EMISSION TRADING
DIALOGUE FOR
GUANGDONG
INDUSTRIAL
ENTERPRISES

Business-Partnership for Market Readiness
# TABLE OF CONTENTS

## Executive Summary
Preparation for Action on Climate Change  
The B-PMR’s Mission  
Dialogue Agenda  
Challenges for Guangdong ETS  
Workshop Overview and Objectives  
Address by Chairman of Guangdong Low-carbon Development Promotion Association (GDLC)  
Address by Deputy Director–Resource & Environment Department, Guangdong Development and Reform Commission  
Address by President and CEO, International Emissions Trading Association (IETA)  
Address by Sino-German Climate Project Director of GIZ  
Dialogue Summary  
### Participating Industries  
### Allowance Allocation  
### Fundamental Infrastructure  
### Workflow of MRV  
### Carbon Management  
### MRV Experience Sharing & Sectoral Group Discussions  
### Q&A Session  

## Stakeholders’ Interviews

## Speakers

## List of Participants

## Appendix I

## Appendix II
EXECUTIVE SUMMARY

China is the largest energy consumer in the world, and has proactively taken initiatives to regulate and reduce carbon dioxide emissions from its carbon-intensive industries. In 2011, the Chinese government announced pilot carbon trading schemes for seven of its cities and provinces. One of the provinces set to implement the carbon trading scheme is Guangdong.

Being new to the carbon market, Guangdong faces many challenges, including:

- Determining the baseline emissions for various compliance entities
- Defining procedures of monitoring
- Reporting and verification
- Imparting training to the various stakeholders to help them carry out their duties and exercise their rights flawlessly
- Ensuring the safety and security of the system
- Helping compliance entities effectively carry out carbon management activities

To help the stakeholders overcome these challenges, International Emissions Trading Association (IETA), Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), Guangdong Development and Reform Commission (GDRC), and Guangdong Low-Carbon Development Promotion Association (GDLC), organized a series of workshops under the "Emissions Trading Dialogue for Guangdong Industrial Enterprises" in February and March 2013 to help the industries of the province adjust to the various aspects of an emissions trading scheme. This industry-level interaction promoted and supported by the local administration is the first of its kind in China.

Some of the leading stakeholders from the EU ETS, the world's largest emissions trading system, were present at the Dialogue to share their experiences, their past and present challenges, the design of the EU ETS (its positives and shortcomings), technical details of the crucial monitoring and reporting procedures, and various methods of carbon management and compliance.

The Dialogue attracted huge interest among Chinese stakeholders. Over 100 Chinese delegates from more than 80 companies actively participated in the various workshops of the Dialogue, closely interacting with their European counterparts over a period of two days. The participants also got the opportunity to visit the China Emission Exchange (CEEX), which will host the Guangdong emissions trading platform.

IETA launched the Business Partnership for Market Readiness (B-PMR) in 2012 to support governments and businesses in the emerging carbon markets to learn from the experiences and best practices in established carbon markets, and it is supported by some of the leading companies from around the world. The IETA upholds its principles by acting as a think tank, a convener of dialogues, an advocate, a market promoter, and a champion of best practices and market standards. The B-PMR program covers 16 countries across Asia, Latin America, and the Middle East and North Africa (MENA).
PREPARING FOR ACTION ON CLIMATE CHANGE

Introduction

In October 2011, the Chinese government officially launched seven pilot schemes for carbon emissions trading in the five cities of Beijing, Shanghai, Tianjin, Chongqing and Shenzhen, and the two provinces of Guangdong and Hubei. Local carbon emissions trading schemes are scheduled for implementation in 2013. In accordance with the unified arrangements made by the Development and Reform Commission, Guangdong Province has carried out considerably early preparatory work, taking the lead among the provinces and cities designated for pilot carbon emissions trading.

Background

The International Emissions Trading Association (IETA), as a supporter of the global carbon market and a promoter of dialogue and exchanges between various stakeholders, commits itself to promoting communication and collaboration between industrial enterprises and government departments over carbon emissions trading issues worldwide. In April 2012, the International Emissions Trading Association held in Beijing presented a workshop on how industrial enterprises take part in and prepare for carbon emissions trading, and produced good results.

Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), as the German agency to implement climate change project cooperation between the Chinese and German governments, has also cooperated with carbon emissions trading pilot provinces and cities in a number of projects and supported pilot carbon emissions trading work in China.

In accordance with the achievements of the Guangdong Development and Reform Commission’s visit to Europe in May 2012, the International Emissions Trading Association and Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH have proposed to hold a carbon emissions trading dialogue for Guangdong industrial enterprises. They plan to invite international peers to introduce their experience and deficiencies in taking part in and preparing for local carbon emissions trading systems (including the European Union, Australia, Japan, the United States, New Zealand, etc) and provide feasible best practices to Guangdong industrial enterprises.

In 2011, under the guidance of Guangdong Province Development and Reform Commission, Guangdong Low-Carbon Development Promotion Association (GDLC) was initiated by Guangdong local enterprises that concern the climate change and low carbon development. GDLC works as a platform to encourage Guangdong local enterprises to make joint efforts together with governmental institutions for Guangdong low-carbon development. Aiming for successfully holding the dialogue between international and Guangdong industrial peers, GDLC plans to invite the main industrial enterprises and industrial associations in Guangdong to share the local practice experience.
THE B-PMR’s MISSION

Carbon markets are entering an important new phase of development, as emissions trading programs are emerging in new places around the world. Sixteen developing countries are participating in the World Bank’s Partnership for Market Readiness (PMR). As these programs take shape, IETA will mobilize its membership to assist in building business readiness for these new markets through the Business Partnership for Market Readiness (B-PMR).

IETA’s membership spans the globe - with major energy, industrial, financial and service companies in virtually every PMR partner jurisdiction. IETA is positioned to assist in preparing local businesses to operate successfully in these new markets.

By sharing experiences from existing carbon markets, IETA will promote common understanding with local businesses in PMR countries, share best practices, and, where appropriate, assist in the policy development processes.

On October 24, 2012 in Sydney, IETA launched a new “Business Partnership for Market Readiness” - or “B-PMR” - to meet these new challenges. IETA aims to enhance the potential for workable international carbon trading models to emerge around the world. IETA will work in concert with the host governments, the World Bank and PMR donor countries on this initiative.

Building upon previous experience, IETA will conduct a series of missions in a select group of five countries that are preparing emissions trading programs under the PMR. We will prioritize the programs that are most advanced - and those that invite IETA’s involvement. The goal of the dialogues will be to raise the level of understanding and awareness of emissions trading by industries in PMR-implementing countries. They will explore how different market-based mechanisms operate and address challenges and opportunities industries may face when participating in carbon markets.

The B-PMR missions will focus intensively on market preparedness in host countries - taking into account local business customs and dynamics. They will spur strong local interest in the practicalities of emissions markets and in best practices. After the initial missions, we will tailor follow-up work on the specific needs of each new market. The broad reach of IETA members will be paramount in this aspect of the program, providing local expertise, awareness and engagement.

IETA upholds its principles by acting as a think tank, a convener of dialogues, an advocate, a market promoter, and a champion of best practices and market standards. The B-PMR is a natural outgrowth of these principles. The B-PMR is a special initiative governed by the IETA Secretariat and the B-PMR Steering Committee with underwriting from:
DIALOGUE AGENDA

Main Elements and Topics

The dialogue includes the following topics:

- Participating industries: power, steel, petrochemical, cement production, ceramics production, etc.
- The work contents and workflow of MRV at operator-level
- Financial products and trading
- Mitigation measures

Schedule

Time: 3 days, 27 February - 1 March 2013
Meeting Location: Guangdong Hotel; No. 309 Dongfeng Road, Guangzhou

Organizer:
GD Low-carbon Development Promotion Association (GDLC)

Foreign Supporters:
International Emissions Trading Association (IETA)
Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)

Local Supporters:
Guangdong Development and Reform Commission (GDRC)

<table>
<thead>
<tr>
<th>Day 2</th>
<th>Content</th>
<th>Location</th>
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<tbody>
<tr>
<td>9:00-12:30</td>
<td>Opening Remark and Meetings</td>
<td>Multi function hall (3rd floor)</td>
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<tr>
<td>12:30-14:00</td>
<td>Lunch</td>
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<tr>
<td>14:00-16:30</td>
<td>Training: GHG auditing and verification</td>
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<td>Group 1: Power Industry</td>
<td>Beijing hall (3rd floor)</td>
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<td>Group 2: Steel Industry</td>
<td>Luofu hall (3rd floor)</td>
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<td>Group 3: Petrochemical Industry</td>
<td>Dinghu hall (3rd floor)</td>
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<td>Group 4: Cement Production</td>
<td>Danxia hall (3rd floor)</td>
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<tr>
<td>Group 5: Ceramic Production</td>
<td>Xijiang hall (3rd floor)</td>
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Day 3
9:00-10:40

Meetings
Multi function hall (3rd floor)
## Day One – Study and Visiting Tour

<table>
<thead>
<tr>
<th>Time</th>
<th>Contents</th>
<th>Speakers</th>
</tr>
</thead>
</table>
| Morning: Visiting Guangzhou Exchange | 9:30-10:00 Visiting multifunctional building of Guangzhou Exchange | Mr. Li Zhengxi  
CEO of Guangzhou Exchange |
|               | 10:00-11:00 ETS and the Real Economy          | Dr. ZHAO Daiqing  
Deputy director of GIEC |
|               | 11:00-11:30 Discussion                        |                                               |
|               | 12:00 Lunch                                   |                                               |
| Afternoon: Visiting Guangzhou Institute of Energy Conversion | 14:30-14:40 Welcome Remark  
Dr. ZHAO Daiqing  
Deputy director of GIEC |
|               | 14:40-15:00 Introduction of GIEC  
Dr. ZHAO Daiqing  
Deputy director of GIEC |
|               | 15:00-15:20 Introduction of GDLC  
Ms. Li Bijun  
Secretary-general of GDLC |
|               | 15:20-16:20 Introduction the current status of  
GD ETS  
Mr. LUO Zhigang  
Senior research assistant |
|               | 16:20-17:00 Discussion                        |                                               |
|               | 17:30 Dinner                                  |                                               |

## Day Two – Seminar

<table>
<thead>
<tr>
<th>Time</th>
<th>Contents</th>
<th>Speakers</th>
</tr>
</thead>
</table>
| Opening Remark | 9:00-9:05 Opening remark by Chairman of GDLC  
Dr. CHEN Yong |
|               | 9:05-9:10 Opening remark by President and CEO of IETA  
Mr. Dirk Forrister |
|               | 9:10-9:15 Opening remark by Director of GIZ  
Mr. Stefan Bundscherer |
|               | 9:15-9:30 Opening remark by Deputy Division Chief of GDDRC  
Mr. Chen Yijun |
|               | 9:30-9:45 Discussion & Tea Break and Group Photo |

