topic of monitoring, reporting and verification (MRV) under the national emissions trading scheme, and aimed to facilitate understanding and consideration of the views of representatives of major industries to be covered by the ETS, as well as other market participants.

At the national level, there have been two important activities in the past five months which have set the direction for the national carbon market:

1) National Carbon Market Seminar (in mid-December last year): At this meeting Director Zhang Yong and Director Xie Zhenhua put forward some high-level principles for the development of the national carbon market.

Director Zhang suggested that for the next stage in setting up the carbon market, seven key principles should be adhered to: A) Recognise that the national carbon market is still in the primary stage. Adhere to the principle of "first easy, later difficult" and avoid aiming too high; B) Apply unified standards and systems of technical rules and regulations for transactions and other aspects of national rule-setting; C) Adhere to the principle of fairness. That is, the design of the national carbon market system should be fair and reasonable, and avoid poor design in the early stage which may conceal dangers later on; D) Operation of the national carbon market design should not disregard practical realities, making it difficult to function properly. At the same time, it should also allow for room to develop in the future; E) Compatibility. Given that the achievements of the seven carbon trading pilots have involved much difficult work, the pilots and the national carbon market need to be combined organically, as much as possible; F) Deal with the relationship between the government and the market. The government cannot replace the market, but in cases of market excess it should have a role to play; G) The last is to mobilize enthusiasm amongst all stakeholders. Because development of the national carbon market can be more effectively implemented if the whole of society is well-informed and the economy is incentivized.

Therefore, the National Development and Reform Commission (NDRC), according to the spirit of Director Zhang's speech, will roll out the plan for the national carbon market this year, and then seek views from the provinces, and cities and other stakeholders.

2) On March 20, 2017, the NRDC also convened a video-conference to discuss the government's climate change efforts. At this meeting, Director Zhang summarized work to-date on the development of the national carbon market, and put forward the key areas for future work, especially stressing the need to make great efforts in relation to data collection and reporting work, as well as the accuracy of data. At the meeting, Mr. Zhang urged the key enterprises that have not yet completed the verification of their 2013 to 2015 emissions data, to step up the rate of progress and submit their data. In addition, companies will soon need to report and verify their emissions data for 2016.

• It is uncertain whether the laws and regulations will be introduced this year, as there is a need for consensus among the various stakeholders, in particular the relevant local government and central government ministries. If the regulations are not in place, then the legal basis for the implementation of the national carbon market may be based on the interim management rules promulgated at the end of 2014, which were expressed in a department-issued regulatory document. The implementation program for the carbon market this year has involved soliciting views from government ministries and local governments. This process is now underway.

• The NDRC is asking the seven pilots and other regions to cooperate in setting-up the national trading and registration systems. In the near future, the government will assume responsibility for building the trading system and relevant support services.

• Regarding progress on the MRV, Director Zhang discussed at the March meeting some of the deficiencies in historical data. And in April and May this year, regions are required to conduct verification of emissions data.

• Regarding the national 'direct reporting system', there are already several provinces that have applied the national-level system. The next step is the processing and analysis of the data collected, thereby providing the basis for the allocation of quotas and the coverage of enterprises.

• Regarding progress on verification, Document 57, which was issued last year, provided local regions with reference on verification standards and management practices for verification bodies.

Questions

1. How can integrity of MRV data be ensured?

2. How can a practical and useful roadmap for data disclosure/transparency be set up in order to provide more information for market players?

- The key to ensuring the integrity of data is the verification process. First, the emission reports of the covered enterprises require definition of the reporting boundary and the emissions sources. Second, full use should be made of internal and external cross-validation mechanisms, to fully guarantee the integrity of the verified data.
- The Beijing local government has several methods to ensure that the verification of the data is accurate and reliable from a technical point of view. First, the government has issued a variety of industry-specific standard measurement methodologies. Second, Beijing's data verification mechanism is comprehensive. Third, the legal basis for ensuring data integrity integrates both requirements and incentives. At the same time, many trainings are conducted each year.
- Ensuring the integrity of verified data can be ensured through compliance with the verification process guidelines (referring to Annex III of NDRC's Document 57 issued last year). These guidelines provide for how the verification body is required to carry out its work to ensure that the data is complete and accurate. This process is divided into three stages: the preparation phase, the implementation phase, and the report compilation.
- In addition, cross-validation mechanisms are a very important and effective means of ensuring the integrity of data verification. But whether it can be effectively implemented depends on the circumstances.
- The integrity of the verified data is closely related to other monitoring requirements. First, it is important for regulators to ask what kind of specific measurement and monitoring should be conducted by the enterprise. Second, the enterprise should run their own monitoring capacity building based on the relevant requirements, and then conduct measurement of emissions and energy consumption of its key facilities. In this regard, strengthening the development of electronic monitoring can help to provide a very important guarantee of data integrity.
- Ensuring the integrity of data requires, firstly, reliable historical data, and secondly, future data management enterprises utilising monitoring plans and verification. The implementation of cross-

