B-PMR Mission

SHANGHAI


J. Patrick Fischer
# TABLE OF CONTENTS

- Action Preparation 3
- The B-PMR's Mission 4
- Dialogue Agenda 5
- Challenges for Shanghai ETS 9
- Address by Qianlong Ni, Director of Shanghai Development and Reform Commission 10
- Address by Hui Bin, Shanghai Environment and Energy Exchange 10
- Address by Qian Wu, British Embassy Beijing 11
- Address by Dirk Forrister, President and CEO, International Emissions Trading Association (IETA) 11
- Dialogue Summary 12
  - Theme I: Preparing for and Participating in ETS 12
  - Theme II: Accounting and Monitoring, Reporting and Verification 15
  - Theme III: Offsets and Carbon Asset Management 18
  - Theme IV: Operational Impacts 22
  - Theme V: ETS Infrastructure 24
- Breakout Sessions 26
  - Group 1: Power 26
  - Group 2: Steel 26
  - Group 3: Petrochemicals 26
  - Group 4: Paper Production 26
  - Group 5: Other Sectors 26
- Q&A Session 27
- Stakeholders’ Interviews 32
- Speakers 35
- List of Participants 41
ACTION PREPARATION

Introduction

The Shanghai pilot emissions trading scheme is part of the seven such programs announced by the Chinese government to be launched in the 12th Five Year Plan. The Shanghai municipal government released the Shanghai Draft Rules for Emissions Trading Guidelines in 2012 and the Draft Measures on Emissions Trading as the draft rules for implementation and operationalization of the scheme.

Scope and Coverage

A total of 191 companies from 16 industrial and non-industrial sectors will be covered under the first phase of the scheme (2013 to 2015). Companies in the industrial sectors with more than 20,000 tonnes of CO₂e emissions per year and companies in the non-industrial sectors with emission no less than 10,000 tonnes of CO₂e emissions per year will be covered. Direct and indirect emissions from these entities will be covered under the scheme. Companies with emissions exceeding 10,000 tonnes would be required to report their emissions to prepare for inclusion in the scheme at a later stage.

Allowance Allocation

The companies will be allocated emission allowances on the basis of the their emissions between 2009 and 2011. In the future, allowances will be allocated on the basis of the industry-specific growth patterns instead of historical emissions. Allowances covering emissions for 2013 to 2015 will be allocated for free, all at once.

Use of Offsets, and Banking and Borrowing of Allowances

Covered entities will not be allowed to receive forward allowances, but are permitted to bank unused allowances from the previous year. China Certified Emissions Reductions (CCERs) can be used to offset actual emissions in the place of allowances. The amount of CCERs cannot exceed 5% of a covered entities total allocation amount.

Non-compliance

Companies will be required to surrender the compliance instruments between 01 June and 31 June of each year. If a company provides false emissions data but requests the DRC for rectification within a certain period of time, it will face fine of Yuan 10,000 to Yuan 30,000. If a company resists verification after requesting rectification it would face a fine of Yuan 30,000 to Yuan 50,000. If an entity cannot surrender enough allowances to the registry compared to its reduction target it could face a penalty in the range of Yuan 50,000 to Yuan 100,000.

Trading

The Shanghai Environment and Energy Exchange has been designated as the trading platform for the scheme. The Exchange will establish trading types, auction procedures, purchase contracts, and the level of transaction fees. All of these will be submitted to the Shanghai municipal government for approval.
THE B-PMR’s MISSION

On October 24, 2012 in Sydney, Australia, IETA launched the “Business Partnership for Market Readiness (B-PMR). We aim 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.

IETA’s membership spans the globe - with major energy, industrial, financial and service companies in virtually every PMR partner jurisdiction. IETA is ideally 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.

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:

- Trading strategies and companies’ internal allowance management
- MRV at the installation level: day-to-day industry best practice for MRV management
- Financial products and trading carbon
- GHG auditing and verification
- Data quality and quality control
- IT tools and GHG trading infrastructure
- Mitigation measures

## Schedule

**Time:** 2 days, 29 – 30 October 2013  
**Meeting Location:** Shanghai Swan Hotel, No. 2211 Beichuan North Road, Hongkou District, Shanghai

**Organizers:**  
International Emissions Trading Association (IETA)  
Shanghai Energy and Environment Exchange

**Foreign Supporters:**  
International Emissions Trading Association (IETA)  
British Embassy Beijing

**Local Supporters:**  
Shanghai Development and Reform Commission (DRC)

### October 29, Day One

<table>
<thead>
<tr>
<th>Time</th>
<th>Contents</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00-9:05</td>
<td>Opening remarks by Shanghai DRC</td>
<td>Qianlong Ni</td>
</tr>
<tr>
<td>9:05-9:10</td>
<td>Opening remarks by Shanghai Exchange</td>
<td>Hui Bin</td>
</tr>
<tr>
<td>9:10-9:15</td>
<td>Opening remarks by British Embassy</td>
<td>Wu Qian</td>
</tr>
<tr>
<td>9:15-9:25</td>
<td>Opening remarks by President and CEO of IETA</td>
<td>Dirk Forrister</td>
</tr>
<tr>
<td>9:25-9:50</td>
<td>Introduction of the Shanghai ETS</td>
<td></td>
</tr>
<tr>
<td>9:50-10:05</td>
<td>Discussion &amp; Tea Break</td>
<td>Group Photo</td>
</tr>
</tbody>
</table>

**Experience Sharing: How do industrial enterprises prepare and participate in ETS**  
**Theme 1: Preparing for and participating in an ETS**  
(Examples and best practices from European/California companies that prepared for and participate in the EU ETS and California market)

<table>
<thead>
<tr>
<th>Time</th>
<th>Contents</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:05-10:35</td>
<td>ETS Readiness: How firms prepare for and thrive in a CO₂-capped environment?</td>
<td>Daniele Agostini (Enel)</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
<td>Speaker</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>10:35-11:00</td>
<td>ETS Compliance: Rules and Policies that UK, Australian, and EU Operators Follow</td>
<td>Harold Van Kooten (Baker &amp; McKenzie)</td>
</tr>
<tr>
<td>11:00-11:15</td>
<td>Question and Answer Session</td>
<td></td>
</tr>
<tr>
<td>11:15-11:40</td>
<td>Experience sharing on broader issues dealing with EU ETS and overlapping policies (renewable energy, energy efficiency, etc.)</td>
<td>Michael Mei (Alstom)</td>
</tr>
<tr>
<td>11:40-12:10</td>
<td>All about Allowances: How to manage, surrender, and capitalize</td>
<td>Francisco Grajales Cravioto (Vattenfall)</td>
</tr>
<tr>
<td>12:10-12:25</td>
<td>Question and Answer Session</td>
<td></td>
</tr>
<tr>
<td>12:25-13:30</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td><strong>Theme 2: Accounting and Monitoring, Reporting, and Verification (MRV)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:30-13:55</td>
<td>Accounting and Allowances: Two's Company</td>
<td>Charlie Cao (Bloomberg New Energy Finance)</td>
</tr>
<tr>
<td>13:55-14:20</td>
<td>EU ETS Reporting and Monitoring Guidelines: what does it all say and why is it important? In what ways can Shanghai have similar guidelines?</td>
<td>Massimiliano Varruciu (EDF Trading)</td>
</tr>
<tr>
<td>14:20-14:35</td>
<td>Question and Answer Session</td>
<td></td>
</tr>
<tr>
<td>14:35-15:00</td>
<td>MRV: How to establish effective operations, teams and processes so that compliance and carbon management are easy.</td>
<td>Fulvio Bartolucci (Solvay)</td>
</tr>
<tr>
<td>15:00-15:30</td>
<td>Introduction of verification processes and how to overcome the challenge of verifying your carbon assets</td>
<td>Jean Chen (LRQA)</td>
</tr>
<tr>
<td>15:30-15:45</td>
<td>Question and Answer Session/Tea &amp; Coffee Break</td>
<td></td>
</tr>
</tbody>
</table>
Break Out Group Discussions: MRV and Accounting experiences sharing from a business-to-business perspective

**Group 1: Power**
Speaker(s): Francisco Grajales Cravioto (Vattenfall) and Massimiliano Varruciu (EDF Trading)

**Group 2: Steel**
Speaker(s): Karl Upston Hooper (Greenstream)

**Group 3: Petrochemical**
Speaker(s): Li Xing (BP)

**Group 4: Paper production**
Speaker(s): Yang Xuan, South Pole

**Group 5: Other sectors**
Speaker(s): Harold Van Kooten (Baker & McKenzie)

Note: Other ETS topics may come up in the break out session. While MRV and accounting are the key topics for this break out session, it is important to discuss in a small group a variety of different issues related to emissions trading. There is also a break out session on Day 2.