**Experience Sharing: How do industrial enterprises prepare and participate in ETS**

Examples of European industries that have worked together with government to prepare for EU ETS
<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Panelist/Company</th>
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<tr>
<td>9:45-10:00</td>
<td>Brief introduction of industrial enterprises’ obligation and rights under ETS</td>
<td>Panel discussion Dan Barry, BP; Scott McGregor, CEO, CAMCO; Ziyuan Wang, Shell Dr. Lutz v. Meyerinck</td>
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<tr>
<td>10:00-10:20</td>
<td>ETS Compliance: Rules and Policies that EU Operators Follow</td>
<td>Panel discussion Massimiliano Varrucciu, EDF Trading; Karl Upston-Hooper, Greenstream</td>
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<td>10:20-10:40</td>
<td><strong>Discussion &amp; Tea Break</strong></td>
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<tr>
<td>10:40-11:00</td>
<td>Introduction and experience sharing of Phase I, II and III allocation plan of EU ETS</td>
<td>Dr. Hans-Joachim Ziesing, Michael Mei; Alstom</td>
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<tr>
<td>11:00-11:20</td>
<td>All about Allowances: How to manage and surrender them</td>
<td>Panel discussion Dan Barry, BP; Tony Gai, PetroChina</td>
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<tr>
<td>11:20-11:35</td>
<td>EU ETS Reporting and Monitoring Guidelines: what does it all say and why is it important? In what ways can Guangdong have similar guidelines?</td>
<td>Caspar Chiquet, South Pole Carbon</td>
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<tr>
<td>11:35-11:50</td>
<td>Main thoughts of the development of GD Emission Reporting Guidelines (General Guidelines)</td>
<td>Dr. XU Weijia Sun Yat-sen University</td>
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<tr>
<td>11:50-12:05</td>
<td>MRV: How to establish effective operations, teams and processes so that compliance and carbon management are easy</td>
<td>Sean Gilbert KPMG</td>
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<tr>
<td>12:10</td>
<td>Lunch</td>
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<td>Afternoon</td>
<td><strong>Group Discussion: MRV experience sharing between enterprises</strong></td>
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<td></td>
<td>Group 1: Power Industry</td>
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<td>Speaker: Massimiliano Varrucciu, EDF Trading</td>
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<tr>
<td>14:00-14:30</td>
<td>Case Study: How MRV is dealt with in the EU ETS</td>
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<td>14:30-15:00</td>
<td>Energy consumption and emission management experience sharing of EU enterprises</td>
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<tr>
<td>15:00-15:30</td>
<td><strong>Discussion &amp; Tea Break</strong></td>
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<td>Time</td>
<td>Contents</td>
<td>Speakers</td>
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<tr>
<td>9:00-9:20</td>
<td>Introduction of verification processes and how to overcome the challenge of verifying your carbon assets</td>
<td>Robert Hansor, LRQA</td>
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<td>9:20-9:40</td>
<td>Introduction of Registry system, Exchanges, and examples to illustrate allowance registry processes for industrial enterprises in EU</td>
<td>Panel discussion Dr. Hans-Joachim Ziesing Zhuli Hess, VCS; Robert Hansor, LRQA; Eric Boonman, Statkraft</td>
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<td>9:40-10:00</td>
<td>Discussion &amp; Tea Break</td>
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<td>10:00-10:20</td>
<td>The substantial impacts of ETS to the operation and development of enterprises in the EU: what you need to know</td>
<td>Panel Discussions Karl Upston Hooper, Greenstream; Dong Wang, Rio Tinto</td>
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<tr>
<td>10:20-10:40</td>
<td>Obstacles encountered by EU enterprises when preparing to participate ETS (financial, management, technical issues, and the establishment of ETS working group etc.)</td>
<td>Panel Discussions Michael Mei, Alstom; Massimiliano Varricciu, EDF Trading; Dr. Lutz v. Meyerinck</td>
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<td>10:40-11:00</td>
<td>1 to 1: Shell and PetroChina discussion on EU ETS Compliance and new technology and revenue opportunities</td>
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<tr>
<td>11:00-11:20</td>
<td>Experience sharing of emissions reduction and carbon assets management</td>
<td>Eric Boonman, Statkraft; Zhuli Hess, VCS</td>
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<tr>
<td>11:20-11:40</td>
<td>Case Study: What kind of services or supports consultant companies and financial departments could provide. What are their pros and cons?</td>
<td>Fulvio Bartolucci, Solvay</td>
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<td>11:40-12:10</td>
<td>Summarization</td>
<td>Overview of key recommendations for Guangdong industrial enterprises</td>
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<tr>
<td>12:15</td>
<td>Closing Ceremony</td>
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<td>12:20</td>
<td>Lunch</td>
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Guoliang Jin, Vice President of Guangdong Exchange Service Group & CEO of China Emission Exchange (CEEX), gave details about the products and services being offered by the group and how they will assist various stakeholders under the Guangdong ETS.

The exchange offers trading solutions in Chinese CERs, and emission allowances of carbon and non-carbon natures. It also offers consultancy services, management and capacity building solutions. CEEX is currently studying the dynamics of carbon finance and carbon futures before it moves forward with their deployment. The exchange currently offers spot trading in emission allowances issued by Guangdong authorities, carbon offsets generated within Guangdong and Chinese CERs.

**Key Points**

- Currently there is no clear signal on how much CCER could be used to offset the emissions from compliance companies in Guangdong ETS.
- Afforestation/reforestation project CCER will be accepted by Guangdong ETS. Guangdong Province now is developing some of the A/R forestry methodology.
- As for the low price of carbon crediting in the international market, Guangdong will propose to have a provincial price of carbon crediting, possibly with a ceiling and a floor price.
- The trading of quotas will be among the compliance companies in Guangdong ETS, whether brokers or banks as investors will be allowed in the trading process is still pending for determination.
- The four sectors chosen for Guangdong’s ETS pilot include: petrochemical, power, iron and steel, and cement. Compliance companies will be those with annual emissions of 20,000 tons or more, and companies with at least 10,000 tons of annual emissions will be responsible for reporting their emissions.
Visit to Guangzhou Institute of Energy Conversion

Under GD ETS, Guangzhou Institute of Energy Conversion participated in emissions cap calculation and allowance allocation method research, and plans to manage the whole mechanism design. According to Dr. ZHAO Daiqing, the Deputy Director of GIEC, GD ETS’s design work needs to be based on Guangdong’s development model and resource endowments. China is a developing country, which does not assume an absolute emission reduction obligation. When considering setting the absolute cap for GD ETS, it requires taking economic development into consideration and providing emission spaces for new entrances. When designing allowance allocation, it is important to consider the characteristics of different industrial sectors in Guangdong.

Officials of the Institute shared the research and development activities undertaken in recent years in the fields of clean energy and energy efficiency. Some of the areas of research are:

- Biomass-based power generation, including chemical and thermo-chemical conversion processes
- Solar energy, including passive solar applications and environmentally sustainable solar manufacturing processes
- Ocean energy
- Geothermal energy, including applications in power generation and air-conditioning
- Gas hydrates
- Green buildings and energy efficiency
- Battery technology and electric cars
CHALLENGES TO GUANGDONG ETS

Emissions Trading Scheme is a fairly new concept in China, and Guangdong is among the first provinces to launch such a program. The provincial government and industrial enterprises will face challenges at multiple fronts as they strive for a smooth and effective implementation of the pilot ETS. Through continued and frequent knowledge exchanges, these challenges, listed below, may be overcome to pave the way for a broader implementation of the ETS in the medium to long-term.

**Baseline emissions** - The baseline for the Guangdong ETS has been determined from emissions produced by liable enterprises between 2010 and 2012. Emissions in subsequent years may be significantly higher as the industrial sectors register increasing growth following a global economic revival. This may lead to a situation where future emissions may significantly exceed the emission allowances distributed.

**Monitoring, Reporting & Verification** - Designing MRV procedures that complement and are consistent with other pilot ETS programs in China and other countries is essential in order to demonstrate and establish the environmental integrity of the emission reduction achieved. Consistency and compatibility are also important for possible international linkage and recognition under a UNFCCC regime.

**Training for enterprises** - While some auditing techniques may already be in-place through the laws addressing SOx, N2O, and particulate matter emissions, the enterprises may require additional training to cover the monitoring of greenhouse gas emissions.

**Communication** - A smooth and cohesive interaction between the enterprises and the Guangdong authorities is necessary for the effective implementation and operation of the ETS. To ensure continuous and frequent communication, an effective IT infrastructure is necessary. Such a mechanism would not only help the regulatory bodies to inform the enterprises about the latest compliance-related developments, but also enable the enterprises to communicate any difficulties that may encounter from time to time.

**Security** - Secure online infrastructure and trading solutions are quintessential for the success of an ETS. Data security during submission of confidential plant information to the regulatory authorities and transaction security during trading of allowances and other compliance instruments is important to boost the confidence of all ETS stakeholders.

**Carbon management** - The participating enterprises would be required to formulate a comprehensive carbon management plan to comply with the ETS. Studying the compliance strategy of industries in other emission trading schemes like the EU ETS, New Zealand ETS would benefit the Guangdong enterprises to develop a sound strategy to hedge their risks and fulfill the compliance.

The B-PMR missions could play a crucial role in addressing these challenges and in helping all stakeholders fulfill their obligations in the most effective manner. B-PMR missions will focus on the specific needs of the Guangdong ETS to provide local expertise, awareness and engagement.
WORKSHOP OVERVIEW & OBJECTIVES

On 27 February 2013, the International Emissions Trading Association (IETA), Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), and Guangdong with support from Guangdong provincial officials, brought together emission trading experts and a targeted group of cross-sectoral delegates and speakers to participate in the “Emission Trading Dialogue for Guangdong Industrial Enterprises.”

The invitation-only workshop, which took place at Guangdong Hotel, brought together officials from the Guangdong provincial authorities with key industry and expert players.

Compared with other pilot regions, Guangdong is unique, as it is home to a fairly large number of big industrial emitting enterprises. From the perspective of carbon emissions trading system implementation, the Province urgently needs to do more preparatory, educational and training work to improve industrial emitting enterprises’ ability, skills and experience to understand and participate in the carbon emissions trading system. The opportunity will help them take part in various workflows of the carbon emissions trading system in a better, faster and more cost-effective way. It will also secure their active involvement, rights and interests and ensure the smooth implementation of the carbon emissions trading system.

Main objectives of the dialogue:

• Improve the understanding and knowledge of Guangdong industrial emitters on the role and function of carbon emissions trading scheme
• Enhance the ability and skills of Guangdong industrial emitters to participate in Guangdong ETS
• Assist the competent authorities in Guangdong to find out how to prepare and develop procedures for participation by industrial emitters of GD ETS, and to gather their opinions as well
DIALOGUE SUMMARY

Address by Dr. Chenyong, Chairman of Guangdong Low-carbon Development Promotion Association (GDLC)

Dr Chenyong of the Guangdong Low-carbon Development Association welcomed the delegates and gave a brief introduction of the Guangdong Emissions Trading Scheme (ETS). He said the workshop would be very helpful to the liable enterprises because they would gain invaluable experience of the various aspects of an ETS. He hoped that the experiences shared by the international experts would enable the enterprises to improve their understanding of the ETS and promote participation.

Address by Yijun Chen, Deputy Director-Resource & Environment Department, Guangdong Development and Reform Commission

Mr Chen expressed his gratitude towards IETA, GIZ and GDLC for their long-term focus and support of the development and implementation of Guangdong ETS. He mentioned that the fulfillment of the binding target of energy conservation, and emission reduction, and the overall energy consumption target of the 12th Five Year Plan. Enterprises in the power, cement, iron and steel, and petrochemical sectors with annual emissions of over 10,000 tCO₂e or 5,000 tonnes of coal equivalent between 2010 and 2012 will be required to report their emissions while companies with annual emissions of over 20,000 tCO₂e or 10,000 tonnes of coal equivalent will be required to cap their emissions. The ETS will be implemented in four stages: establishing the regulatory framework and infrastructure for the ETS, carbon inventory validation of the enterprises, determining the total annual allowance quota, and the implementation of a trading system.
Address by Dirk Forrister, President and CEO, International Emissions Trading Association (IETA)

Mr Forrister thanked GDLC and GDRC for inviting IETA to hold the dialogue. He congratulated the GDRC and the enterprises for the hard work they have done so far for the implementation of the Guangdong ETS. He also noted that the positive initiatives taken by China would inspire other countries to take similar actions to address climate change. He highlighted the roles governments and industries must play to make an ETS successful. He also stated his optimism regarding the continued cooperation between the Chinese government and Business Partnership for Market Readiness (BPMR).