checking mechanisms is necessary, but in many cases, there is no reliable data that firms can use for such cross-checking.

- Building a regulatory system, building capacity, and third-party organizations all have an important role to play in ensuring data integrity.
- For ensuring the data integrity of covered companies in civil aviation, understanding of carbon verification and emissions data is an important factor, while the lack of data for airports makes it difficult to ensure the accuracy of the data overall.
- Reporting boundaries may vary. The MRV reporting boundary can differ from that required for permit allocation, as well as from specific industry requirements. For example, there may be some specific consideration made for the aluminium industry.
- There may also be many small errors or bias in the data which is undetectable at small-scale. This requires third-party verifiers to ensure the quality of data, and a quality control system to provide assurance.
- Also, because the cost of verification is going down due to competition in the market, the quality of verification may be harder to guarantee.
- Sampling of the data can help to identify systematic bias between provinces. This may be due to differences in reporting boundaries. Appropriate solutions may then be identified by the relevant authorities.
- The verification process needs to not only be done with integrity, but also be consistent and comparable. Consistency involves the enterprises and their own historical data, but also intra-industry comparison as well as comparison with different geographical regions.
- Variable data accuracy can occur because accuracy requires self-discipline and willingness on the part of companies to report the real data.
- Another issue is whether the confidentiality of the data is compatible with the need for reliable quota allocation. Quota allocation and data confidentiality should be two separate questions.
- Once the national carbon market has been established, there will certainly be relevant standards to support the integrity of the data. Then, for third-party inspection and certification bodies, there will also be a clear mechanism and relevant management regulations to ensure that third parties can genuinely fulfil their duties.
- In the process of data collection, there may be 3-4% error in the data accounting conducted by companies. Capacity building is needed to ensure that companies can provide accurate data, and to ensure that third parties can adequately play their role in checking and verifying data.

- Transparency is important for carbon market development, because in principle, buyers must have the right to know the seller's level of emissions in order to create a fair market. However, we are currently experiencing problems in this regard, due to inadequate regulation and the demands of some companies preventing full disclosure of data. This issue may not be resolved in the short term, so failing this, the relevant authorities should be responsible for guiding the fair and reasonable development of the market.
- The professional competence of third-party verification agencies needs to be improved. Third-party verifiers have a low threshold for qualification, however knowledge of technical requirements is important. For self-disciplined companies this may not be a problem, but for others, how can we be confident in the accuracy?
- The professional capacity of management staff at covered companies is also lacking. SOEs have been collecting energy consumption data for many years, and it is of high quality. However, the energy statistics vary from what is required for verification in the ETS, including methods for calculation. How can we strengthen the management of data? Capacity building is therefore required for both verification agencies and enterprises in relation to data management standards.
- Regarding verification, consistent standards in the calculation methodology are an important principle. The measurement boundaries and the unit of calculation should be consistent given complex processes, for example in the cement industry.
- Regarding the capacity of covered companies, the degree of importance that they give to the accuracy and completeness of the verified data has a definite impact. This requires oversight from government and the relevant authorities, in order to ensure accuracy.
- The information systems that companies are developing should be standardised to help ensure data integrity.
- Currently the verification occurs when the enterprise appoints someone to conduct it, and sometimes their requirements for quantifying emissions are not very high. This is a significant difference with the experience E.U. and the U.S.
- An important point regarding the controlled entity's own technical equipment, is that the measurements may or may not be accurate as the system may not be complete. This leads to estimation and a certain level of unavoidable error. Companies may be encouraged to improve their metering to avoid the application of a uniform error coefficient to their data.