17:00-17:30 Highlights and feedback from breakout groups and Summary of Day 1
Dirk Forrister, IETA

---

**October 30, Day Two**

<table>
<thead>
<tr>
<th>Time</th>
<th>Contents</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:15-10:05</td>
<td><strong>Domestic Offset Systems</strong>: Case Studies and Examples on how offset credits are used around the world</td>
<td>Will Ferretti (VCS) and Li Xing (BP)</td>
</tr>
<tr>
<td>10:05-10:55</td>
<td><strong>Carbon Offset Management</strong>: Strategies and Best Practices (One on One Discussion between a carbon offset project developer and energy company)</td>
<td>Karl Upston-Hooper (Greenstream), and James Liu (Statkraft)</td>
</tr>
<tr>
<td>10:55-11:10</td>
<td><strong>Question and Answer Session</strong></td>
<td></td>
</tr>
<tr>
<td>11:10-11:30</td>
<td><strong>Coffee and Tea Break</strong></td>
<td></td>
</tr>
</tbody>
</table>
11:30-12:45

Break Out Groups: Offsets, Carbon Asset Management, and More

**Group 1: Power**
Speaker(s): James Liu (Statkraft) and Daniele Agostini (Enel)

**Group 2: Steel**
Speaker(s): Karl Upston Hooper (Greenstream), Zhuli Hess (VCS)

**Group 3: Petrochemical**
Speaker(s): Tony Gai (PetroChina International) and Ziyuan Wang (Shell)

**Group 4: Paper production**
Speaker(s): Yang Xuan, South Pole

**Group 5: ETS Infrastructure**
Speaker(s): Jeff Huang (ICE), Will Ferretti (VCS)

12:00-12:40
Lunch

12:45-13:45
Theme 5: Operational Impacts

13:45-14:15
Case Studies and Smart tips on preparing for operating under an ETS: Examples from the EU, Australia, and California
Peter Castellas (Carbon Market Institute)

14:15-14:45
Obstacles encountered by EU enterprises when preparing to participate in ETS (financial, accounting, management, technical issues, and the establishment of ETS working group etc.)
Ziyuan Wang (Shell)

14:45-15:00
Question and Answer Session

15:00-15:15
Coffee and Tea Break

15:15-15:45
Theme 5: ETS Infrastructure

15:15-15:45
The Registry: How carbon is stored on a Registry and how it functions
Will Ferretti, VCS

15:45-16:45
The Exchange: How carbon is traded on an Exchange and the importance of liquidity: Live Simulation from the EU ETS and Case Studies from California
Tony Gai (PetroChina International) and Jeff Huang (ICE)

16:45-17:00
Question and Answer Session

17:00-17:30
Summary of B-PMR Mission and Closing Statements
Dirk Forrister
CHALLENGES FOR SHANGHAI ETS

Shanghai would be among the first pilot emissions trading schemes in China. It would form the foundations of a national emissions trading scheme after 2015. Thus it become important that a implementation and operationalization of this pilot ETS is successful. Some hurdles in the success of the Shanghai pilot ETS are listed below.

Baseline emissions – Industrial enterprises in Shanghai have the same concerns regarding baseline emissions and benchmarks that entities in other carbon markets have. The Shanghai regulatory bodies would have to make sure that the design of the pilot ETS scheme takes into account the fluctuations in the emissions during the baseline years. The companies have witnesses economic slowdown during the baseline years which has would have significant impact on the emissions and, in turn, may affect the supply-demand balance of the mechanism.

Monitoring, Reporting & Verification – Companies in the power sector have already implemented systems to monitor some emissions. But companies in other sectors may not have much experience in monitoring and reporting emissions.

Use of Offsets – The covered entities have concerns regarding the use of offsets. Since the use of offsets is comparatively more cost-efficient in EU ETS, the companies in Shanghai may be more inclined to use offsets to meet compliance obligations. Thus, the regulatory bodies should provide clarity on the quality and quantity restrictions, if any, on the use of offsets.

Carbon Asset Management – The participating companies would be required to formulate a comprehensive carbon management plan to comply with the ETS. Many companies seem concerned about the lack of flexibility in implementing carbon asset management mechanisms due to the absence of futures contracts in the pilot phase.

Studying the compliance strategy of industries in other emission trading schemes like the EU ETS and the New Zealand ETS would benefit the Shanghai companies to develop a sound strategy to hedge their risks and fulfill 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. This B-PMR mission will focus on the specific needs of the Shanghai pilot ETS to provide local expertise, awareness and engagement.
DIALOGUE SUMMARY

Address by Qianlong Ni, Director of Shanghai Development and Reform Commission

Mr Ni thanked the British Consulate, the British Embassy and the International Emissions Trading Association (IETA) for organizing the B-PMR workshop and welcomed all delegates. Since the beginning of the 11th Five Year Plan the Chinese government and the Shanghai municipal government have taken a number of measures to reduce the emission and energy intensity of the city. The emissions trading scheme is part of the efforts by the city to reduce its energy consumption and emissions even in the absence of an international obligation. The regulators plan to expand on these efforts by collaborating with other countries and jurisdictions to exchange policy and implementation experiences.

Address by Hui Bin, Shanghai Environment and Energy Exchange

Mr Bin thanked the IETA for organizing the workshop and welcomed all the participants and speakers. He expressed hope that representatives from the covered entities would learn from the experiences shared by the European experts which would help them devise strategies to meet their obligations under the Shanghai ETS.
Address by Qian Wu, British Embassy Beijing

Ms Wu thanked the IETA for putting together the dialogue on carbon market readiness as part of its BPMR mission. China has taken a number of initiatives over the past few years to increase investment in the low-carbon technologies. The emissions trading scheme is one of the initiatives to put a price on carbon. China would continue to work on other initiatives that put a price on carbon and support investment in the low-carbon technologies. China and the UK have been working together on low-carbon technologies and policies for the last few years. The UK believes that investing in renewable energy and low-carbon technologies is crucial to beat the economic recession and long-term sustainability.

Address by Dirk Forrister, President and CEO, International Emissions Trading Association (IETA)

Mr Forrister thanked the Shanghai Development and Reform Commission, for welcoming all the participants and speakers, and the Shanghai Environment and Energy Exchange, for organizing the event, and the British Consulate for providing valuable support and guidance. He stated that market-based mechanisms, like emissions trading schemes, are essential to meet climate change goals. In order to achieve these climate change goals all the major emitters in the world should invest significantly in mitigation efforts. The world needs to reduce its emissions by 50-80% in order to achieve the target to limit the concentration of CO₂ to 450 ppm. It is essential that developed as well as developing countries take measures to reduce greenhouse gas emissions. Industry and businesses play a critical role in pushing the change in the policy and technology which would eventually lead to reduction in emissions. Mature carbon markets, like the EU ETS, and emerging carbon markets, like Shanghai and South Korea, should look towards linking with each other to achieve the emission reductions required.
THEME I: PREPARING FOR & PARTICIPATING IN THE ETS

The EU ETS and the California cap-and-trade scheme are two of the major operational emission trading schemes in the world today. Companies likely to be covered under the emerging carbon markets, like those in China, can study them and learn from the best practices from the strategies implemented by the entities in the two developed carbon markets.

Daniele Agostini of Enel Holding noted that the companies covered under an emission trading scheme need to have a robust set of strategies to address a number of aspects related to compliance with the emission reduction obligation.

Carbon Policy and Regulation

- Companies should study the policies of other carbon markets to get acclimatized with the possible policies that they would face in the future.
- Companies should learn about the various complimentary systems of an emissions trading scheme.
- Active contribution to the regulatory development of the carbon trading schemes, directly or through industry associations, is essential.
- Companies should look to reduce regulatory risks by implementing a compliance system to meet the obligations.

Long-term Planning to Meet Obligation

- Companies should recognize the challenges of weak carbon price, shorter operational life of renewable energy projects, and regulatory uncertainty when they plan for a long-term strategy to meet the obligations.
- Early investment in renewable energy and other low-carbon technologies puts the companies in a better position to meet the obligations.

Operational Management

- Companies should develop an integrated system to collect emissions and energy consumption data from all the entities in a group.
- Implementation of centralized monitoring plans for the group and improving the environmental standards voluntarily would help the companies meet the compliance obligations easily.
- Companies should have a centralized, dedicated unit to develop and implement low-carbon policies.