Address by Stefan Bundscherer, Sino-German Climate Project Director of GIZ

Mr Bundscherer highlighted the need for market-based mechanisms like an emissions trading scheme to curb greenhouse gas emissions. A large number of government agencies and business groups are now deeply involved with the EU ETS, which has helped in the proliferation of valuable information and knowledge across the world. He described the dialogue as an excellent opportunity for the IETA delegate speakers and Chinese and European delegates to share insights on how business companies can profit from participating in ETS.
PARTICIPATING INDUSTRIES

The emission trading scheme in Guangdong province is unique from the emissions trading schemes announced in other provinces and cities in China because the province is home to a fairly large number of industrial enterprises. These enterprises require training in all aspects of the ETS including technical issues like emission reduction technologies, allowance surrendering, and regulatory issues like MRV and allowance allocation.

Dr Lutz v. Meyerink of Meyerink Consultants (Germany) shared his views on the ideal set of obligations of the liable enterprises and the rights they may enjoy under an emissions trading scheme. He also put forward some recommendations essential for the smooth functioning of an ETS.

The liable industrial enterprises under the Emissions Trading Scheme (ETS) must ensure that the monitoring and reporting of their GHG emissions are compatible with the rigid protocol and requirements specific to their sectors. The liable enterprises must make sure that all the information required by the regulations of the ETS are reported and submitted to the registries. Public access to these registries is essential to create an open market with transparency in governance and market activities.

All compliance activities defined under the ETS regulations and directives must be adhered to by the enterprises, including the timely and accurate surrender of emission allowances. The governance must also include measures such as penalties on liable enterprises that fail to comply with the regulations. Liable entities should also be protected against unforeseen and unavoidable circumstances that may pose difficulties to them during compliance.

The liable enterprises should be elaborate in their MRV procedures to reflect the specifics of their industrial processes. Real time access to the registries for the enterprises must be ensured to assure ease in reporting information. The liable enterprises should have all possible options (like trading at exchanges, over-the-counter trades supported by exchanges, and trading in derivatives) to participate in the trade of emissions allowances and offsets. Ample options of trading would provide enterprises with the required flexibility to fulfill their obligation in the most efficient manner.

Governance is essential for the development and healthy functioning of the market. Thus the enterprises, and all other stakeholders, should embrace regulatory oversight. A centralized implementation authority, like the Department of Finance, should be the administrating authority for implementing the ETS. Industrial enterprises should develop investment and trading strategies to fulfill their obligations in the most cost-effective manner and shield their industrial operations from any adverse impact. Because many enterprises may not have prior experience in trading processes, it would be wise to have an independent mechanism, like the ‘Four Eye Principle’ to monitor all transactions.
Massimiliano Varrucciu of EDF Trading Limited shared the experiences of the power sector liable under the EU ETS. He highlighted the need for robust MRV procedures and the importance of corporate strategies to ensure cost-effective compliance.

A liability under the EU ETS requires the power companies to modify their operational and investment strategies. The companies need to devise short-term and long-term strategies to meet the obligations at the lowest possible cost. A balance between the use of emissions allowances, offset instruments and carbon abatement technologies is essential to hedge carbon positions and minimize the cost of compliance. The strategies must also have a high degree of flexibility to absorb changes (regulatory, technical or operational).

The market price of carbon must be treated as an opportunity cost and should be incorporated into the decisions of the company. The marginal cost of carbon is added to the price of electricity. The price of electricity generated from conventional power plants would understandably be higher; this would eventually make new low-carbon generation more attractive for investment. Introduction of a carbon price may not lead to an immediate shift to low-carbon technologies, companies tend to readily include it in their long-term fuel mix strategy.

The emissions sources, MRV procedures, emission reduction technologies, and possible difficulties faced by the liable enterprises in the ceramics sector under the EU ETS was discussed by Qisha Wen of GreenStream Network. The major emissions sources in the ceramics industry are raw material preparation, component mixing, formation, drying and frying of the intermediate product, product finishing, and addition of auxiliary material. Wen briefly described which sources and emissions are required to be monitored according to the EU ETS regulations.
ALLOWANCE ALLOCATION

Allowance allocation is one of the most fundamental aspects of an emissions trading scheme. Optimum allocation of allowances is essential to ensure the long-term viability of a carbon market and support from low-carbon technologies.

Michael Mei from Alstom and Dr Hans-Joachim Ziesing explained the evolution of the EU ETS and shared specifics about the policies adopted by the European Commission in allocation of emission allowances.

Emissions trading remains one of the most effective and efficient instruments to reduce greenhouse gas emissions. The EU ETS, launched in 2005, has so far been divided into three phases. The implementation of each phase of the ETS was accompanied by continuous and rigorous review of operational and regulatory aspects. The review has led to more transparent and harmonized operations across the EU.

The EU Emissions Trading Scheme has evolved significantly since its implementation in 2005. The allocation procedure of emissions allowances has been harmonized and enterprises are now allocated emission allowances centrally by the European Commission and not by the individual countries. Thus, the same rules are applicable across EU leading to enhance consistency and transparency.

An adequate emissions cap must be created to provide long-term and effective price signals. The implementation of an ETS should be done progressively, and lessons from every stage should be incorporated into the design to facilitate the development and longevity of the market. An efficient emissions trading scheme requires accurate and verifiable data on emissions and their determinants.

Verifiable data is essential to avoid distorted market conditions and giving wrong investment signals. A robust monitoring, reporting and verification system is also essential for an effective emissions trading scheme. Allocation of free emissions allowances must reflect the economic conditions of the industrial sectors and not just historical production. Over-allocation of allowances may lead to a fall in prices and a reduced investment outlook in the clean energy sector. The targets set under the ETS must be flexible to account for any changes in the economic conditions.

Key Points

• Implementation of an ETS must be accompanied by continuous and rigorous review
• Adequate emissions cap should be created to provide long-term and effective price signal
• Strong MRV procedures must be implemented to avoid distorted market conditions
• Allocation of free emissions allowances should be based on economic conditions of the industries and not just the past production levels as overallocation may lead to a fall in market prices
• Targets should be flexible to account for any macro-economic changes
Dan Barry of BP Emissions Trading shared the general workflow for the submission of annual emission reports and allowances to the registry at the end of a compliance period. The enterprises should calculate their annual emissions and get them verified, then submit this information to the registry. An external verifier should then be requested to approve the information submitted to the registry. Barry noted that the enterprises should submit allowances and/or offsets to the registry to fulfill the obligation before the deadline.

FUNDAMENTAL INFRASTRUCTURE

Dr Hans-Joachim Ziesing highlighted the importance of registries in an ETS. The registries facilitate a number of operations concerning emission allowances. The operations include the creation of allowances, free allocation, auctioning, trading, and surrendering of allowances for compliance and their cancellation or retirement.

Fulvio Bartolucci from the International Emissions Trading Association (IETA) explained what role consultancies and service providers can play in helping the liable enterprises meet their obligations and facilitate smooth implementation and operation of an ETS.

Consultancy firms may help the enterprises define a strategy to optimize their carbon profile. They may help the company develop a balance between investment in low-carbon technologies and the purchase of carbon offsets. Service providers enable the smooth operation of an ETS by participating in the day-to-day trading operations; thus increasing the liquidity and creating a more sophisticated instrument to help companies manage their carbon profile in the long-term.

First-time industrial participants in an ETS may find it beneficial to adopt a risk management strategy that is more typical of financial operations such as hedging. Consultancy firms can develop such risk management plans for companies customized to their specific requirements. Consultancy and service providers can also help in the diffusion of information and expertise across the industries by helping them increase awareness of rules and opportunities. Some large enterprises may also choose to outsource one or more components of the ETS-related operations to third-party service providers.
Key Points

- Registries in an ETS play a major role in the implementation of some of the most basic and essential functions like auctions
- Consultancy firms may help enterprises develop customized risk management plans aimed at fulfilling the obligation in the most cost-efficient manner
- Service providers also help in proliferation of knowledge and regulatory information across the ETS
- Liable enterprises may outsource part of their ETS-related activities such as the submission of information and trading of allowances/offsets to service providers to increase efficiency

Zhuli Hess of the Verified Carbon Standard (VCS) said that the pilot phase from 2013 to 2015 is in the process of constructing the carbon market infrastructure, and the most important aspect of market infrastructure is the trading registration system involving two levels: demand and technical.

She added that the registration system will ensure that the most critical part of the carbon market credibility and the government by finding out what the demand is in this regard; and enterprises should try to figure out what is the demand from the registration system.

All pilot provinces and cities will be involved in the registration system, whether quotas or CERs. One side will have the quota system, and the other will have the offset mechanism system. The registration system demands the following requirements be fulfilled: transparency, an equitable and open platform, and access at any time.

A good registration system is beneficial to the government and the enterprises. This would enable government to remotely and thus help minimize transaction costs. The government would also be able to easily check the information and data submitted by the enterprises for integrity.

In terms of steps to be taken to ensure a well-established and operating system, it is important to first understand the needs and demands of policy makers as participants. In situations like this conference, information exchange between enterprises and policy makers is free and open, enabling everyone to learn from international experiences across the east and west.

Because the process of establishment is now stable, there is more of a pilot program than three years ago, and it will be even more prominent in five to ten years. Even when there is a very large amount of emission trading in carbon markets, the system will be able to support the needs of those trading. Finally, the system will also guard against possible risks in the carbon markets and will control the emergence of illegal trading.
WORKFLOW OF MRV

Monitoring, reporting and verification (MRV) is one of the most crucial aspects for the success of any market-based carbon mechanism. MRV systems should be flexible, to cover the processes of all industrial sectors, but stringent enough to cover all legitimate emissions across various sectors.

Caspar Chiquet of South Pole Carbon discussed the importance of sound MRV procedures in an ETS. Monitored and verified emissions are often the basis for the allocation of emission allowances. Additionally, the number of allowances to be surrendered can also be accurately determined only through a sound MRV system. Therefore, the MRV procedures need to be strong enough to guarantee fairness, comparability and transparency, but simple enough to avoid unnecessary costs for emitters.

Robert Hansor of LRQA shared the lessons learnt from MRV procedures implemented and being practiced by the companies under the EU ETS. Best practices for a sound MRV system include cooperation and communication between the parties, detailed documentation and guidance, approved monitoring methodology for each installations, defined principles, and level of quality assurance.

For smooth MRV implementation, an enterprise should be aware of the MRV requirements, include monitoring and reporting procedures into the business management systems documentation, engaging a verifier early to resolve any issues prior to the deadline, and splitting the verification process into half-yearly or quarterly exercises.

Massimiliano Varrucciu of EDF Trading noted that robust MRV procedures are essential to achieve transparency, enhance trust among all stakeholders, and uphold environmental integrity of the system.

MRV procedures in the power sector are usually well understood: relatively fewer streams are required to be monitored, quality of fuel is monitored which gives an idea about the expected emissions, and some regulations (such as those for SO₂, N₂O) may already be in place.
The power plant operators must ensure that the monitoring plan is well documented and has provisions to measure and report various parameters including fuel consumed, calorific value of the fuel, biomass content, oxidation factor, and resulting emissions. The monitoring plan should be developed according to the specific configuration of a power plant. It should have clear workflows and responsibilities assigned to various officials.

Varrucciu further explained the workflow of a monitoring plan, the process of formulating a monitoring plan, and the various data points and sources that should be included in a monitoring plan. The monitoring plan should include a combination of approaches to cover all aspects related to the production of emissions.

Qisha Wen from GreenStream Network discussed some measures specific to the ceramics industry that may help the liable enterprises reduce their energy use and carbon emissions. These include reducing the moisture content of the clay, use of more energy-efficient kiln, a fuel switch (from coal to fuel oil or natural gas or biomass), waste heat recovery, and substitution of clay and shale with fly-ash.