- Capacity building for third-party verifiers is also very important. If these issues are dealt with satisfactorily, problems can be identified and views based on auditing can be put forward. This can also push enterprises to provide even more accurate emissions data.
- Often when training sessions are conducted, it is found that they are not well understood. The company representative at each training session may be different; sometimes a regular staff member, sometimes the CEO, and sometimes the accounting team. In addition, they have no special university qualifications in the area. This is very important for ensuring that compliance activities are in strict accordance with the monitoring plan, and that data collection supports the plan. Therefore, maintaining consistency of the responsible person is important.
- Another point is that it is not very clear where the responsibility lies for MRV, given that for some of the pilots government covered costs, while for others companies held that obligation. This should be clarified in legislation.
- In addition, in some pilot regions' fines for non-compliance are not high, perhaps a few thousand or tens of thousands of RMB. Therefore, third-party verification may not be a high priority for enterprises.
- In relation to the confidentiality of data, at this stage it may be too early to have full data disclosure, and it's not clear who it should be disclosed to. Disclosure to government, policymakers and advisors would be helpful. Policy should lead eventually to disclosure of data to the market, but this is a matter of stability. Rather than data disclosure, the priority for enterprises is long-term policy certainty regarding allocation. This policy stability is important for enterprises.
- There needs to be a good understanding of the requirements for data to be submitted, e.g. the verification methodology and reporting boundaries. Also, in some industries, such as cement and glass, the units are often not unified.
- In order to improve data integrity, there is a need for capacity building, a 'scientific approach' to correcting systematic error, and cross-checking.
- Transparency is important. Companies are obligated to report data to government, but it is not released publicly. Confidentiality agreements are signed which preclude public access to the information. For this reason, the establishment of a carbon market will be a gradual process. We must ensure that policy is implemented with consistency.

3. How should verification agencies be managed?

4. How can the competent authority or regulators of ETS evaluate the level of error in MRV in order to better support allocation and market management?

5. What procedures are necessary when a complaint/dispute arises from MRVA?

6. How can government and industry make full use of monitoring plans?

- In deciding how to manage the verification bodies, the government will first establish the legal framework. The most severe punishment for inaccuracies may be that a company's business license can be revoked.
- The government can also carry out supplementary data reporting based on the reports submitted, through random checks and reviews to assess whether the MRV is adequate.
- Different industries have different reporting boundaries. Training can therefore help to better guarantee the quality of MRV. Clarifying the basis for verification and reporting boundaries can greatly reduce the probability of error.
- It is very important to stress the importance to have a trustworthy data system. In Europe, environmental data are essentially defined as public data, so emissions data is shared with the public. Initially, some specific industrial data can be marked as confidential (e.g. relating to specific production procedures). Eventually, however, it is essential for the system to have data transparency so that participants and the public can see the results of the system.
- Beijing, through the Beijing Municipal DRC, the local CNCA and relevant institutions, carried out public appraisal. Finally, it was decided that in Beijing they would try setting up a body responsible for overseeing carbon emissions verification. This is suitable for high-level oversight, but in the future under the national carbon market, there will be a need for more verification agencies, which will require capacity building work.
- In Europe, the requirements for verifiers are very important. It is essential that verifiers be very familiar with the specific sector (e.g. if he works on the petrochemical sector then he should try to have general accounting/technical knowledge of processes etc.).
- There are three main aspects to the management of verification agencies. First is the preparation of verification agency standards; second is the means of supervision of national institutions and procedures; and the third is the state regulatory departments.