Portfolio Management and Carbon Sourcing

- Companies should look to reduce the compliance cost by using flexible mechanisms which allow them to meet the obligations efficiently.
- By hedging risks through various market instruments and voluntarily reducing the emissions companies can minimize the cost of compliance.
Key Points

- Companies should be actively involved in development of regulations and policies.
- Long-term planning with a number of compliance options would help the companies meet their obligations efficiently.
- Companies should develop group-wide policies and strategies to centralize the compliance operations.

Harold van Kooten of Baker & McKenzie shared the features of various market-based mechanisms implemented globally.

In addition to the Emissions Trading System Directive, the EU has implemented various energy efficiency and renewable energy directives and regulations. These complimentary policies make significant contribution towards reducing greenhouse gas emissions.

The UK approved the Climate Change Act 2008 and the Greenhouse Gas Emissions Trading System Regulations 2012. Australia implemented the National Greenhouse and Energy Reporting Act 2007 which requires entities to report their energy consumption and emissions. The previous Australian government had implemented the Carbon Pricing Mechanism which included carbon tax and cap-and-trade scheme in addition to a domestic offset generating scheme (Carbon Farming Initiative) in 2011. The new Australian government plans to replace these regulations with the Direct Action Plan which aims to procure carbon offsets at the minimum price to meet Australia’s international obligations.

Michael Mei of Alstom briefly explained the various components of the EU’s climate change policies which includes the emissions trading scheme and energy efficiency and renewable energy targets.

The EU has set a binding target to reduce its greenhouse gas emissions by 21% by 2020 from 2005 levels under the EU ETS Directive. Under the Renewables Directive the EU targets 20% energy consumption from renewable energy sources by 2020. The EU has also implemented a non-binding target to improve energy efficiency by 20% by 2020 from business-as-usual level.

In addition to the EU ETS, a number of other initiatives have been implemented by the European Commission. These include the fuel quality standards, the vehicle CO2 emission standards, eco-labeling rules and eco-design standards, and taxes on energy use. Between 1990 and 2011, the EU managed to reduce its greenhouse emissions by 18.5% while increasing the Gross Domestic Product (GDP) by 48%. The EU has made significant progress towards achieving the emissions reduction target and looks set to achieve the 2020 target.

The carbon price in the primary and secondary markets however, remains a matter of concern. Low carbon prices are a source of uncertainty for low-carbon technology investors.
In the renewable energy sector, most of the major economies are doing well. The success in the renewable energy sector is largely attributed to the investor-friendly policies and rapidly falling technology costs in the solar PV and offshore wind energy sectors. However, the support policies in most countries have become politically unsustainable with a number of governments scaling back feed-in tariff schemes and even implementing taxes on renewable energy projects.

Vehicular emissions standards are expected to be met. However, the energy efficiency targets for 2020 are unlikely to be achieved unless additional financial support to the building and transport sectors is provided.

During the first phase of the EU ETS companies showed significant interest in renewable energy and gas-based energy production; in the second phase the EU pushed the development of the carbon capture and storage technology. Following the global financial crisis of 2008 the EU carbon prices fell significantly. The emissions of the covered entities fell sharply leaving them with huge amounts of the emission permits. The carbon prices in the EU fell to levels below the prices seen in new carbon markets like California and Shenzhen, China.

The low carbon prices have prompted the EU to take corrective action which includes restriction on the use of offsets and delaying the auction of emission permits. Some member states have implemented additional energy and carbon taxes.

**Key Points**

- Emerging carbon markets like those in China can learn important lessons from the EU ETS and incorporate them in their policy making and implementation process.
- An emissions trading scheme requires the right balance of demand and supply of allowances and offsets in order to provide a long-term certainty to low-carbon investors.
- Emission reduction targets and policies must take into account the potential impact of other policies.
- Emission reduction targets and market-based mechanisms should be flexible enough to respond to variations in the demand for compliance instruments.

Francisco Grajales Cravioto of Vattenfall explained that how covered entities can manage their assets to fulfill the obligations under an emissions trading scheme. He shared specific strategies implemented by the EU companies under the EU ETS.

Purchasing emission allowances and offsets and investing in clean energy technologies are some of the strategic options available with the companies to comply with the emission reduction targets. While using these options the companies’ should aim at minimizing the compliance costs and cost-effectively fulfilling the obligation. Large companies should strive to manage their carbon assets in a centralized manner; such optimization is essential for large power companies with a number of generating stations.
The optimal balance between the various compliance instruments depends on a number factors like cost, availability and regulatory restrictions. Companies have a number of financial instruments through which they can optimize the compliance.

**THEME II: ACCOUNTING AND MONITORING, REPORTING AND VERIFICATION**

In order to fulfill the obligations under an emissions trading scheme it is important that the companies understand the various aspects of the obligations. Understanding which emissions to account, measure and report is essential to draw up an effective compliance strategy.

Charlie Cao of Bloomberg New Energy Finance discussed the various factors the companies should consider while developing a compliance strategy.

Companies should be aware of the greenhouse gases covered under the emissions trading scheme, the scope of the scheme, and the coverage boundary. Emissions data can be collected through direct and indirect monitoring and accounting.

In order to develop an effective compliance strategy the companies should be in a position to determine their liability across various time horizons. The level of regulatory certainty, possible pass-through cost, investment planning, and possibility of hedging and speculation make significant impact on the compliance strategy.

Another important aspect the companies should consider is the carbon price and which factors influence the carbon price.

<table>
<thead>
<tr>
<th>Energy Economics</th>
<th>Technology</th>
<th>Policy</th>
<th>Carbon Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Power demand</td>
<td>• Emission abatement technologies</td>
<td>• Direct emissions regulation</td>
<td>• Carbon targets</td>
</tr>
<tr>
<td>• GDP growth</td>
<td>• Energy efficiency</td>
<td>• Energy policy</td>
<td>• Sectoral coverage</td>
</tr>
<tr>
<td>• Renewable energy costs</td>
<td>• Energy storage</td>
<td>• Nuclear policy</td>
<td>• Offset rules</td>
</tr>
<tr>
<td>• Fuel costs</td>
<td>• CCS</td>
<td>• Renewable energy policy</td>
<td>• Linkage to other ETS</td>
</tr>
<tr>
<td>• Exchange rates</td>
<td></td>
<td></td>
<td>• Industrial advocacy</td>
</tr>
</tbody>
</table>

Companies should have different strategies for various time horizons. In the short-term, companies should look for active trading and portfolio optimization. Forward purchase, hedging and active engagement in policy development process are important tools for defining the medium-term strategy. The ability to forecast emissions and carbon prices are crucial for the development of the long-term strategy.
According to a model developed by BNEF, the power sector emissions in China are expected to increase by about 33% between 2010 and 2030 under the stated emission intensity targets. The technology options which are likely to provide the most abatement by 2030 are onshore wind energy projects, nuclear power projects, fuel switching, and solar power projects. The carbon price the Chinese power plant is expected to increase about six times between 2017 and 2030 to reach about $27 (¥ 170) per tonne of CO2e. Under various policy scenarios, the share of coal-based power generation capacity is expected to drop to as low as 38% from 67% in 2012.

**Key Points**

- Companies should be aware of all the factors that may influence their compliance strategies.
- Companies should prepare compliance strategies with varying time horizons which would provide them with adequate flexibility.

Massimiliano Varrucci of EDF Trading elaborated the monitoring, reporting and verification guidelines followed by the companies under EU ETS, the various underlying principles of MRV procedures and what the Shanghai ETS can learn from the procedures being following in the EU ETS.

A robust MRV is essential to maintain the credibility, environmental integrity, and comprehensiveness of an emissions trading scheme. A robust MRV system provides valuable information to the regulators who may then make modifications in the emissions reduction target; it provides information to the companies with regarding their compliance status against the obligation; and it provides information to the traders and offset generators which can then optimize their investments on the basis of the expected demand in the market.

In the EU, the entities are required to implement a monitoring plan which should be thoroughly documented and cannot be changed arbitrarily. The entities collect data in accordance with this monitoring plan and are required to submit the data to the regulators within three months after the end of the year. The entities are then required to surrender the compliance instruments by 30th April of each year.

A monitoring plan should give detailed configuration of the installation/facility. It must have thorough description of the fuel sources used, the responsibility of various personnel, procedures for evaluation of the monitoring plan, and control activities to manage risks of misreporting. Some of the methodologies used for monitoring emissions are: Standard methodology, Mass balance methodology, Measurement-based methodology, and tier-based methodology.