**Key Points**

- Sound MRV systems are essential for the smooth operation of an ETS as it decides the number of allowances to be allocated and surrendered.
- Enterprises should maintain documents of MRV procedures to avoid confusion and errors. They should also cooperate with verifiers to identify possible issues and strive to resolve them.
- MRV procedures in the power sector may be easier to follow as there are fewer streams to monitor, and guidance from other regulations is available.
- MRV procedures should include a combination of measurement and assessment approaches for energy and emission monitoring.
- Sound MRV procedures can help an enterprise identify the emission sources, and energy flows. This information can then be used to improve energy efficiency.

**CARBON MANAGEMENT**

Eric Boonman of Stratkraft discussed the various options the liable enterprises have to meet their obligations and shared the experiences of his company under EU ETS.

An enterprise may choose to purchase emissions allowances or implement internal carbon abatement projects. The implementation of such projects would depend on a number of factors, including the per unit cost of abatement vis-a-vis the cost of emission allowances, and the initial capital investment in the abatement projects.

Another option to meet the obligation is to purchase carbon offsets. Offsets generated from external abatement projects may be available at a lower cost than those generated from internal abatement projects. Enterprises may also choose to forward-purchase offsets to hedge the risks or bank some of the allowances/offsets that can be used during future compliance periods.
Key Points

- A number of compliance options are available to liable enterprises under an ETS.
- Enterprises must choose from these options after considering several factors including the expected market price of carbon in the future, bankability provisions, internal and external abatement costs.
- Forward purchase and banking of allowances and offsets may form part of the carbon management strategy to counter unforeseen risks in the future.

Concluding remarks by Dirk Forrester and Stefan Bundscherer

Dirk Forrester: I hope these expert sessions proved very helpful to the enterprises and other stakeholders present here. I would like to summarize the major points discussed by various experts. An emissions trading scheme comprises of several aspects like I) the emissions, here the role of MRV is crucial; II) responsibility of compliance; III) offset instruments available for fulfilling the responsibilities; IV) price of the allowances and offsets; V) trading strategies to minimize the risk and ensure full compliance; and VI) market access points. With these six points a company can design a sound carbon management strategy.

Stefan Bundscherer: Dirk has summarized everything perfectly. I would like to thank everyone who attended this dialogue and the experts who shared their experiences. I would also like to thank the Guangdong Provincial Development and Reform Commission for giving us the opportunity to hold this dialogue. I thank the Guangdong Development and Reform Commission for inviting the industrial enterprises and other stakeholders to the dialogue. Finally, I would like to thank IETA, GDLC and GIZ for their continued cooperation in holding this event.
MRV EXPERIENCE SHARING

**Question:** Rio Tinto has opposed the proposal of launching a carbon tax in Australia. From the business point of view, how do you think this will impact the introduction of a carbon tax, and how will this attitude change later?

**Karl Upston-Hooper:** I think the ETS and carbon taxes aren’t the same. Government taxes are based on cost structure, but carbon trading cost structures are determined internally based on emissions. Many people do not like the fact that the government levies the carbon tax because carbon emissions are beyond its control.

**Question:** In what aspects should the Guangdong ETS be strengthened?

**Dr Lutz V Meyerinck:** I think one must be aware of the size of the scheme and how the various participants would be involved in the scheme. With this information, it is easier to design the scheme. Another important aspect is regulation. The certification, reporting and verification procedures should be in place; as well as emissions trading platform. Guangdong has a trading platform in place so it can start the trading very soon.

**Question:** The carbon prices in EU have fallen from €10 per tonne to around €5 per tonne even though it is a highly mature market. How do you suggest such situation can be prevented in the Guangdong ETS?

**Eric Boonman:** During the early part of the second phase of EU ETS (2008-2012), the supply of emission units was low so the price was significantly higher. No one could have predicted the economic slowdown which led to reduced energy consumption resulting in lower carbon emissions. Now we are having discussion regarding postponing the auction of additional emission permits, but this is a short-term solution. A long-term solution would be to increase the emission reduction target from 20% to 30%, as the UK has been advocating. Currently, the price of carbon is too low to affect a change in the operations of a company.

**Question:** Can offsets generated from VCS projects be used in Guangdong ETS?

**Zhuli Hess:** We are working on this issue and are in close contact with the policy makers. We have 232 VCS projects in China and we are trying to set up a linkage with the Chinese carbon market. We are working on a similar situation in California.

**Question:** How can we make a connection between the Guangdong ETS and ecological development?

**Zhuli Hess:** I understand the carbon emission reduction in China is associated with government reforms and thus ecological development is also a major aspect of the pilot emission trading schemes. The development of carbon offset projects in the forestry and agricultural sectors would play an important role in this regard. Some high quality forestry and agricultural offsets can be converted into CCERs which can be used in Guangdong and other pilot schemes.
Massimiliano Varrucciu of EDF Trading Limited shared the experiences of the power sector liable under the EU ETS. He highlighted the need for robust MRV procedures and the importance of corporate strategies to ensure cost-effective compliance.

A liability under the EU ETS requires the power companies to modify their operational and investment strategies. The companies need to devise short-term as well as long-term strategies to meet the obligations at the lowest possible cost. A balance between the use of emissions allowances, offset instruments and carbon abatement technologies is essential to hedge carbon positions and minimize the cost of compliance. The strategies must also have a high degree of flexibility to absorb changes (regulatory, technical or operational).

The market price of carbon must be treated as an opportunity cost and should be incorporated into the decisions of the company. The marginal cost of carbon is added to the price of electricity. The price of electricity generated from conventional power plants would understandably be higher; this would eventually make new low-carbon generation more attractive for investment. Introduction of a carbon price may not lead to an immediate shift to low-carbon technologies but companies tend to readily include it in their long-term fuel mix strategy.

Varrucciu noted that robust MRV procedures are essential to achieve transparency, enhance trust among all stakeholders and uphold environmental integrity of the system. MRV procedures in the power sector are usually well understood: relatively fewer streams are required to be monitored, quality of fuel is monitored which gives an idea about the expected emissions, and some regulations (such as those for SO2, NxO) may already be in place.

The power plant operators must ensure that the monitoring plan is well documented and has provisions to measure and report various parameters including fuel consumed, calorific value of the fuel, biomass content, oxidation factor and resulting emissions. The monitoring plan should be developed according to the specific configuration of a power plant. It should have clear workflows and responsibilities assigned to various officials.

Varrucciu further explained the workflow of a monitoring plan, the process of formulating a monitoring plan, and the various data points and sources that should be included in a monitoring plan. The monitoring plan should include a combination of approaches to cover all aspects related to production of emissions.
GROUP DISCUSSION | IRON & STEEL SECTOR

Speakers: Zhang Yuzhong, Jason Qiao (CAMCO); Dong Wang (Rio Tinto)

Key points of the discussion have been summarized below.

- The difficulties that Guangdong enterprises will encounter in Guangdong ETS pilot scheme was discussed through the comparison of energy saving and emission reduction.
- Energy saving and emission reduction are under the management of the Commission of Economy and Information Technology, and the Development and Reform Commission respectively. The management cost for the companies is lower in energy saving than that of emission reduction.
- The energy saving management system, quantification and reporting system are better than those of emission reduction, and there is a quantified subsidy for companies with better performance from government. However there is uncertainty with regards to emission reduction.
- A major concern the compliance enterprises may have is whether they need to set up new facilities to monitor emissions or the existing ones would suffice. If new facilities are to be set up, who would bear the cost may also be an issue.

How to reward companies for emission reduction:

- Environment compensation for the companies with better performance in emission reduction.
- Subsidies to liable enterprises if carbon price is high.
- Possible allocation of CCERs to companies that have taken early action to reduce carbon emissions.

GROUP DISCUSSION | PETROCHEMICAL SECTOR

Speakers: Ziyuan Wang (Shell); Tony Gai (PetroChina)

Tony Gai from PetroChina London Trading and Ms Wang from Shell Trading provided general advice to the Petrochemical industry regarding MRV. The main focus of the discussion was the carbon asset management within compliance companies under the EU ETS and what strategy the Guangdong companies should adopt. Key points of the discussion have been summarized below.

- Lobbying the policy maker regarding MRV, for example monitoring protocol and verification standard.
- Gain MRV practices and experience from Clean Development Mechanism (CDM) projects’ implementation.
- The company shall make a balance on how to meet the target of emission reduction, either through internal emission reduction or purchasing credit.
- The company shall manage the carbon asset in the group level rather than the branch level or facility level to make it cost-effective.
- As per experience from EU ETS, the compliance petrochemical companies under the EU ETS could benefit from carbon asset management.
- Companies under the EU ETS can make financial gains by participating in future trading and hedging their risks, but the futures trading may not be implemented in China.
GROUP DISCUSSION | CEMENT SECTOR

Speaker: Chunfang Wang, Huaxin-Holcim

Chunfang Wang from Huaxin Cement shared the various aspects of MRV in the cement industry. The four major aspects of MRV are: background information on resource usage, boundary of the emissions monitoring, data collection and analysis and, comparison of the results with key performance indicators.

Wang mentioned that the company has about 900 factories where data is collected and recorded with a common standard which leads to a strong foundation for subsequent action on reducing carbon emissions. In China, the emission assessment standards are in the developmental stage, and it is necessary that they are consistent and comparable to the standards being developed across the various provinces as well as international carbon markets for smooth carbon trading.

Wang stated that during emission assessments, defining the boundary is essential. Differentiation between direct and indirect emissions, although sometimes tricky, is important. Emissions from all third-party purchases and third-party transport are classified under indirect emissions, and are to be excluded from the assessment of the plant.

Participating companies shared their concerns and clarifications about the emissions assessment process. Several cement companies mentioned that the mines supplying them with the raw materials are owned by other companies. The participants enquired whether the emissions from these mines be added to their plants’ emissions.

While answering queries of the participants regarding the assessment of alternate energy sources, Wang clarified that all emissions assessments include all emissions from raw materials and energy sources except alternative energy sources. Emissions attributed to power purchased will be classified as indirect sources. Use of waste gases to generate electricity or for drying will be assessed but not included in the direct or indirect emissions. Waste gas projects are financially beneficial to the cement companies and should be taken up to keep the cost of production low.

Regarding fulfillment of the emission reduction obligations, the participants discussed the various options available. One of the experts mentioned that the use of VCS offsets and CCERs may be allowed in the Guangdong ETS. The enterprises liable under the ETS were advised to interact with the government to help them adopt the most cost-effective method to fulfill their obligations. Some of the companies may not be in a position to reduce emissions within their plants and would have to rely on purchasing offsets from mitigation projects.

The liable enterprises were advised to be proactive in their interactions with the government and the policy makers. They should readily propose policy and technical initiatives which can help them efficiently reduce carbon emissions. The experts pointed out that some of the European industries may have chosen not to actively pursue interaction with the EU regulators while the cost of carbon was sliding. Now, the EU regulators are planning to intervene in the carbon market and these industries may only have the option to adopt the decisions by the policy makers. Through continuous interaction with the government, the companies can also ask for financial or technical assistance to procure low-carbon technologies.
GROUP DISCUSSION | CERAMICS SECTOR

Speaker: Qisha Wen (Greenstream)

The emissions sources, MRV procedures, emission reduction technologies, and possible difficulties faced by the liable enterprises in the ceramics sector under the EU ETS were discussed by Wen. The major emissions sources in the ceramics industry are raw material preparation, component mixing, formation, drying and frying of the intermediate product, product finishing, and addition of auxiliary material. Wen briefly described which sources and emissions are required to be monitored according to the EU ETS regulations.