- In relation to the preparation of standards, a necessary condition for ensuring data quality is the high quality of national institutions. At the national level, there is a need to consider whether the verification bodies need to file details of their inspectors in order to be qualified. Also, whether the verification body itself requires an administrative license or simply registration on a central system.
- A review process can help to guarantee the quality of verification, as well as providing oversight of the verification agencies. The review process requires specific principles, content and dedicated bodies, e.g. should the review be conducted according to the level of emissions, the industry or the location (i.e. region with large amount of emissions)? What do review bodies require?
- In this regard, experts can act as the 'fourth parties' in checking verifiers. To facilitate this, further support is required in order to set up a special body to conduct reviews of the verification. In addition, verification agencies could interrogate and review each other's work.
- There should also be horizontal line management, as these accredited verification bodies come under the management system of the Certification and Accreditation Administration (CNCA).
- The last question relates to how to make full use of the monitoring plan. In many pilot regions, the vast majority of covered enterprises, including major emitters, face personnel turnover and the capacity of staff is uneven. There is a significant lack of understanding of verification and carbon trading.
- Local government tries to facilitate the competent departments and related personnel in the covered enterprises to develop the capacity to understand how to complete and submit the reports. However, at present, there are still some difficulties with implementation.
- The management of registration of verification bodies, as well as implementation of verification regulations needs to be strengthened. At the same time, we need to strengthen the basis for evaluation by supervisory agencies. Dynamic management of this area will involve the setting of an exit mechanism and punishment mechanism.
- Assessment of the accuracy of MRV depends on the level of management experience of those conducting the MRV, as well as the integrity of the personnel. By strengthening the capacity of institutions as much as possible, we can try to narrow this gap in accuracy.
- In January last year, the NDRC has released Document 57 regarding key areas for preparation of the national carbon market. The document included an annex on third-party verification. Originally this was supposed to be a stand-alone set of interim regulations for verification, but due to the involvement of several departments, this proved too difficult. Given the urgency of verifying historical emissions, however, it was important to release the information at that time, even as an

annex to the NDRC document. The annex covered included three main parts: the granting of qualifications, public supervision and punitive measures.

- There were many requirements set out for qualification. Some regions strongly suggested being strict in this regard. An official from Hubei, for example, mentioned that the quality of verifiers directly determines the quality of data. Other stakeholders also consider that the market needs to be nurtured, and if you set the threshold too high, many verifiers will not be able to enter the market.
- A compromise approach was taken. The regulations were put in place, but there was allowance for exceptions. In this case, you must establish a professional committee and undergo review by the NDRC's Climate Change Department. If you pass you this review you may be registered as a verifier.
- There is a small team in government that is discussing qualifications of verifiers. They are considering two proposals. First, whether the national government should be responsible for giving qualifications. Recent initiatives aim to streamline and de-centralise government powers, so centralised approval may contradict this. Therefore, a second proposal has emerged, examining whether it would be possible to implement industry self-governance, with a role for industry associations.
- The provinces, including at the pilot stage, have adopted measures including appraisal of experts, mutual assessment and spot checks. All pilot regions, and now all provinces, are conducting this supervision.
- However, there is a problem being faced in how to deal with problems when they arise during this process. Some reports are indeed very poorly written, and there is a large volume of data leading to a significant deviation from the real situation. So far, we haven't seen a province that has come up with a solution to this problem. We proposed a one million RMB fine or negative record, but implementation to date still leaves room for improvement.
- Monitoring plans are important. The EU has done well in this regard, and we can learn from that experience. We are conducting research on this. We hope that the government can require companies to have plans within legislation. In this way, we may see a great improvement in verification and data quality in the future.
- It is important to avoid vested interests. For example, who is responsible for paying the verifiers? If it is the company, then they may have an interest to collude, which is not what government wants

to see. One option to resolve this would be for companies to pay a third-party platform, such as an exchange, to manage this process.

- There is a need to establish an improved management system to ensure the high quality of verification work. This requires increased supervision and a separate regulatory institution for the verifiers.
- Spot checks without prior notice is a good approach, but how can this be implemented? For example, currently when conducting verification, the visit plans are communicated between the verifiers and the company, and not submitted to the authorities. If we can establish a rule that it is sent to the authorities or the verifiers' monitoring agency, they can be aware that it will happen and can sample, monitor and regulate the verifiers.
- Registration and certification of verification staff can take reference from existing frameworks, such as in the construction or accounting industries (e.g. CFA).
- Although some staff may meet the requirements, they don't have much experience in verification work, while some who do not meet the standards or threshold are in fact more familiar. We could have an exam which would help us to ensure higher quality verification staff.
- A long-term assessment mechanism is also necessary, involving periodic assessment of verifiers. This can also encourage verifiers to have consistently high-quality work.
- The mechanism is the key. Spot-checks without notice are a good approach. We can also learn from the existing energy efficiency monitoring process. A notice will be posted online when the visit occurs, and authorities are notified, who call the company to check whether and who came. This provides a good reference to avoid fraud.
- If the specific time is provided, we can reveal more information as to whether the verifiers have taken the process seriously. If we can build such a system for emissions verification, it can help to prevent falsification of data.
- Regarding third parties, we can learn from the CDM process, because that was actually very successful. There was a high threshold for verifiers, including for registered capital and avoidance of conflict of interest. This meant that they were mostly international and not many domestic participants.
- The reality in China today is that there is much work to be done, and there are not enough experienced third-party verifiers, so the threshold for expertise is low. We need a process to increase the quality of verifiers. We can see from previous experience that after training and experience, verifiers have gotten better.