The objective of verification is to ensure that emissions data have been monitored in accordance with the Monitoring and Reporting Regulations (MRR) and that reliable and correct emission data are being reported. The verifier is contracted by the operator. Under the EU ETS, accredited private verifiers verify the data reported by the entities.
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 $\text{SO}_2,\text{N}_2\text{O}$) 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.

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.
- 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.

Fulvio Bartolucci of Solvay shared the basic principles of carbon measurement, reporting and verification.

Companies should plan thoroughly to design and implement a monitoring and verification system. The requirements of the MRV should be studied and the responsibilities of various tasks should be distributed accordingly. Site operators should be closely involved in the process as they are well aware of the day-to-day operations. A centralized task force should be created to overlook and supervise the entire system.

While monitoring the companies should aim for automation as it improves efficiency. All data and information collected should be archived for future reference and record maintenance. Automation provides faster integration and analysis of data and information. Access to faster and integrated analytics is important to optimize a company's carbon position.

During the verification process the site operators should be actively engaged. An external verification should only take place after an internal audit has been completed. Verification tests the robustness of the MRV system implemented by the company.

During the review verification results should be measured against the objectives decided during the planning phase. The review should also involve departments not directly related to the energy or carbon monitoring. Any improvement in the MRV system should involve the site operators.
Key Points

• The MRV system can be broadly divided into four steps – Plan, Do, Check, and Act.
• During the implementation of the MRV system site operators play a major role as they are well aware of the energy consumption and site operations.
• Automation and software-aided monitoring procedures significantly improve the efficiency of the MRV system.

Jean Chen of LRQA made a brief introduction of verification processes and how to overcome the challenge of verifying the carbon assets.

To ensure the successful of verification, four rules shall be abided by:
• Completeness: all sources of emission and data shall be included;
• Transparency: all the calculation shall be able to be cross checked.
• Consistency: all the MRV shall be consistent with monitoring plan;
• Accuracy: ensure the data accuracy as requested in the cost-effective way.

Six key steps of the verification process are:

• Strategic analysis: the analysis of the characteristic, scale and the complexity of emission sources of equipments/processes; well functioning of the data management system and how to manage the data management system;
• Risk analysis: verifiers check the most uncertain sources of emission which could go wrong and check how companies deal with the uncertainty as well as its relevant countermeasures.
• Verification planning: the planning mainly focus on the verification of the main emission sources, data sampling, and check the consistency of the implementation with the requirements of monitoring plan, QA/QC of data achievement and data management etc.
• Process analysis: the main focus is data sampling, checking the potential inconsistency of same data in the time scale and the reason behind as well as cross check the potential data inconsistency by way of metering and calculations.
• Report: ensure the sources of data for the report is reasonable.
• Technical review: before finalized report, internal technical review is requested to ensure the quality of the report.

THEME III: OFFSETS AND CARBON ASSET MANAGEMENT

The backbone of any ETS is its infrastructure which includes registry, transaction platforms for the primary as well as the secondary segments, financial intermediaries, and verifiers. A dynamic, robust, and secure infrastructure is essential for the effective implementation of an ETS.

Miss Yun Ling of the Shanghai Development and Reform Commission updated the overall progress of the Shanghai ETS pilot scheme.

Three key regulation documents – the carbon emission management method, allowance allocation management method and ETS trading rules are in the final approval process by municipal government, and Shanghai ETS will be kicked off by the end of 2013.
Companies in the industrial sectors like iron and steel, petrochemicals, non-ferrous metals, chemicals, power, building materials, textiles, and paper with more than 20,000 tonnes of CO₂e emissions every year will be covered under the pilot scheme. Companies in the non-industrial sectors like airports, seaports, and hotels with annual emissions more than 10,000 tonnes of CO₂e will also be included. A total of 191 companies from 16 sectors will be covered under the pilot scheme. A number of other companies will be required to report emissions data as they would be included in the ETS during the later stages.

During the pilot phase (2013 to 2015), emission allowances will be provided to the companies for free. Companies in the industrial sectors will be allocated emission allowances according to the ‘grandfathering’ approach while companies in the power sector and the non-industrial sectors will be allocated allowances according to the benchmark approach.

A set of overall MRV guidelines were issued for nine sectors in December 2012. The registry and trading system for compliance instruments is ready. Shanghai Environment and Energy Exchange (SEEX) will facilitate the trading of compliance instruments. Only the compliance entities and financial institutions would be allowed to participate in the trading. Trading in the compliance instruments would be allowed only through the exchange and over-the-counter (OTC) trading would not be allowed. There would be no floor or ceiling price for the emission allowances or offsets.

**Key Points**

- Shanghai pilot ETS likely to be launched by the end of 2013.
- A total of 191 companies from 16 industrial and non-industrial sectors will be covered under the ETS. More companies will be required to report emissions.
- Shanghai Environment and Energy Exchange will facilitate trading of compliance instruments.

Will Ferretti of VCS compared the various emission reduction programs currently in practice around the world.

**Verified Carbon Standard**

<table>
<thead>
<tr>
<th>Auditing</th>
<th>Done by CDM DOEs accredited by International Accreditation Forum (IAF) members under ISO 14065</th>
</tr>
</thead>
</table>
| Methodologies                | - Bottom up  
- Double validation  
- Positive lists  
- Performance benchmarks |
| Registry                     | - Multiple registry system  
- Central project database |

19
| Special Features | • Pioneered AFOLU  
• Developed first jurisdictional framework  
• Tagging of VCU's |

**Clean Development Mechanism**

| Auditing | • CDM Accreditation Panel  
• DOEs |
| Methodologies | • Initial submittal by proponents with review/approval by Meth Panel  
• Mostly project-by-project determination of additionality |
| Registry | CDM registry, run by UNFCCC |
| Special Features | • Leading program in the world  
• AFOLU partially covered |

**California**

| Auditing | • Verification bodies accredited by California ARB |
| Methodologies | • Standardized methodologies  
• ARB developers and approves methodologies |
| Registry | Compliance Instrument Tracking System Service (CITSS)  
Offset Project Registries |
| Special Features | • Early Action is possible  
• Linked with Quebec  
• Buyer liability |

Li Xing of BP shared the various carbon asset management strategies followed by companies across the world.

Emission allowances and offset credits are the compliance instruments used by companies under the emission trading schemes around the world. It is important for companies to develop a robust and comprehensive emissions management strategy which takes into account the cost of compliance through various options, potential changes in the regulations, and policies implemented to achieve internal abatement.

Companies can earn significant financial profits through monetizing the free emission allowances received at the start of a compliance phase. The companies can then purchase other compliance instruments like offsets to meet the obligation thus reducing the cost of compliance.

Karl Upston–Hooper of Greenstream and James Liu of Statkraft had a one-on-one discussion on the relationship between a compliance entity and a service/offset providers and what lessons the Chinese companies can learn from the approach taken by the EU companies.
History of Statkraft and Greenstream

Statkraft is a Norway-based power generation company with a portfolio including conventional as well as renewable energy sources. The company is a compliance entity under the EU ETS. Greenstream is a service and solutions provider with a portfolio of asset management, carbon trading, offset project development, and consultancy services. Greenstream is not a compliance entity under the EU ETS.

Statkraft’s first steps in the carbon markets

Initially, the company entered the carbon market to gather information about how carbon prices may impact other commodities like power and fuel. The company realized that its power price forecasting models must include the price of carbon to deliver accurate results.

Carbon pricing as an opportunity

Power plant operators initially saw carbon pricing as an additional cost to the company as the concept was new to them. With the formation of a dedicate carbon management team within Statkraft, a number of options were available to meet the obligations in a cost-effective manner.

Relationship between a compliance entity and a service provider

Meeting the compliance targets through internal abatement is quite cost-intensive as a result a company must have other options at hand. A company can approach a service provider to procure offsets or acquire technical knowledge regarding reducing emissions.

Multiple strategies to meet compliance obligation

Different strategies yield result at different strategies. A company can procure offsets in a very short period of time whereas internal abatement projects can take years to come on-stream. Every strategy has its own pros and cons which may be enhanced and negated by adopting multiple strategies.

Importance of carbon asset management

Carbon prices have significant impact on the power and fuel prices which, in turn, can impact the profit margins of industries. The European companies realized this and started treating the emissions trading scheme as an opportunity to make profits.