Wen discussed some measures specific to the ceramics industry that may help the liable enterprises reduce their energy use and carbon emissions. These include reducing moisture content of the clay, use of more energy-efficient kiln, fuel switch (from coal to fuel oil or natural gas or biomass), waste heat recovery, and substitution of clay and shale with fly-ash.
Q & A SESSION

Question from Zhao Daiqing Deputy Director from GIEC

Right now through the introduction by the head of carbon asset from Shell and BP, after they joined the EU ETS, it sounds like they have a new organization under the group dealing with carbon trading or quota trading. I want to know whether they have a new organization under the group involved in the carbon asset management; for example a carbon management department or carbon trading department and what is the function of the organization? Or is it just a part of a certain organization, and how is it operated and managed?

Reply by Dan Barry of BP

So from BP’s perspective, we put into practice the operating models within each installation level that have teams responsible for the monitoring, reporting and verification, and ultimately are responsible for submitting the allowances. On top of that, within the wider group organization, especially during the initial stages of formation of EU ETS, a working group consisted of: treasury department, risk department, trading department, so on so forth, a collective center of expertise which drew upon all departments from the organization. As mentioned in my presentation, one of the most crucial components of any company in emissions trading is that you have to have a commitment towards the environment that would encourage the management to develop a sound carbon management portfolio.

Second, when we had the BP emissions trading scheme, each individual installation was responsible for monitoring their own verification and reporting with a centralized training. There is a single procurement trading division across the whole organization. There is no point in each installation needing to buy on a small scale or sell on the potential it can achieve. We centralize our trading function into one area which represents the whole globe and covers all geographies and buys and sells at a group level.

Reply by Massimiliano Varriciu, EDF Trading

When we are talking about carbon, we are talking about a very specific commodity. There is a technical point of view that makes carbon unlike other fuel. You need coal to make the power station work, and you also need carbon. The need is created by the regulators, but at the end of the day it works like fuel. You measure the fuel, buy it and trade it. On the other hand, the carbon has a completely different aspect, the Corporate Social Responsibility (CSR), so this has to be reflected in your organization. You need a technical team to take care of your needs, your trading, but you also need a very centralized group of people that covers the CSR aspect of carbon, and this is what we do at EDF.
Reply by Ziyuan Wang from Shell

As the energy group, we have a pretty much similar kind of operation model as BP; the MRV is done in the installation level, but the carbon trading is done by trading department. Tomorrow we will have a specific section regarding the petrochemical sector. I, together with PetroChina’s Tony Gai, will hold a discussion regarding MRV. We will probably touch on the structure of the organization. We could go into detail in this regard tomorrow morning. Thanks.

Question from representative of Guangdong Power Company

Thanks for giving me an opportunity to communicate with so many experts, I have two questions, one is about the ETS. I agree with the point made by Ms. Wang from Shell, that it is the predictable price which would favor a company in making the strategic decision and the development of the company. I want to know the current situation of the EU ETS and where the EU ETS is headed? Are there any changes in the rules of the EU ETS before 2012 and after 2012?

I want to know whether there is a timeline for the development of Guangdong ETS and when Guangdong ETS will be established in order to make Guangdong companies clear regarding how long could the project could be operated under CDM mechanism in the international level and how long would it take for a project participant to fulfill their targets under the domestic ETS, and use the project to offset their own emission under domestic ETS operation? This is the question regarding ETS.

The second question is about the company level. Today there are many European companies as well as domestic companies in different sectors joining the seminar. I want to know in Europe, how is the allowance being allocated to companies? Is it based on the historical emission data? If it is based on the historical data, does it mean if a company did well in the first year, then they have to better in the second year, does it mean they will face more pressure from emission reduction? How can an adjustment be made of carbon asset strategy/corporate strategy? Among the participants, there are representatives from multinational companies, they might devote the emission to the atmosphere in developed countries but what about emission reduction in developing countries? Could they offset the carbon credit in developing country with the developed country in the company level? And does the multinational company have a specific department to manage the carbon asset. How does it work? Thanks.

Reply by Karl Upston Hooper, Greenstream

The stability of price is a function of market design and a function of market forces. At the start of the EU ETS, we did not permit banking from first 3 year phase to next 5 year phase, as a consequence of over-allocation which became apparent once the data actually collected. And I think you may find a similar situation here where you know more after the data is collected, as a consequence of the data about the price of the first phase of EU credits dropping becoming available. Now the policy designers in Europe have learned very valuable lessons in phase one of EU ETS, actually phase one of EU ETS was about learning, and I am sure your first phase here will be the same.
I don’t think people were targeting a hugely stable price signal for first phase of 3 years. In second phase the EU did want to move, giving industry that sort of price signal that can change behavior. This was all about signaling the industries so that they came make investment decisions on the long term. So the second phase moved from a 3 year to 5 year period and had the data. I would say it is arguable in retrospect that without the economic crisis you would have seen a far more stable CER/EUA price. There still would have been fluctuations caused by the large input of offsets under the CDM.

You need to move towards longer phases and it is understandable you start with short phases and see where you at. To answer your question on allocation, briefly explaining, they were based on industry baselines with that being starting point, but are now largely done by auction in Western Europe. So at that point you go to the market and you buy depending on your need and develop a purchasing strategy generally matching your fuel links.

I would say that the EU of course is an installation focused ETS, so it’s a plant of a company that gets allocation and plants monitors their emissions. Ultimately, it may be easier to start at company level in China because that’s where the historical data are. My humble advice would be in time you have to break that down to installation based data set and allocation. In time you would probably move to grandfathering allocations, which is where most emission trading schemes are to auction, which is where most economists would like it to be.

Reply by Massimiliano Varriciu, EDF Trading

For the question regarding difference in generation needs in different European countries: at the beginning this was dealt with product sharing taking into account so every different EU country has a different target to reach in terms emission reduction, and if your question was also related to company strategy in different countries, then there is a very big difference for deciding in China versus EU. In the EU price of carbon goes directly into the price of electricity, so at end of the day as a nation with a higher target for emission abatement, the price will be paid by the electricity users. So as an operator, it is more important to see that the generation meets the needs of the country more than the content of CO₂.
Question from representative of Huaneng Carbon Asset Management

The question to Dr Hans is related to CDM, as the CER price is very low at the moment in EU ETS and whether the CDM mechanism will disappear, is there any discussion in this regards?

Reply by From Dr Hans-Joachim Ziesing

You have touched upon a severe problem we have. What is going on with the Clean Development Mechanism (CDM) points towards a pessimistic future. However, the future of the CDM depends on an international climate change agreement.

Question

My questions goes to Sean Gilbert, as you have mentioned the monitoring will be carried out continually, is MRV carried out by real-time monitoring or by regulatory authority? If it is monitored by regulatory authority, how will it be insured that the company is not involved in undesirable practices, such as manual change of the emission data or manual change of the parameter of the monitoring equipment?

Reply by Sean Gilbert

Such problems occur not only in emissions monitoring, as you pointed out, but also in the carbon management process. From the perspective of the regulatory authority, there are two ways to handle it, first: make more frequent inspections to the site, second, have third-party verification of the data. The emissions data should be cross-checked and cross-referenced with other sources as well. Checking the internal procedures for data monitoring, data recording against quality standards is also essential. However, no matter how stringent the carbon management plans are, some discrepancies are unavoidable.
Question: Welcome to the IETA GIZ and GDLC co-hosted seminar, we are glad to invite Jianxiong Xu, Lead process technologist from China National Offshore Oil Corporation (CNOOC) and Shell Petrochemicals Company Limited (Shell). When it comes to your company, are there any branches with emission reduction obligations to fulfill in Guangdong ETS?

Answer: Our Company is a petrochemical company jointly held by China National Offshore Oil Corporation and Shell. As a joint venture in cooperation with Shell, every year we are also involved in the Shell carbon transactions reporting work. Each year our corporate carbon emissions are reported to Shell, one of our shareholders.

We are honored to be invited to participate in this seminar. According to the requirements of the national and provincial governments, as enterprises in Guangdong province, we have the obligation to participate in the carbon trading schedule, as a momentum to push the carbon dioxide emission reductions. At the enterprise level, what we hope is that the emission reduction not only is an obligation for the enterprise, but also an opportunity. We would like to use this opportunity to further improve all aspects of business resilience, and achieve the emission reduction and energy conservation, while reducing cost.

Question: Do you have an in-house team for carbon asset management?

Answer: Carbon asset management is a new work for us, the department that takes charge of emission reduction is the environment protection department. They periodically report corporate emission data including material declaration to the government in accordance with the relevant requirements. We also submit data to the industry bodies in accordance with the requirements of the industry. We take measures to achieve the objective of emission reduction according to the requirements of the government.

Question: What you mentioned shows that your company does not perceive emission reduction just as an obligation, but also as a way to gain profit. In terms of carbon asset management, will your company turn to carbon asset management firms for consultancy?

Answer: At present we are involved with some consultancy work with relevant departments of the provincial government who often contact us seeking cooperation. With regards the consultancy from third-party advisory body, at the moment, it is quite limited.
Question: Will you consider a third party advisory board for consulting services in the future, or have your own team doing the work?

Answer: It is a new work, our experience may not be rich in this regard. We certainly hope that the third-party advisory body, with rich experience, could provide guidance to us. We are yet to establish an internal department responsible for the carbon trading. We may consider establishing such a department internally in the near future.

Question: Final question, what is your expectation from the forum co-organized by IETA, GIZ and GDLC?

Answer: We hope that we could learn about the experience and good practices from western countries specially the EU ETS, from this seminar.

Congwu Zheng, Director from Sinopec Guangzhou Branch

Good afternoon ladies and gentlemen, I am very delighted to have Congwu Zheng, Director from Sinopec Guangzhou Branch here to share with us some ideas regarding the seminar of Carbon Emission Trading Dialogues for Guangdong Industrial Enterprises.

Answer: I think this seminar is very timely and very necessary, because a low-carbon economy is also a new field for us. We have less experience and understanding in this regard before this dialogue. I interpreted from these sessions that low-carbon practices are not just a challenge but also an opportunity for the petrochemical industry. Energy conservation and emission reduction has always been an eternal theme of our company. Some enterprises may feel that low-carbon development may limit their growth, but we feel that such initiatives would actually help the long-term growth of the petrochemicals sector. The petrochemical industry is a major energy consumer as well as carbon dioxide emitter. We all feel that energy conservation and emission reduction are the responsibilities assigned by the government to us, and we must accomplish the levels that the government assigned.

Realizing low-carbon development through the way of emission trading platform is also an opportunity for us. Large petrochemical enterprises, like Sinopec, shall have relatively mature energy saving technologies, and there is a potential opportunity to be explored in terms of energy conservation and emission reduction, and we have a lot of work to do in those aspects. Those actions taken could not only help us reduce energy consumption but also emissions. Such actions can bring substantial economic benefits to the company too, as has been the case with the European companies. Sinopec has already devoted a lot of human and material resources in energy saving. In terms of emission reduction, the Vice President of Sinopec Chengyi Fu has released an instructions to establish a world-class new energy corporation for environment protection.

Last December, Sinopec convened staff responsible for energy saving and emission reduction from various subsidiaries, and held a mobilization meeting to focus on the next steps in terms of energy saving and emission reduction.
Carbon trading is a new area for our staff, so last year we invited SGS to deliver a training session about the basic knowledge of carbon trading. After the training, the company also arranged some specific tasks regarding carbon trading.

Six or seven subsidiaries have completed the validation of their greenhouse gas inventory in 2011, and reported to the headquarters of Sinopec. As a compliance entity under the pilot carbon scheme of Guangdong province, Sinopec Guangdong branch has to complete a greenhouse gas inventory investigation and we are doing the preparatory work. I believe that under the guidance of the government and our company, we will be able to reduce our emissions substantially.

**Question:** According to Director Zheng’s statement, regardless of Guangdong Province Branch or headquarter of Sinopec, both attach great importance to energy saving and emission reduction. According to what you mentioned regarding the new energy subsidiary, which kinds of new energy were involved in the subsidiary?