- Management should leave enough time for verification. For example, in the pilot regions, verifiers have had very limited time to complete their work. In the national ETS, we should ensure that they are provided adequate time, and with a more even workload instead of asking for it to be done within one or two months.
- In terms of the national market, the work will be very technically demanding. Every verifier needs to have a technician in its team specific to the industry. Otherwise it will be difficult to judge the data and identify errors.
- In relation to monitoring plans, the focus is mostly on data collection and analysis. Verifiers need to have a plan on how to collect and ensure accuracy of data. This should reach the level of reliability that the energy efficiency monitoring has achieved. It should also be possible to identify which department the data is received from.
- Each province has limitations in its verification bodies, and knowledge of differences between industries is limited. If big data cannot be achieved at the national level, for example sharing of data at the sub-industry level, then the capacity building will take a longer time.
- There would be a very high cost for conducting reviews of 100% of the verification reports. However, we need confidence in the data. Therefore, a two-part process could be employed: First, industry assessment groups would be created, which can look at verification reports in relevant industries and regions, compare data, and identify where problems exist. Expert teams can then identify companies which require double-checking. Second, after this initial screening, spot checking can be conducted for 20-40% of enterprises, to compare data. These two approaches together can help to ensure data quality, while reducing costs.

ANNEX

Attendees

Chinese experts:

- **Prof. Zheng Shuang**, National Center for Climate Change Strategy and International Cooperation
- **Liu Haiyan**, National Center for Climate Change Strategy and International Cooperation (NCSC)
- **Chen Caocao**, Beijing Development and Reform Commission (DRC)
- **Wang Feng**, China Quality Certification Center (CQC)
- **Cheng Liang**, China National Institute of Standardisation (CNIS)
- **Ma Xiangshan**, Tsinghua University (formerly Director, Climate Change, China Science and Technology Institute of Civil Aviation)
- **Zhou Sheng**, Vice Professor, Tsinghua University
- **Tong Qing**, Tsinghua University
- **Lü Zhuanyi**, Tsinghua University
- **Wang Lan**, China Building Materials Academy
- **Fang Jingrui**, China Building Materials Academy
- **Wu Zhenhua**, CHEMCHINA
- **Kan Yuwei**, Vice-President, Corporate affairs and communications, Air Liquide China
- **Hu Xiaoming**, SinoCarbon
- **Lai Han**, SinoCarbon
- **Shen Ying**, Senior Consultant, ICF
- **Zhao Xiaolu**, Carbon Trading Project Manager, Environmental Defense Fund

Foreign experts:

- **Tor Skudal**, Environment Counsellor, The Royal Norwegian Embassy, Beijing
- **Steven Bank**, Senior Emissions Trading Advisor, The Dutch Emissions Authority (by phone)
- **Erik van Andel**, Strategic Advisor NEa, The Dutch Emissions Authority (by phone)
- **Anne te Velde**, Embassy of the Kingdom of the Netherlands
- **Dimitri de Boer**, Vice Chairman, China Carbon Forum
- **Peter Edwards**, General Manager, China Carbon Forum
- **Huw Slater**, Research and Projects Manager, China Carbon Forum
- **Renato Roldão**, Consulting Director – Climate Change, ICF

Agenda

Moderated by Renato Roldao

14:00- 14:10 ***Prof. Zheng Shuang****, National Center for Climate Change Strategy and International Cooperation*

National Carbon Market Progress and Upcoming Priorities

14:10- 14:20 ***Dimitri de Boer****, China Carbon Forum*

Project Introduction

14:20- 15:15 Roundtable discussion – Challenges for data gathering to support allocation in the National ETS

15:15- 15:30 Tea & Coffee Break

15:30- 16:45 Roundtable discussion – Stakeholder consultations; Regional disparities; Incentives for innovation

16:45- 17:00 Closing remarks

17:00- 19:30 Dinner