Role of technology providers

The emissions trading scheme is one of the many policy tools implemented by the Chinese government. They have announced carbon efficiency and energy efficiency targets as well. While technology providers only provide equipment to the companies, service providers can help the companies use those equipment to optimize production and reduce operational costs.
Role of Chinese CDM consultants

All sectors cannot be subjected to a carbon tax or an emissions trading scheme. Sectors like transport and agriculture require a different set of policy tools to reduce emissions. The Chinese CDM consultants should broaden their perspective and look to provide services in energy efficiency and related sectors.

Building relationships with service providers

Companies should look to join industry and trade groups where the members can share their expertise and experiences. Large Chinese companies that have substantial exposure to emissions trading schemes can take the leadership role in educating new and small companies.

THEME IV: OPERATIONAL IMPACTS

Peter Castellas of Carbon Market Institute shared the highlights of the Carbon Pricing Mechanism implemented in Australia in July 2012 and the results of an extensive survey of Australian liable entities covered under the policy of the Labour-Green Party government.

Some of the highlights during the first year of the Carbon Pricing Mechanism have been listed below:

- In total, 372 liable entities were included in the Carbon Pricing Scheme (25,000 tonne/year emissions) in the first year.
- The Carbon Market Institute estimates the total value of the Australian carbon market at approximately A$6.58 billion.
- 258 of the largest emitters were required to surrender carbon units for 75% of their liability in the June 2013 interim surrender.
- A total of 103.7 million free permits were issued under the Jobs and Competitiveness Program to 121 entities - at $23/tonne, it equates to $2.2 billion of free permits.
- 99% of companies met their 1st year compliance obligations with only 4 companies failing to surrender permits.
- The Clean Energy Regulator issued 1,750,179 ACCUs in the first year of operation. Almost all of the issued ACCUs, 97%, were purchased by 18 liable entities to meet part of their compliance obligations.
- 22 CFI projects were issued with ACCUs, mostly emissions avoidance.
- Projects included landfill gas capture, piggery methane, savannah burning, reafforestation/afforestation.
- Most liable entities come from Energy/Power generation sector and expected to be the biggest demand source for domestic offset units (ACCUs).
Some of the important results in the survey have been listed below.

- 58% of the surveyed respondents believed that they had pre-existing capacity to manage compliance and obligations under the CPM.
- 73% of the respondents engaged external service providers to assist them to meet the obligations.
- The most common types of services are auditing and legal.
- 75% of the companies established new governance policies and carbon risk management frameworks to comply with CPM.
- About three-fourths of the entities developed strategies to adequately pass through carbon price cost to the consumers.
- Only a fifth of the respondents saw new commercial business opportunities through the implementation of CPM.
- About a third of the companies committed to financing energy efficiency and low-carbon solutions and about three-fourths of the companies have factored carbon price in their future investments.
- Almost 40% of the entities developed a carbon procurement and trading strategy in anticipation of an emissions trading scheme earlier planned for implementation in 2015.
- About half of the respondents have processes in place to track developments in international carbon markets including linkage with EU ETS.

It should be noted that the newly elected Liberal government has announced that it would repeal the Carbon Pricing Mechanism soon.

**Key Points**

- Policy uncertainty has impacted the commitment of liable entities in Australia to invest in their internal capacity to address GHG emissions.
- Australian entities extensively used the services of external service providers to assist them meet CPM requirements.
- Liable entities were required to formulate new work flows; governance and risk management frameworks were developed.
- New supplier-customer contractors had been negotiated to pass the carbon price to the consumers.
- Liable entities had focused on energy savings more than cutting GHG emissions.
- Liable entities were more focused on compliance rather than portfolio optimization.

Ziyuan Wang of the Shell listed some of the challenges that European companies faced while preparing to participate in the EU ETS.

Some of the key policy initiatives to reduce greenhouse gas emissions include implementing an explicit and implicit price on emissions. This can be achieved through the implementation of an emissions trading scheme. Regulatory bodies should provide a level-playing field for all technologies by gradually eliminating subsidies for certain technologies. The regulatory bodies should try to include as many sectors under the market-based mechanism as possible. The policies implemented should be effective enough to stimulate a response from the covered sectors.
Policies and regulations usually drive the companies to implement energy efficiency and land use measures to reduce greenhouse gas emissions. In order to stimulate them to invest in large-scale abatement measures in the power and other industrial sector a market-based mechanism is essential.

Companies need to decide how they would like to manage the compliance obligations of multiple sites. They should also decide whether to invest in abatement technologies or purchase compliance instruments. Compliance strategies could include hedging, borrowing and banking compliance instruments.

**Key Points**

- Implementing market-based mechanisms are essential to promote use of effective and long-term abatement measures.
- Companies should consider all compliance measures to meet their obligations.
- Companies should look to invest in long-term abatement measures to meet the obligations in the most cost-effective manner while preserving the profit margins.

**THEME V: ETS INFRASTRUCTURE**

Trading compliance instruments is one of most crucial activities in an emissions trading scheme. It provides a cost-effective way to the companies to meet their obligations while maintaining adequate profit margins. A registry and an exchange are the fundamental components for the trading activities in an emissions trading scheme.

**Will Ferretti** of VCS explained the functions of a registry in an emissions trading scheme. Emissions allowances and offset credits are virtual currencies of an emissions trading scheme and a registry works as a repository of these currencies. The lifecycle of the compliance instruments is tracked in a registry starting from issuance and transfer to surrendering and cancellation.

Eligible companies can set up accounts in the registry. These companies can utilize the various services offered by a registry, these include: account management, transaction and reporting the compliance status in terms of available compliance instruments.

Companies involved in the validation and verification of the offset projects in VCS are examined and approved as per international standards. Each VCS project and methodology is approved by multiple validation and verification agencies to determine the real emission reduction capacity of the offset projects.

VCS requires its members to follow strict guidelines to ensure the environmental integrity of the offsets generated. These guidelines are checks against erroneous issuance of offsets. Proposed offsets projects are required to submit financial guarantees, fulfill insurance requirements, and ensure that there is no conflict of interest.
Key Points

- A registry acts as an important support pillar to an emissions trading scheme.
- Covered entities and offset project developers can interact through the registry to make transactions in compliance instruments.
- An efficient registry should have independent third-party validation and verification bodies, approved methodologies for the project developers to utilize, and a transparent registration system.

Tony Gai of PetroChina International explained the importance of an exchange for the smooth operation of an emissions trading scheme and gave a real-time demonstration of carbon assets trading through the InterContinental Exchange (ICE).

An exchange may offer trading in spot or future instruments as well as over-the-counter (OTC) transactions. Trading through spot or future instruments provides high liquidity, low risk and ease of transaction but participants are generally required to trade instruments in multiples of 1000. Over-the-counter transactions have flexible contract clauses without the requirement of minimum transaction size but carry high transaction risk. It has been noticed that liquidity in the spot market is substantially lower than the liquidity in the futures market.

Participants should consider various factors that may affect the carbon prices. These factors may include regulatory developments outside the exchange as well as technical developments within the exchange.

Jeff Huang of the InterContinental Exchange introduced how companies handle carbon asset management, as well as providing an overview of the Californian carbon market and carbon derivatives through ICE.

The futures segment of instrument trading leads to greater liquidity in the market which, in turn, provides greater support to the carbon price. A sufficiently high carbon price may prompt the companies to invest in long-term abatement options which serves the overall goal of the emissions trading scheme.

Companies can utilize the futures segment in a number of ways to leverage their carbon positions. Trading in the futures segment can yield companies substantial profits. Timely purchase of compliance instruments in the futures segment can bring significant financial savings to the companies.

Companies should make sure they have a dedicated team of qualified personnel to manage the trading segment. This team should have access to information of all the covered installations of the company so that a coherent and comprehensive trading strategy can be employed to meet the obligation of all the installations in a centralized manner.
BREAK OUT SESSIONS

GROUP 1: POWER

The companies in the power sector are well prepared to adopt the measurement, reporting and verification (MRV) standards. Most of these companies have already implemented data collection protocols. However, there should be more communication between the companies and the regulators so that the MRV protocols are clearly defined. Since most of the data collection instruments are already installed, the MRV cost is not a significant issue to the power companies. The companies, however, need guidance regarding where in the fuel chain the emissions should be monitored. The participants from the Chinese companies expressed concerns regarding the compliance costs and the absence of forward trading in compliance instruments.

GROUP 2: STEEL

The steel companies were concerned about how they can manage the compliance obligation across the company; how they can use offsets; and what would be the likely price of the compliance instruments. Most of the steel companies were aware of their emissions and the marginal abatement cost and were looking to devise a carbon management strategy. The companies asked questions about the best strategies for carbon asset management and what sort of expertise and resources are required to form a carbon asset management team.