**Answer:** In terms of energy saving, we are working on low-temperature waste heat recovery systems, high efficiency motors, energy-saving lamps, and some new energy saving technologies. Sinopec has established a new company to set up new energy projects.

**Question:** It should be a very good strategic choice, which will do good to the sustainable development of the company, are there anymore items you want to cover in the afternoon section?

**Answer:** The afternoon section of the seminar helped us in developing a deeper understanding of energy conservation and emission reduction. The information shared by the experts answered several of our technical questions and increased our knowledge about GHG inventory, which will play major role in guiding our future plan of action.

**Question:** In addition, does Sinopec have a specific department for carbon asset management, or turn to a third party consulting firm for consulting services?

**Answer:** Sinopec has now developed a mechanism for carbon asset management following our interaction with SGS which delivered a presentation on various aspects of carbon management and trading.

**Wang Hu, Vice President - UPPER HORN Investment Limited**

**Question:** Good Morning Ladies and gentleman, welcome to the Carbon Emission Trading Dialogue for Guangdong Industrial Enterprises under the circumstances of the Business Partnership for Market Readiness and Guangdong ETS pilot scheme. Power sector as one of the compliance sectors in Guangdong ETS pilot, we are glad to have Vice president Wang Hui from UPPER HORN investment LTD, part of one of the branches of YUDEAN Group to join in our interview. Could you please share with us some benefit from the seminar and what are your thoughts about it?
Answer: The seminar is held at a very appropriate time because currently Guangdong and the whole country is in the process of establishing an ETS pilot scheme. All the parties involved in the ETS pilot scheme are considering questions regarding how to establish the ETS pilot scheme and how to cultivate a carbon market. At such an important moment, it is very helpful for the compliance companies in Guangdong Province to learn about the experiences regarding the ETS from key European corporations invited by IETA.

We hope to learn many things from the participants of the EU ETS. I think the EU ETS would have also endured many setbacks from the very beginning to the current stage, and we want to know what it means for the Chinese ETS and which kinds of lessons we could learn from their experience and setbacks. As a company, we hope to learn how the corporate structure should be modified to prepare for the Guangdong ETS.

Question: In the first two days, you might have gained something from the seminar, right?

Answer: I have learned a lot through my exchanges with the EU electricity enterprises, oil companies, and some consulting companies, as well as ETS brokers. We have learned a lot of good ideas from them.

Question: Now, a lot of companies believe that emission reduction is a burden, rather than an opportunity through management carbon asset to gain benefit, so what are your opinions about it?

Answer: We could not simply say emission reduction is a kind of burden or opportunity, but with the combination of challenge and opportunity, the key point is that emission reduction is a trend, a major trend with both challenge and opportunity. Therefore, in such circumstances, we need to know how to prepare and adjust ourselves to the ETS, then cultivate the Chinese carbon market. The company could upgrade its management skill in this regard during the cultivation of the carbon market, and at the same time improve their capacity in many other aspects as well. Through a comprehensive effort in all aspects of this process, I believe a company could gain benefit in the long term.

Question: I think the initial feedback from the seminar is good. I want to know whether your company will make some slight adjustment in terms of corporate structure. I want to know whether your company will have the third consultation organization providing service, or you will establish your own carbon asset management team for carbon asset management.

Answer: YUDEAN Group has been considering low-carbon development, environment protection, and new energy development for quite a long time. The layout of the industry, the selection of power supply, management structure; all of these aspects are quite sound in YEDUEAN, and we are gradually working to make them perfect. Of course, after the establishment of Guangdong ETS, the company structure will probably undergo some change in order to fulfill the requirement of the new market, but there is no conflict in the larger aspect. Through this dialogue, we have learned many lessons from our European counterparts, but we also realize that the YEDEAN Group already has a solid foundation in many aspects.
Question: Good afternoon, ladies and gentlemen, welcome to Carbon Emission Trading Dialogue for Guangdong Industrial Enterprises co-hosted and organized by IETA, GIZ and GLDC. We recognize Guangdong province as one of provinces join in the pilot scheme among seven pilot schemes. Low carbon development and carbon trading play an important role in the Guangdong ETS pilot and, Guangdong Institute of Energy Conversion (GIEC) have done a lot of work in this regard. Today we are delighted to have Zhigang Luo Senior Engineer from GIEC join our interview. As you know the seminar has already finished, and what is your feedback about the seminar, could you please share with us?

Answer: The successful convening of this seminar has proven to be very helpful. The official launch of the Guangdong ETS on September 11th 2012 was a major milestone. It is very heartening to see that several enterprises have joined the ETS.

Question: GIEC, as one of the designing organization of Guangdong ETS, what is the configuration of staff in your institute?

Answer: GIEC is the leading design organization of Guangdong ETS under the auspices of the Guangdong Provincial DRC. We have allocated more than 10 research fellows for this project. We are also working with some other organizations for designing the Guangdong ETS design such as the Guangdong provincial Academy of Social Sciences, Sun Yat-sen University, and Guangzhou Exchange.

Question: Then what is the latest message the enterprises could gain from the seminar?

Answer: For Guangdong enterprises to be included in ETS in the future, there are at least two inspirations. First, no matter how they perceived ETS, carbon trading is just a policy tool, it is a more flexible mechanism to help enterprises to complete their mandated national emission reduction. As mentioned carbon trading is not just a policy tool, but also a source of opportunities, another opportunity for the enterprises. Second, through sharing the experiences from the EU big companies such as Shell, EDF, the Guangdong enterprises will learn how to establish carbon asset management strategy at the group level, rather than passively participating in the carbon market. They will also become aware about how to adapt themselves to the market, and how to manage the market ahead, in terms of handling the relationship between the carbon market and future low-carbon development projects, which is also a very big change.

Question: Which kind of work will GIEC do in the following ETS training for the enterprises?

Answer: I think there are three points I want to touch on regarding the training for compliance company in ETS. First, we have to communicate with enterprises on how to allocate allowances. Second, I want to touch enterprises’ carbon data inventory, such as how to do the carbon emission inventory in the enterprises, and the method and guidance of the carbon inventory. We will interact with enterprises under the instruction of the local DRC and tell them how to do and how to finish the task of carbon emission inventory.
Third, I will touch on what the future carbon trading rule looks like, how to trade the quota and how to deliver the quota, and how to comply with the target, how to receive the validation from the DOE, and how to get the actual data of emission reduction.

In the future, all communication with the enterprises will be under the guidance of the provincial DRC, and with the lead of the Guangdong Low Carbon Development Association. As a part of the designing organization, we will be dedicated to improve the enterprises’ understanding regarding the carbon market and how to adjust to the relevant rules.

**Question: Last question, after the seminar if there are some similar seminars organized by the IETA GIZ etc. Would GIEC like to participate in the seminar?**

**Answer:** The answer is yes. Guangdong ETS not only needs the participation of enterprises in Guangdong Province, and it also needs to be able to draw on the successful experience of international counterparts. Guangdong ETS also needs to know how to design an ETS system, how to evaluate the systems, and the way foreign enterprises participate in carbon market. IETA is an association representing the interests of all parties involved in international carbon emissions trading, we very much hope that they can be actively involved in the stage of the promotion and Propaganda of Guangdong ETS. From now on, GLDC GIEC will actively keep in touch with those organizations including IETA, GIZ and other international institutions, to make changes in the corporate level and better serve Guangdong enterprises.
SPEAKERS

Dirk Forrister

Dirk Forrister is President and CEO of the International Emissions Trading Association (IETA). Previously, he was Principal and Founder of Forrister Advisory, an independent consultancy firm specializing in climate change, clean air and clean energy policy and markets. Until late 2010, he was Managing Director at Natsource LLC, the manager of one of the world’s largest carbon funds.

Previously, Mr. Forrister served as Chairman of the White House Climate Change Task Force in the Clinton Administration.

His experience includes serving as Assistant U.S. Secretary of Energy for Congressional, Public and Intergovernmental Affairs; Energy Program Manager at the Environmental Defense Fund; and legislative counsel to Congressman Jim Cooper, the author of two early climate change laws. Forrister serves as an honorary Fellow with IETA, as well as a member of the Advisory Boards of the National Center for Atmospheric Research and the American Carbon Registry.

Lutz v. Meyerinck

Lutz v. Meyerinck has an undergraduate degree in Chemistry from Bremen University. He earned his PhD at Hamburg University and the University of Iowa, Iowa City, IA, USA and later received a degree in Toxicology from the German Society of Pharmacology and Toxicology. He is an accredited EU toxicologist.

After having spent 10 years in academic and industry research, he worked for British Petroleum and Mobil Oil as an environmental expert and worked at locations in Germany and Belgium covering roles in Refining, Sales and Marketing of fuels and lubricants, Logistics, and HSSE. In 2000 he was seconded to the German Government to establish a multi-stakeholder working group (AGE) in Berlin to develop emissions trading systems in Germany and the EU. From 2002 - 2010 he served in BP in Germany as the Director for Health, Safety, Security and the Environment and National expert on the EU-ETS covering roles in strategy, implementation, MRV, evaluation and develop trading.

He continuous as a member of AGE in Berlin where he serves as vice-chairman of sub-committee one. He has worked in industry associations on a wide range of topics and with international bodies of the UN (IARC, WHO) and the EU, and consulted in various countries (Japan, Korea, Azerbaidjan, Brazil, Turkey). His work has been published extensively. In 2010, he left BP and formed KMW outrage management partnership supporting clients on managing outrage.
Dr. Hans-Joachim Ziesing


From 1969 to 2006 at German Institute for Economic Research in Berlin, which is an independent, non-profit scientific institute and is one of the leading research institutes in Germany: From 1982 to 2004 head of department “Energy, Transportation, Environment.” From April 2004 up to the end of 2006 Senior Executive in this department. Since 2007, independent consultant.

Managing director of the working group “Energy Balances” since 1994, a group (members are all associations of energy industries and four research institutes) which is responsible for the “semi-official” energy balances in the Federal Republic of Germany. Senior Policy Advisor at Ecologic-Institute for International and European Environmental Policy. Senior Research Associate at Environmental Policy Research Centre (FFU) of the Free University of Berlin.

Dan Barry

As Global Head of Emissions at BP, Dan in responsible for managing and optimising the compliance obligations of BP’s assets under cap and trade schemes worldwide, including the associated procurement of allowances and offsets. Previously, Dan was the Global Director of Clean Energy at Gazprom Marketing and Trading for 3 years, where we had a number of China firsts, including the first trades on the Beijing and Tianjin climate exchanges. Before that Dan lived and worked for 3.5 years in Beijing, including two years at Arreon Carbon and one year working on behalf of the European Commission running the EU China CDM Facilitation Programme in partnership with the NDRC and Energy Research Institute.

Fulvio Bartolucci

Fulvio Bartolucci is the general manager of Solvay Energy Service China, the business unit of Solvay Chemical Group devoted to energy efficiency, energy management and emission reductions.

He started his Chinese experience in 2006, working as the deputy head of Chinese Affairs in the Unido Centre for Small Hydropower in Hangzhou, then he moved on to lead the Chinese team of OneCarbon (then Orbeo), focusing on investment in emission reduction projects (biogas and landfill gas), and managing the Chinese CDM portfolio. Before coming to China he worked in microfinance and new ventures consultancy.

He has a degree in International Economics and a post-graduate degree in Sustainable Development and Agro-Environmental Systems.
Sean Gilbert

Sean Gilbert from KPMG has been working in China for the last few years helping Chinese companies manage sustainability issues: particularly around setting up the necessary internal management and reporting processes. Implementing an ETS requires more than technical rules, it also requires a cultural process of introducing a market and trading mentality and an organizational process of establishing the structures necessary for MRV. Having just conducted a week-long workshop in Guangdong, he is working to understand of their goals. He also strives to understand how Chinese companies currently think about and manage these issues and the challenges in shifting to address a market mechanism.