GROUP 3: PETROCHEMICAL

The petrochemical companies wanted to know if the power generated within their plants will be covered under the emissions trading scheme. Another issue raised was the allocation of the allowances. They felt that the current benchmarking, based on historical emissions, is unfair and the regulatory bodies should consider other benchmarking approaches in the future. Some companies wanted to know if the regulators would allow centralized compliance and carbon management for companies which have a number of subsidiaries. The companies seem to have been working on strategies to meeting compliance obligations at the pilot level; they also raised questions about how a national Chinese carbon market would look like.

GROUP 4: PAPER PRODUCTION

Companies from sectors in addition to paper production took part in the discussion. The companies had questions about over-the-counter (OTC) trading of Chinese CERs and if it was possible to use low-cost CCERs for compliance and bank emission allowances for later stages.

GROUP 5: ETS INFRASTRUCTURE

The companies raised questions about carbon asset management and benchmarking approaches used in other emissions trading schemes around the world. The representatives wanted to know how companies under other schemes made use of the opportunities offered.
Q & A SESSION

Under a market-based mechanism the covered entities usually pass on the compliance cost to the end consumers. How does this affect the competitiveness of the companies?

Reply by Daniele Agostini, Enel

Addressing the compliance cost is likely to be a major issue for the Chinese companies. What impact the market-based mechanisms will have on the production costs of the power companies will be clear once the pilot phase of the emissions trading scheme is complete.

The number of power generators covered under the EU ETS is considerably high. The EU power market is very liberalized and the generators can pass through the compliance cost in some sectors to the consumers. The residential sector, however, is regulated and the generators often consult with the regulatory bodies to decide what would be the appropriate value of the pass-through cost.

In countries like Spain, the additional cost burden on the generators is higher due to the large share of renewable energy sources in the energy mix. The government has barred the generators from passing on the additional cost to the consumers due to the adverse economic conditions. As a result, the revenue deficit for these generators is increasing rapidly.

It is a major challenge for a power company to accommodate the compliance cost, especially during an economic recession.

What strategy should a covered entity implement in order to fulfill the obligations under an emissions trading scheme?

Reply by Daniele Agostini, Enel

Addressing greenhouse gas emissions is not only about environmental compliance. It provides significant commercial opportunities as well. Trading in the EU ETS spiked when people realized that it also had an impact on the energy sector. For a company, it is important that carbon trading should not remain under the environmental division. It should be moved to the commercial division where its true value could be realized.

Under the EU ETS, the significant price difference between various compliance instruments like emission allowances and offset proved that there is a good commercial opportunities in emissions trading.

How should power generators procure data from their power plants?

Reply by Massimiliano Varruciu, EDF Trading

The actual process of collecting data within a power plant may vary from company to company. Usually the required data is known to the plant operators who are aware of the type, the quality, and the quantity of fuel being used.
How does an emissions trading scheme account from the emissions fluctuations while determining the baseline emissions? What happens if in one of the years the emissions of an entities fall considerably? How will it impact the baseline emissions?

Reply by Massimiliano Varruciu, EDF Trading

If the emissions fall significantly during a particular year that would mean that the company is already below the emissions reduction target. However, once the benchmarks are set it is difficult to change them especially for large installations. Therefore, it is essential that companies actively engage with the regulatory bodies during consultation.

Energy efficiency measures provide long-term mitigation solutions but require substantial capital investment while purchasing offsets is a short-term solution but cost-effective and simple. Which approach is the best according to you?

Reply by Francisco Grajales, Vattenfall

The best approach among these will depend on the abatement cost curves developed by the company. A company will develop its own abatement cost estimates or rely on an external consultancy to develop them. It is difficult to generalize a single approach for all companies.

As far as Vattenfall is concerned, we are a compliance entity so we face low risk compared to other entities that try to monetize emission allowances. For us the priority is to minimize the cost of compliance at the point of sale of electricity. It is very important for power generating companies to hedge their sales and offset risk from carbon price fluctuations.

Till what extent are the companies under the EU ETS allowed to use offsets to meet their obligations?

Reply by Francisco Grajales, Vattenfall

The limit on use of offsets depends on the EU ETS regulations. These regulations provide each country the right to decide the maximum limit on the use of offsets. Due to the significant difference in the price of emission allowances and offsets, the companies tend to use offsets to the maximum allowable limit. Due to these limits, the demand for CERs in EU ETS is fixed. Most of the compliance entities have almost exhausted their CER usage limits. As we move closer to 2020 the demand for CERs would continue to fall.

During the third phase of the EU ETS a huge surplus of emissions allowances exists, will the government come forward and purchase them?

Reply by Francisco Grajales, Vattenfall

Most of the European countries have seen significant decline in their greenhouse gas emissions due to the economic slowdown. As a result, they are neither inclined to or in a position to procure additional emission allowances. In the absence of regulatory certainty regarding the new climate change treaty the companies are also unlikely to procure any additional emission allowances even when they are at all-time lows.
What has been the impact of EU ETS on the energy mix of your company?

Reply by Francisco Grajales, Vattenfall

Power generating companies are significantly impacted by market-based mechanisms. Energy companies cannot plan for few years, they need to plan for decades as the life of a power plant spans 20 to 30 years.

When the EU ETS was announced we had a strategy to reduce our emission factor. The implementation of EU ETS has had a positive impact on the renewable energy sector. The power production of Vattenfall has increased since implementation of EU ETS while the emission intensity has fallen considerably due to the increased use of renewable energy.

We had decided to increase the share of renewable energy in our generation mix with EU ETS in mind. Was this a wise decision? It is hard to say now as the carbon price has fallen to all-time low.

Is procuring spot compliance instruments the best strategy to keep the compliance cost low?

Reply by Francisco Grajales, Vattenfall

The most liquid products in a carbon trading market are futures and spot instruments. Derivatives are not very liquid and EU ETS being a volatile market, options are quite expensive.

In China, each city and province will have different regulations and may not allow trading in all the instruments as a result it is difficult to generalize a single strategy. If there is significant difference between the price of allowances and offsets, like there is in EU ETS, the companies would opt for offsets to meet compliance.

How did the Australia government determine the carbon price of A$23 per tonne?

Reply by Peter Castellas, Carbon Market Institute

The Labour-Greens government used three mechanisms to determine the carbon price. First, the international carbon prices were considered. This international prices were studied when they were still high, about two to three years ago. Second, the Australian federal treasury carried out modeling to determine the abatement cost through domestic and international instruments. Third, during the consultation with the political parties and the industry a price ranging between A$6-8 and A$40. So a middle path, with price around A$20, was agreed upon.

What did the Australian government do with the carbon tax revenues raised during the first year of implementation?

Reply by Peter Castellas, Carbon Market Institute

Most of the revenue raised was recycled to the federal budget to provide compensation to the household for the expected increase in power and energy prices.
You mentioned that your study showed that there were some important issues related to verification that need to be addressed in the Guangdong pilot scheme. Will the Shanghai pilot face the same issues or can we proceed with the verification work?

Reply by Jean Chen, LRQA

Yes, I think we do not need a lot of work, but a very long process, capacity-building needs a very long process, it is very much related to the competent authorities of our government. I believe that many companies now are in a wait and see stage, they are not very much eager to participate in the carbon emissions trading system, because what they think is that it is a regulatory obligation. But in the future we need to mentally get ready for it, it is not a half year or a year’s, it may be two years or five years, it will reach such a perfect level in a day.

Have you done any analysis about how much time it would take to complete the verification process of a project that generates Chinese CERs (CCERs)?

Reply by Jean Chen, LRQA

LRQA’s top management is ready to apply to the NDRC for recognition as a DOE for Chinese projects. The CCER project approval should take similar time to complete all regulatory procedures as the projects under the Clean Development Mechanism (CDM). Regarding verification of CDM projects, a DOE requires about three months to complete all procedures and submit the reports to the concerned body.

LRQA is hopeful that the Chinese authorities would be ensure enough flexibility in the regulations to allow foreign entities like ours to offer services to the companies in the carbon management and energy efficiency sectors.

Is the futures trading of carbon instruments similar to the futures trading of non-carbon futures trading practiced in China?

Reply by Tony Gai, PetroChina International

Yes, the futures trading in carbon instrument is similar to what is being practiced in China for other commodities. As shown in the demonstration, I purchased instruments with December futures contract. If I do not sell these instruments until the due date, I’ll pay the quoted price.

Reply by Jeff Huang, InterContinental Exchange

One clarification, you can purchase the futures contract and sell it on the same day.

Once I have purchased the instruments, can I immediately list them for sale?

Reply by Tony Gai, PetroChina International

Yes you can. You can quote a price and your offer will be listed in the interface. If anyone is interested in your offer, he could purchase your instruments.
You explained the fundamental and technical aspects related to various instruments. What trading strategy do you employ most frequently?

*Reply by Tony Gai, PetroChina International*

I think the trading strategies are somewhat related to the specific trader; there are different kind of traders, if I take myself as an example, I would make a deal with the combination of two aspects to make the judgment. There is a kind of trader, who never considers the fundamentals aspect for the transactions, he can do the transaction only according to the technical aspect; on the contrary there is a trader who trades according to the fundamental aspect but without considering technical aspect.

*You demonstrated purchasing a contract with delivery date in December 2013. Are there other options available as well?*

*Reply by Tony Gai, PetroChina International*

Yes, the InterContinental Exchange provides a number of options. Delivery dates of future contracts extend up to December 2020 so the trader can purchase or sell whichever contract he desires.

*Is there a simulation software available to practice trading?*

*Reply by Tony Gai, PetroChina International*

You can track the market data and information in an excel sheet. You will have access to the end of day prices and volume. You can register your gain or loss at the end of the trading session by comparing with the actual market data. So a dedicated simulation software is not required, a simple excel sheet would do.

*How can an offset project developer directly offer the CERs in the secondary market?*

*Reply by Tony Gai, PetroChina International*

The project developer would know how many offsets he can generate from his project every year. So he can place a selling futures contract for that quantity with a delivery date of, say, December 2015. But the developer must ensure that he has the said number of CERs on the delivery date.

*What kind of standards does your company practice while trading instruments?*

*Reply by Tony Gai, PetroChina International*

It would not be wise to share the company’s trading strategies at this public forum. Generally, the traders are given an authorization and they complete their transaction within that authorization. A risk control team monitors their transactions.
STAKEHOLDERS INTERVIEWS

Chuneli Zhang, Shanghai Caojing Power Generation Co. Ltd.

Question: Mr Zhang please give us an insight to the business of your company?

Answer: Shanghai Caojing Power Generation Co. Ltd. is a power generation company with two projects of 100 MW each. The company was established in 2010 and our power plants are equipped with state-of-the-art technologies. Since we started the operations we have implemented a number of energy saving measures. The National Development and Reform Commission (NDRC) has given us a target to reduce our energy consumption by 60,000 tonnes of coal equivalent by the end of this year. We have already reduced our energy consumption by 80,000 tonnes of coal equivalent.

Question: How did you reduce the energy consumption by 80,000 tonnes of coal equivalent?

Answer: We implemented a number of initiatives in our power plants. These include boiler flue gas heat exchanger and transformation of the super heater.

Question: What has been your experience with regards to this workshop organized for helping the participants of the Shanghai pilot ETS?

Answer: The workshop has been good. The agenda of discussion is very comprehensive covering emissions monitoring plan, allowance issuance, carbon trading and many other issues. The concept of the emissions trading is new to us, thus, such workshops provide valuable information regarding carbon markets.

Mengfan Xu, Fuyao Group (Shanghai) Automotive Engineering Glass Limited

Question: Can you please introduce your company?

Answer: Fuyao Group Shanghai Glass Co., Ltd is specialized in the production of automotive glass for Shanghai Volkswagen, Shanghai GM, Shanghai Automotive, and U.S General Motors. Our annual sales is around 2 billion yuan.

Question: As one of the compliance entities under the Shanghai pilot ETS, what strategies is your company likely to employ to meet the obligation?

Answer: My company attaches great importance to the emissions trading scheme as we believe that it is essential to reduce greenhouse gas emissions to ensure long-term environmental sustainability. My company’s top management is in close contact with all the employees and is actively working towards meeting the obligations.
Question: Is there any specific action that your company has taken to reduce greenhouse gas emissions?

Answer: My company has taken a number of energy efficiency measures since 2007. We realize that through energy conservation and reducing energy consumption we can significantly reduce the production costs and thus increase output.

Question: Can you share your thoughts about this dialogue?

Answer: The international experts have shared some very valuable insights into the carbon markets in the EU, Australia, and the US. The Shanghai market is still in its nascent stage and covers only about 200 companies so the future of the market squarely depends on the policies implemented by the government.

Daniele Agostini, Enel

Question: Can you please tell us about your company?

Answer: We are a global entity. We operate in over 20 countries in Europe, North America, and China. We are following the carbon markets and we source emission allowances for our own compliance as well as for the secondary market. We are a large utility diversified globally as well as across value chain from generation, distribution and compliance. We also provide clean energy solutions to our customers as well.

Question: What suggestions would you give to Chinese companies as they prepare for the pilot ETS?

Answer: It would be a challenge for the Chinese companies but they need to be determined. We also faced several hurdles in the early days of EU ETS but we overcame them. There are three key aspects the companies need to address.

Value at stake: The companies should determine the impact of the compliance on the cost of production; the value that can be derived from through carbon asset management; and the various opportunities in the energy efficiency, renewable energy and carbon trading sectors on offer.

Irreversibility: After determining the impact and opportunities the management should be convinced that the regulatory action in greenhouse emissions is not reversible and that they should take measures to be a part of it to make full use of the opportunities while addressing the obligations.

Integration: The compliance division should be well integrated with the core management team of the company. It should communicate with the regulatory people who talk to the government and policy makers and the long-term planning people who take decisions on the operations and energy mix.
Question: What do you think about the industry-to-industry dialogues organized by the IETA under the B-PMR mission?

Answer: The dialogue has been very successful and has attracted great response from the Chinese companies. It provides the companies with an important opportunity to understand the carbon markets. While they may see the pilot ETS as a threat but other companies have gone through the process and made full use of the opportunities. We have been able to enhance our businesses and have even expanded into new sectors under the EU ETS. We continue to be strong supporters of the IETA B-PMR mission.

Helen Jia, CITIC Group

Question: Can you please introduce yourself?

Answer: My name is Helen Jia. I work for CITIC Carbon Management which is a part of the CITIC Group.

Question: What is your role in the CITIC Group?

Answer: CITIC group focuses on low-carbon development and provides services to other companies in energy efficiency and sustainability development sectors.

Question: What are the challenges faced by the Shanghai pilot ETS?

Answer: The main challenge is to get all the infrastructure in place and make sure that large companies and financial institutions actively participate in the transactions. Monitoring emissions and transactions across the ETS is also a major challenge. I would say that while the Shanghai DRC is making efforts to successfully implement the pilot ETS there are some gaps.

Question: Are conferences like this IETA industry-to-industry dialogue helpful?

Answer: I would say such conferences are very useful and helpful. Regulatory bodies like Shanghai DRC can provide basic information about the ETS but the companies can learn a lot from the compliance strategies adopted by their peers in other carbon markets.
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.

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).

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.
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.

Zhuli Hess

Zhuli Hess is the China Director for the Verified 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.

Will Ferretti

Will brings more than two decades of senior executive experience to his position as the Chief Operating and Financial Officer for VCS. In this capacity, he oversees daily operations for the organization and the management of its finances. He holds a PhD in Resource Economics from the State University of New York’s College of Environmental Science and Forestry and Syracuse University. Prior to joining VCS, Will served as a Vice President of the Chicago Climate Exchange, representing it in Washington, D.C. advocating on behalf of market-based solutions to climate change.
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.

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.

He is a Vice-Chairman of the BUSINESSEUROPE Industrial Affairs Committee and a member of the Board of the International Emissions Trading Association.
Peter Castellas

Peter Castellas is the CEO of the Carbon Market Institute. Peter leads CMI in its important role in catalysing and driving the growth of the Australian carbon market including CMI’s approach to the development of market leading research reports and business guides, the development of training and education initiatives, running national events and industry working groups and servicing a national membership base of carbon market participants.

Throughout Peter’s 20-year career, he has worked at the leading edge of the sustainable development agenda and has advised leading corporations, governments and financial institutions.

Prior to joining CMI, Peter headed up the Deloitte Touche Tohmatsu team that provided specialist advice in the areas of carbon advisory, sustainability and clean technology to national and international clients and government agencies. Peter also ran Cleantech Australasia for five years and designed and ran successful clean technology finance and investment initiatives in Australia, India and China.