Robert Hansor

Robert Hansor manages LRQA’s carbon auditing business in the Asia region and has been qualified as a lead assessor and technical reviewer. He is also a member of LRQA’s global steering committee for climate change services, and was also a lead assessor in ERM prior to joining LRQA.

He has been involved in carbon auditing/EU ETS knowledge transfer and capacity building between the EU and China for the past 5 years with LRQA, ERM, International Carbon Action Partnership (ICAP), IETA and the British Embassy/UK Foreign & Commonwealth Office. He has built carbon auditing teams in China and Asia (including EU ETS verification services for Asian airlines, CDM, ISO14064) for LRQA and ERM.

He speaks at leading technical events and conferences around the region (in China, Australia, Japan, Indonesia, India, Thailand, Vietnam, etc) on carbon auditing, risk management and ETS. He has been interviewed as an expert on carbon auditing, and had articles published in leading news publications, including the Financial Times, South China Morning Post and Carbon Finance Magazine.

Jeff Swartz

Jeff Swartz manages and directs the international policy for the International Emissions Trading Association (IETA), including IETA’s work in China with the goal of increasing links between China’s emerging carbon market and the global climate change community. Prior to joining IETA, Jeff’s most recent position was based in Beijing developing NEFCO’s CDM portfolio. Jeff holds an M.A. in International Environmental Policy from Middlebury - the Monterey Institute of International Studies, as well as a B.A. in Chinese and a B.A. in International Relations – both from the University of the Pacific.
Zhuli Hess

Zhuli Hess is the China Director for theVerified Carbon Standard (VCS). She leads VCS’ efforts to support the development of China’s emerging carbon market.

Her daily work focuses on advising companies and jurisdictions on preparing for emissions trading systems and the role of voluntary emission trading projects or offsets in helping companies achieve their compliance requirements at the lowest possible cost.

VCS provides a robust quality assurance standard that carbon offset projects in China and around the world use to quantify greenhouse gas emissions and issue credits. More than 900 registered projects, including 232 in China, using the VCS Standard have issued over 100 million carbon credits that are transacted in the global voluntary carbon market.

Prior to joining VCS, Zhuli helped establish Beijing’s pilot emissions trading exchange platform and recruited international partners and Chinese government entities to facilitate the launch of the Chinese CER in the national Voluntary Emissions Reduction market. She has also worked for the Global Climate Change Initiative of the Clinton Foundation and the organizing committee for the Beijing Olympics.

Michael Mei

Michael Mei is the Director of Environmental Policies & Global Advocacy in Alstom China. He is responsible for broader policy issues and related advocacy in all of Alstom’s businesses in China.

Graduated from University of Toronto with major in BSc in Chemical Engineering (Environment), he furthered his studies at The Hong Kong Polytechnic University and completed his MSc in Environmental Management (Dec 2005). He is the first CDM auditor from Hong Kong and is also a certified ISO 14001 System Auditor (Environmental Management Standard).

Qisha Wen

Qisha Wen (M.Sc. in Environmental Engineering) works as an Emission Reduction Project Supervisor in GreenStream China. She has worked in the fields of environmental engineering and the carbon markets for over six years. As an Emission Reduction Project Supervisor, Ms. Wen developed and registered around 20 CDM projects in China, as well as 1 GS-VER and 1 VCS projects. Ms. Wen also participated into establishing new methodologies, such as revision of ACM0029. Other than China, Ms. Wen had experiences of managing 5 CDM projects in Indonesia. The project types she managed include wind power, hydropower, biomass power, ultra-super critical power, fuel switch, waste incineration, energy efficiency improvement.
Karl Upston-Hooper

Karl Upston-Hooper is the General Counsel of GreenStream Network plc, a role he has held since August 2005. GreenStream is a leading Nordic company focused on energy efficiency and climate opportunities in China.

As General Counsel, Karl has led the design, implementation and legal operations of GreenStream’s five propriety carbon funds, and serves as the lead carbon manager for the Multilateral Carbon Credit Fund (established by the EBRD & EIB) in Russia, the Ukraine, Kazakhstan and Belarus.

In addition, Karl is responsible for the legal operations of the GreenStream group (Helsinki, Beijing, Moscow, Kiev, and Berlin), serves as company secretary and acts as compliance officer under the terms of GreenStream’s FIN-FSA licence. Karl is a director of GreenStream China Holdings Ltd, a joint venture with the Juno Capital Group of Hong Kong, and subsequently heavily involved in the operation of GreenStream’s carbon and energy efficiency activities in this key market.

Karl holds an LLB and LLM (hons) from Victoria University of Wellington and an LLM, summa cum laude, from Katholieke Universiteit, Leuven. He serves as an associate editor of the Carbon and Climate Review and has regularly acted as guest editor for special feature issues. He is active within various industry associations and has published extensively on climate related issues.

Varrucciu Massimiliano

Varrucciu Massimiliano has been working on emissions trading schemes since 2005 and has worked for two of the largest participants in the EU ETS. He actively participates in designing compliance strategies from NAP, compliance volume assessment and fulfillment strategy. He has experience of different compliance strategies i.e. carbon fund participation, carbon fund management, primary and secondary CDM/JI projects origination and management.

Ziyuan Wang

Ziyuan Wang is the CDM Portfolio Manager at Shell Trading (Environmental Product Trading Business). She is responsible for managing the global CDM portfolio of both internal and external CDM projects. Her professional experience covers the whole CDM process from project identification to issuance of CERs. Ziyuan was closely involved in the project that had the first CER’s ever issued in China. Before joining Shell, Ziyuan was instrumental in the development of the Chinese CDM portfolio of EcoSecurities, where she worked since 2005. She has also professional experience in the aviation industry, and has studied the effect of the inclusion of the aviation industry in the EU ETS. Ziyuan has a M.Sc. in Environmental Management for Business from Cranfield University in the United Kingdom.
Qiao Jason

Jason has 20 years of business development experience in different industries, and he has a strong ability to make win-win deals with each cooperator. Jason joined Camco Clean Energy in 2007 as a senior BD manager and later as BD Director; he leads the BD team, which has developed many projects in China, such as Huaneng, Guodian, SDIC Xiyang, ERDOS, Taigang, HANAS, State Grid etc.

Prior to joining Camco Clean Energy, Jason acted as General Manager at Goldman exhibition Co., Ltd, he was also one of the founders. From 1997 to 2002, Jason was the Vice General Manager of Juneng sub-branch. Before Juneng, Jason was a BD Manager in the Bank of China for 5 years.

Yuzhong Zhang

Yuzhong Zhang is the Managing Director of Camco Clean Energy in China. In early 2007, he joined us as the operation director, running the operation of the registered projects and leading the technical department to offer the best support to the qualification and BD department.

Before he joined Camco Clean Energy, he acted as the technical manager and later chief engineer in Beijing Yilai Aerospace Electronics Co. Ltd after graduation. In 1999, he joined Peak Pacific Investment Co. as the technical manager and later the technical director. Since 2004, he worked as the engineering manager in Cummins Inc. Yuzhong managed the technical department into one unified and productive team.

He holds a BE, ME and PhD in Automotive Engineering in Tsinghua University.

Scott McGregor

Scott McGregor is the CEO of Camco Clean Energy. Scott joined the company in 2006, has overseen the expansion of Camco Clean Energy’s carbon credits business, the establishment of our clean energy project business and has transformed the development of Camco Clean Energy to market leader in the regions it works.

Scott has 20 years’ experience in industry with strong exposure to strategic development within early-stage and high growth companies. Scott has worldwide experience in the environmental, mining, finance and technology industries and has advised leading corporations in North America, Asia and Europe. Former positions include finance and development roles for Rio Tinto, Merrill Lynch and Skype Technologies.

Scott holds an MBA from the London Business School, a B.Econ from Monash University and qualified as a Chartered Accountant through PriceWaterhouseCoopers. Scott is a Board member of IETA (International Emissions Trading Association).
Dr Dong Wang
Principal Analyst China, Climate Change – Rio Tinto
May 2011 – Present (1 year 11 months) Shanghai City, China
Providing strategic advice on climate change related business including carbon pricing, energy products pricing particularly in coal, gas, uranium and renewables, ore structure and commodity demand.

Director – China Agribusiness and Energy Consulting
October 2010 – May 2011 (8 months) Sydney
Managing CAEC’s agri., energy and carbon brokerage business including renewable projects, forestry and other permit origination.

Carbon Manager – Macquarie Generation
July 2008 – October 2010 (2 years 4 months) Newcastle Area, Australia
I managed the most significant carbon portfolio of Australia at Macquarie Generation, the largest generator and emitter of Australia (20mt emissions per year). Responsible for Macgen's carbon and carbon related business, I developed its carbon trading and hedging strategy, negotiated carbon contracts and represented Macgen in industry lobby.

Advisor – Australian Energy Market Commission
July 2007 – July 2008 (1 year 1 month) Sydney
Participated in the design of the Australian energy market and its financial market.

Senior Researcher – Asian Agribusiness Research Centre
August 2004 – July 2007 (3 years) Orange, Australia

Education: PhD from University of Sydney in Agricultural, Resource and Environmental Economics

Eric Boonman
Eric Boonman has over ten years of experience in green energy and environmental markets and is currently the Head of Upstream Global Carbon for Statkraft. Statkraft is the largest renewable energy producer in Europe and is active since the inception of the EU ETS in the entire carbon value chain both as a compliance buyer as well as a service provider. Statkraft is expanding into new environmental markets across the globe and is a Steering Committee Member of the Business Partnership for Market Readiness (B-PMR).

Before this, Eric was the Global Head of Environmental Markets at Fortis Bank where he was instrumental to the set up and growth of the team from 2005 onwards. Fortis Bank established itself as a major player across the energy and environmental value chain. Eric has set up and led origination teams in Hong Kong, New York and Houston.

Eric started his career in 2001 as a green carbon trader at Dutch utility Nuon. Eric holds a Master in Economics and is also a regular speaker on international clean tech and environmental conferences.
Caspar Chiquet

Mr. Chiquet has 5 years experience in the Chinese carbon market. He has worked extensively on automated data acquisition solutions to integrate with South Pole’s Monitoring and Verification Services (MOVERS) in China and South East Asia. He is responsible for managing South Pole’s China operations out of Beijing, overseeing a team of nine technical experts. Prior to joining South Pole, Mr. Chiquet worked for UBS Wealth Management in the Key Clients Solutions Group with a focus on ultra-high net worth individuals (UHNWI). He is an expert on IT questions and holds an M.A. from the University of Zurich in Chinese Studies and International Law and is business fluent in Chinese.

Tony Gai

Emissions Trader with PetroChina International (London) Co Ltd
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<th>S. No.</th>
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<td>1</td>
<td>Dirk Forrister</td>
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<td>Jeff Swartz</td>
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<td>Stefan Bundscherer</td>
<td>GIZ 德国国际合作机构</td>
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<td>袁驰 David Yuan</td>
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<td>Michael Mei</td>
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<td>8</td>
<td>Dan Barry</td>
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<td>9</td>
<td>Scott McGregor</td>
<td>CAMCO Clean Energy</td>
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<td>乔伟 Qiao Wei</td>
<td>CAMCO Clean Energy</td>
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<td>11</td>
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<td>CAMCO Clean Energy</td>
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<td>12</td>
<td>Simone Tripepi</td>
<td>Enel</td>
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<tr>
<td>13</td>
<td>Karl Upston-Hooper</td>
<td>GreenStream</td>
</tr>
<tr>
<td>14</td>
<td>Qisha Wen</td>
<td>GreenStream</td>
</tr>
<tr>
<td>15</td>
<td>Robert Hansor</td>
<td>LRQA劳氏质量认证</td>
</tr>
<tr>
<td>16</td>
<td>Ziyuan Wang</td>
<td>Shell</td>
</tr>
<tr>
<td>17</td>
<td>Wang Dong</td>
<td>Rio Tinto</td>
</tr>
<tr>
<td>18</td>
<td>Eric Boonman</td>
<td>Statkraft</td>
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<td>19</td>
<td>Zhuli Hess</td>
<td>Verified Carbon Standard</td>
</tr>
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<td>20</td>
<td>Kenneth Wong</td>
<td>CLP</td>
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<td>21</td>
<td>Chunfang Wang</td>
<td>Holcim</td>
</tr>
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<td>22</td>
<td>Tony Gai</td>
<td>PetroChina</td>
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<tr>
<td>23</td>
<td>黄杰夫 Jeff Huang</td>
<td>ICE</td>
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<td>24</td>
<td>Sean Gilbert</td>
<td>KPMG</td>
</tr>
<tr>
<td>25</td>
<td>Fulvio Bartolucci</td>
<td>Solvay</td>
</tr>
<tr>
<td>26</td>
<td>Massimiliano Varrucci</td>
<td>EDF Trading</td>
</tr>
<tr>
<td>27</td>
<td>Casper Chiquet</td>
<td>South Pole Carbon</td>
</tr>
<tr>
<td>28</td>
<td>Dr. Lutz v. Meyerinck</td>
<td>KMW outrage management</td>
</tr>
<tr>
<td>29</td>
<td>韩京 Dr. Hans-Joachim Ziesing</td>
<td>Partnerschaft</td>
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<td>34</td>
<td>赵黛青 Daiqing Zhao</td>
<td>中国科学院广州能源研究所</td>
</tr>
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<td>35</td>
<td>李璧君 Bijun Li</td>
<td>广东省低碳发展促进会</td>
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<tr>
<td>36</td>
<td>徐伟嘉 Weijia Xu</td>
<td>中山大学</td>
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<td>黎燕萍 Li Yanping</td>
<td>佛山华南陶瓷有限公司</td>
</tr>
<tr>
<td>39</td>
<td>陈炳尧 Chen Bingyao</td>
<td>广东蒙娜丽莎陶瓷有限公司</td>
</tr>
<tr>
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<td></td>
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<tr>
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<td>黄育怀</td>
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</table>
APPENDIX I

Profile of International Emissions Trading Association

The International Emissions Trading Association (IETA) is a nonprofit business organization created in June 1999 to establish a functional international framework for trading in greenhouse gas emission reductions.

Our membership includes leading international companies from across the carbon trading cycle. IETA members seek to develop an emissions trading regime that results in real and verifiable greenhouse gas emission reductions, while balancing economic efficiency with environmental integrity and social equity.

IETA is dedicated to:

- The objectives of the United Nations Framework Convention on Climate Change and ultimately climate protection;
- The establishment of effective market-based trading systems for greenhouse gas emissions by businesses that are demonstrably fair, open, efficient, accountable and consistent across national boundaries; and
- Maintaining societal equity and environmental integrity while establishing these systems.

Goals and Objectives IETA works for:

- The development of an active, global greenhouse gas market, consistent across national boundaries and involving all flexibility mechanisms: the Clean Development Mechanism, Joint Implementation and emissions trading;
- The creation of systems and instruments that will ensure effective business participation.

To be the premier voice for the business community on emissions trading, the objectives for the organization are to:

- Promote an integrated view of the emissions trading system as a solution to climate change;
- Participate in the design and implementation of national and international rules and guidelines; and
- Provide the most up-to-date and credible source of information on emissions trading and greenhouse gas market activity.

To achieve its goals, IETA focuses on the following Work Program areas:

- Develop components of the GHG market and trading systems

IETA has established a number of working groups that meet in workshops and seminars on topics that include accounting, taxation, trade agreements, registries, validation and verification, as well as issues in the CDM. IETA continues to map down initiatives that work in developing components of the GHG markets to help create a functioning GHG market.
• Promote market mechanisms and participation in GHG markets
  There continues to be the need for promoting market mechanisms and trading as one of the solutions available to businesses in order to minimize societal impact, within the framework of sustainable development. This includes substantial efforts, such as GHG Market Fora in non-Annex I countries, the Annual IETA Forum on the state and development of the GHG Market, and the Carbon Expo Fair and Conference.

• Development of a global GHG market
  A critical element in IETA’s work remains the linking of trading regimes among Annex I countries, and its significance for the GHG market. Another important issue is that of responses of business when operating in such a diverse environment. Cooperation with WBCSD, WEF and other organizations that have complementary roles must play an important role.

• Capacity Building
  IETA develops and delivers courses on validation and verification based on the Validation & Verification Manual being developed with the World Bank as well as workshops on contracts for the CDM.

Profile of Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH

About GIZ
  Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) is a federal enterprise which offers services worldwide. It is committed to promoting international cooperation and specialized training in the sustainable development field. GIZ operates in more than 130 countries and employs a workforce of 17,000. It provides tailored solutions to partners in developing countries, emerging industrialized countries and industrialized countries. Its fields of cooperation cover sustainable economic development, environmental and climate protection, and so on.

GIZ’s fields of work in China
  GIZ has engaged in Sino-German technological cooperation in China for almost 30 years. Its work aims to push forward development cooperation that meets the interests and will of both countries. Leveraging Germany’s traditional strengths and world-leading specialized knowledge and technologies, GIZ operates in policy consulting, specialized technology, knowledge transfer, capacity building, organizational development and support, and other areas. It provides services by fielding senior German, Chinese and International experts and mobilizing its huge collaborative work in Germany. GIZ’s services also cover training and specialized further study courses in Germany, which involve the various fields related to China’s economic transformation.
**GIZ’s entrusting party**

GIZ’s work in China is mainly commissioned by the German government. Entrusting departments currently include German federal government ministries and commissions, such as the ministries of economic cooperation and development, environment, natural protection and nuclear safety, economy and technology. Meanwhile, GIZ also serves German federal states, the European Union, the Asian Development Bank and the Chinese public sector.

During decades of technological cooperation, GIZ has established close ties between Chinese and German government institutions. Drawing upon this platform, GIZ has started to get involved in the private sector and help businesses to solve sustainable development problems.

The International Climate Initiative (ICI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) has been financing climate projects in developing and newly industrializing countries, as well as in countries in transition. The ICI is a key element of Germany’s implementation of fast start financing. On behalf of BMU, the GIZ is implementing the bilateral cooperation projects Capacity Building for Emission Trading Schemes in China and Capacity Building for GHG Monitoring in China.

**Specialized fields:**
- Economic policies and system reforms
- Legal reform
- Financial sector reform and the insurance industry
- Vocational training and vocational continuity education
- Social, environmental and product safety standards
- Sustainable supply chain management
- Consumer protection
- Environmental and climate policies
- Electric vehicles and sustainable transport
- Energy efficiency and energy policies
- Low carbon strategy for urban regions
- Natural resources management
- Disaster risk management

**Profile of GD Low-carbon Development Promotion Association**

The GD Low-carbon Development Promotion Association (GDLC) was founded by enterprises and organizations that focus on climate change and are keen to promote low carbon development. On 3 November 2011, it was registered as a social organization, with approval from the Guangdong Administration for Non-Governmental Organizations. Currently, it has more than 50 institutional members.

GDLC’s tenet are: aggregating various social forces, actively involving low-carbon pilot implementation in Guangdong, fully fulfilling role as a link and bridge between enterprises and organizations and the government, disseminating the philosophy, methods and experience of low-carbon development, building platforms for exchanges and cooperation in low carbon technology, nurturing pilot low carbon development schemes, and pushing forward the change in economic growth mode in Guangdong.
GDLC receives professional guidance from the Guangdong Development and Reform Commission, and undertakes “low carbon pilot province” work assigned by the GDLC. It is an institutional member of the Guangdong Working Group on Carbon Emissions Trading Mechanism Research and Design. GDLC upholds development promotion, expanding operations and providing services to its members, government departments and society.

Key operational areas:

- Organize low carbon publicity events, and timely disseminate State and Guangdong policies for addressing climate change
- Promote new energy-saving, emission-reducing technologies, and promote the transfer and industrialization of low carbon research achievements
- Take part in the organization of selection of low carbon pilot zones and nurture low carbon pilot schemes in Guangdong
- Take part in project review work for the Guangdong Low Carbon Development Fund, and follow up with project management
- Take part in pilot carbon trading work in Guangdong, and offer training and consulting services
- Provide services to the Guangdong Expert Panel on Low Carbon Development, and organized expert consulting activities
- Build exchange platforms for its member, and actively support them to undertake low carbon projects
- Establish channels of communication between all walks of life and the government, and contribute ideas for low carbon development in society
<table>
<thead>
<tr>
<th>S No.</th>
<th>Presentation Topic</th>
<th>Speaker (Click for ppt)</th>
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<tr>
<td>1</td>
<td>Brief Introduction of Industrial Enterprises’ Obligations and Rights under the ETS</td>
<td>Lutz v. Meyerinck</td>
<td>KMW</td>
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<td>Brief introduction of industrial enterprises’ obligation and rights under ETS</td>
<td>Dan Barry</td>
<td>BP</td>
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<td>Introduction and Experience Sharing of Phase I, II and III allocation plan of EU ETS</td>
<td>Dr. Hans-Joachim Ziesing</td>
<td>AGEB</td>
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<td>Introduction and experience sharing of Phase I, II and III allocation plan of EU ETS</td>
<td>Michael Mei</td>
<td>Alstom</td>
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<td>5</td>
<td>The workflow for enterprises to participate EU ETS (Including allowances registry, and surrender allowances)</td>
<td>Dan Barry</td>
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<td>6</td>
<td>MRV in EU ETS</td>
<td>Caspar Chiquet</td>
<td>South Pole Carbon</td>
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<td>7</td>
<td>Main thoughts of the development of GD Emission Reporting Guidelines (General Guidelines)</td>
<td>XU Weijia</td>
<td>Sun Yat-sen University</td>
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<td>MRV: How to establish effective operations, teams and processes so that compliance and carbon management are easy.</td>
<td>Sean Gilbert</td>
<td>KPMG</td>
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<td>MRV experience sharing between enterprises- POWER</td>
<td>Massimiliano Varrucciu</td>
<td>EDF Trading</td>
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<td>10</td>
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<td>Jason Qiao</td>
<td>CAMCO</td>
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<td>Introduction of verification processes and how to overcome the challenge of verifying your carbon assets</td>
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<td>LRQA</td>
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<td>Introduction of registry system and examples to illustrate allowance registry processes for industrial enterprises in EU</td>
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<td>AGEB</td>
</tr>
<tr>
<td>16</td>
<td>EU Experience in ETS preparation and how enterprises and government may co-operate</td>
<td>Lutz v. Meyerinck</td>
<td>KMW</td>
</tr>
<tr>
<td>17</td>
<td>Carbon Asset Management</td>
<td>Eric Boonman</td>
<td>Statkraft</td>
</tr>
<tr>
<td>18</td>
<td>Opportunity or Risk: Corporate Carbon Asset Management</td>
<td>Zhuli Hess</td>
<td>VCS</td>
</tr>
<tr>
<td>19</td>
<td>ETS: Services and Supports for companies</td>
<td>Fulvio Bartolucci</td>
<td>Solvay</td>
</tr>
</tbody>
</table>
IETA upholds its principles by acting as a think tank, a convener of dialogues, an advocate, a market promoter, and a champion of best practices and market standards. The B-PMR is a natural outgrowth of these principles. The B-PMR is a special initiative governed by the IETA Secretariat and the B-PMR Steering Committee with underwriting from:

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