Peter has held prior roles as the Fund Manager of the Sustainable Melbourne Fund, Sustainability Advisor for the Commonwealth Bank of Australia and Head of International Business Development for Melbourne University Private, School of Energy and Environment. He is a regular presenter at national and international conferences.

Li Xing

Li Xing works as an Emissions Originator at BP Energy Asia based at Singapore and is responsible for the development of BP’s emissions business development in China. Between 2009 and 2012 Li worked as the Senior Vice President at Mercuria Energy Trading (Beijing) Co., Limited and was also responsible for Mercuria’s emissions trading business in Asia. Li has also served as a Vice President (Global Markets) at Deutsche Bank China Co., Limited. Li served as Director, Guangzhou Municipal Board for International Investment between 2003 and 2006.

Charlie Cao

Charlie is the Lead China Energy Commodities Analyst of Bloomberg New Energy Finance. He is responsible for conducting research and analysis on power, gas and carbon markets in China with a focus on modeling the long-term market fundamentals and forecasting the pricing dynamics. Prior to BNEF, he worked at KMPG Industrial Group on a wide range of transactions for power utilities and energy companies.

Charlie has a double degree in Economics and Law from Beijing Normal University, during which he studied at Korea University with a major in East Asia business studies.
Francisco Grajales

Francisco Grajales has over nine years of experience in the fields of renewable energy and carbon markets. Currently he is regional manager for the procurement of CERs for Vattenfall. In addition, he is also responsible for strategic planning of procurement activities and provides advice on the future of the carbon markets. Before joining Vattenfall, Francisco was assistant fund manager for the Clean Tech Fund at Econergy, where he supported the identification and development of clean technology and CDM projects for investment. Prior to Econergy, Francisco worked in the Latin America (LA) Environmental Department of the World Bank in Washington, DC. Previous to that, Francisco worked as a climate change and emissions trading analyst for a Finnish energy company, Fortum.

Francisco is a Mexican national holding a MSc in Environmental Engineering and Sustainable Infrastructure from the Royal Institute of Technology in Sweden and a BSc in Industrial Engineering from Universidad Iberoamericana in Mexico. In addition to Mexico, the USA, Germany and currently the Netherlands, Mr. Grajales has also lived or worked in Argentina, Belgium, Bolivia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Finland, Guyana, Panama, Poland, Sweden, Vietnam and Uruguay. Fluent in Spanish, English and French, he has good knowledge of German and Swedish.

Jeff Huang

Jeff Huang is Managing Director for Greater China at IntercontinentalExchange (NYSE: ICE). Jeff has over ten years of experience in cross-border mergers and acquisitions and derivatives business, involving exchanges, futures commission merchants, and financial software technology. Jeff co-authored Technical Reports for China Securities Regulatory Commission on futures markets development. Jeff is also an Adjunct Professor at China Agriculture University (MBA – Futures and Derivatives Major) and Beijing Normal University. Jeff spoke and lectured at Council on Foreign Relations in New York, the Woodrow Wilson Center, University of Chicago, Johns Hopkins University, New York University, Peking University, and Tsinghua University on domestic carbon market and derivatives market developments. Jeff is formerly a columnist at FT Chinese and 21st Century Business Herald. Jeff graduated from Beijing Foreign Affairs College under the Ministry of Foreign Affairs (Master degree).

Tony Gai

Tony has been trading carbon for PetroChina International in the London office since the beginning of 2011. His responsibility almost covers the entire carbon trading spectrum, which includes optimising PetroChina’s compliance position in the EU-ETS, originating CER from CDM projects in developing countries, and taking proprietary positions in the EU ETS’ exchange and OTC market. He also executed China’s first allowance trade (at Shenzhen) and first CCER trades (at Beijing) for PetroChina.
James Liu

James Liu works as Manager CDM China at Statkraft. Statkraft is the largest renewable energy producer in Europe and is active across 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).

As Manager CDM China, James is responsible for both Statkraft’s Chinese CDM activities as well as businesses related to the various regional carbon schemes throughout China. James holds a master degree in both finance and Chinese economy and has worked on green energy and environmental markets related to China since 2010. Before joining Statkraft, James worked at Q-Cells focusing on the solar PV markets in Greater China.

Jean Chen

Working with LRQA since June 2005, Jean Chen has devoted herself to development and implementation of key sales strategy and communications related to a range of services as CDM, WCD, ISO14064, Pilots ETS, etc. Over the past one year Jean Chen has been managing business development on Climate Change & Sustainability in LRQA China, especially for the new and existing services for Chinese domestic schemes and other national and international voluntary schemes, as well as the product procedure and process development, marketing and sales and service delivery.

Harold van Kooten

Working at Baker & McKenzie, Harold van Kooten focuses on advising the energy sector on legal issues concerning the development and operations of renewable energy projects, climate-change initiatives and environmental compliance across Greater China.
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Princeton Peng</td>
<td>Climate Bridge</td>
</tr>
<tr>
<td>2</td>
<td>Meng Zhang</td>
<td>Shanghai BASF Polyurethene</td>
</tr>
<tr>
<td>3</td>
<td>Aihui DING</td>
<td>Shanghai BASF Polyurethene</td>
</tr>
<tr>
<td>4</td>
<td>Jack Yeah</td>
<td>Chuang Loong Paper Holding Limited</td>
</tr>
<tr>
<td>5</td>
<td>Roger Zhang</td>
<td>Enel</td>
</tr>
<tr>
<td>7</td>
<td>Shuming Wu</td>
<td>Shanghai SECCO Petrochemical</td>
</tr>
<tr>
<td>8</td>
<td>Kathy Song</td>
<td>Bayer Material Science</td>
</tr>
<tr>
<td>9</td>
<td>Isel Long</td>
<td>Bayer Material Science</td>
</tr>
<tr>
<td>10</td>
<td>Yang Li</td>
<td>Chinaoil Shanghai International Trading</td>
</tr>
<tr>
<td>11</td>
<td>Tian Chen</td>
<td>Shanghai Haorun Environment Protection Development</td>
</tr>
<tr>
<td>12</td>
<td>Jingyu Hu</td>
<td>Shanghai Yaopi Construction Glass</td>
</tr>
<tr>
<td>13</td>
<td>Yuwei Kan</td>
<td>Air LIQUIDE China</td>
</tr>
<tr>
<td>14</td>
<td>Chaoyi Fan</td>
<td>Marukyu Shanghai Environment Co., Ltd.</td>
</tr>
<tr>
<td>15</td>
<td>Grace Lv</td>
<td>LRQA</td>
</tr>
<tr>
<td>16</td>
<td>Aiju Li</td>
<td>Baosteel</td>
</tr>
<tr>
<td>17</td>
<td>Yan Ma</td>
<td>Shanghai Center for Energy Saving and Emission Reduction</td>
</tr>
<tr>
<td>18</td>
<td>Xin Liu</td>
<td>Shanghai Treasure Carbon New Energy Environment Protection Technology</td>
</tr>
<tr>
<td>19</td>
<td>Helen Jia</td>
<td>CITIC Group</td>
</tr>
<tr>
<td>20</td>
<td>Chunlei Zhang</td>
<td>Shanghai Caojing Power Generation</td>
</tr>
<tr>
<td>21</td>
<td>Mengfan Xu</td>
<td>Fuyao Group (Shanghai) Automotive Engineering Glass</td>
</tr>
<tr>
<td>22</td>
<td>Jun Huang</td>
<td>Shanghai Caojing Thermoelectricity</td>
</tr>
<tr>
<td>23</td>
<td>Hongqing Ding</td>
<td>Shanghai Highly Foundry</td>
</tr>
<tr>
<td>24</td>
<td>Jianqiang Chen</td>
<td>Yingweida Synthetic Fibers (Shanghai)</td>
</tr>
<tr>
<td>25</td>
<td>Lingyun Hou</td>
<td>Yingweida Fiber (Shanghai)</td>
</tr>
<tr>
<td>26</td>
<td>Wei Fang</td>
<td>Shanghai Nikko Copper</td>
</tr>
<tr>
<td>27</td>
<td>Mr Lu</td>
<td>Sapa Heat Transfer (Shanghai)</td>
</tr>
<tr>
<td>28</td>
<td>Guangming Zhu</td>
<td>Shanghai Yaopi Automotive Glass Bridge</td>
</tr>
<tr>
<td>29</td>
<td>Ruan Hang</td>
<td>Shanghai Environment and Energy Exchange</td>
</tr>
<tr>
<td>30</td>
<td>Jin Li</td>
<td>Shanghai Environment and Energy Exchange</td>
</tr>
</tbody>
</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 Forums 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.