MRV PRACTICE IN CHINA
TANG JIN
SINO-CARBON, LTD

PMR PARTNERSHIP ASSEMBLY MEETING
MEXICO CITY, MEXICO
MARCH 5, 2014
Overview

- Part I. ETS Pilots Overview
- Part II. Detailed MRV Requirements
Part I. ETS Pilots Overview

1. Introduction to pilot cities/provinces
2. Coverage
3. Allocation of allowance
4. Trading status
1. 1 Introduction to pilots

Chongqing
Population: 29.5 m
GDP: 1.15 trillion

Beijing
Population: 19.6 m
GDP: 1.78 trillion
Emission: 125 mt

Tianjin
Population: 14.1 m
GDP: 1.29 trillion
Emission: 127 mt

Hubei
Population: 19.6 m
GDP: 1.78 trillion
Emission: 125 mt

Shanghai
Population: 23.8 m
GDP: 2 trillion
Emission: 217 mt

Shenzhen
Population: 10.5 m
GDP: 1.30 trillion

Guangdong
Population: 105.9 m
GDP: 5.7 trillion
1.2 Coverage

<table>
<thead>
<tr>
<th>Pilots</th>
<th>Number of controlled entity</th>
<th>Percentage of covered emission, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>490</td>
<td>49</td>
</tr>
<tr>
<td>Tianjin</td>
<td>114</td>
<td>60</td>
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<tr>
<td>Shanghai</td>
<td>191</td>
<td>57</td>
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<tr>
<td>Guangdong</td>
<td>242</td>
<td>50</td>
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<tr>
<td>Hubei</td>
<td>153</td>
<td>35</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>635+197</td>
<td>54</td>
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</table>
## 1.3. Allocation of allowance

<table>
<thead>
<tr>
<th>Pilots</th>
<th>Grandfathering</th>
<th>Historic intensity</th>
<th>Benchmarking</th>
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<tbody>
<tr>
<td>Beijing</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Shanghai</td>
<td>✔</td>
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<td>✔</td>
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<tr>
<td>Tianjin</td>
<td>✔</td>
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<tr>
<td>Shenzhen</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>Guangdong</td>
<td>✔</td>
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<td>✔</td>
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</tbody>
</table>
4. Trading status

**Shenzhen**
- Price (RMB/t)
- Volume (t)

**Shanghai**
- Price (RMB/t)
- Volume (t)

**Beijing**
- Price (RMB/t)
- Volume (t)

**Tianjin**
- Price (RMB/t)
- Volume (t)
Part II. Detailed MRV Requirements

1. Covered sectors
2. Boundary
3. Methodology
4. Monitoring plan
5. Quality assurance and control
6. Verification institution
7. Verification requirement and process
8. Penalty for non-compliance
## 2.1. Covered sectors and threshold

<table>
<thead>
<tr>
<th>National</th>
<th>Beijing</th>
<th>Tianjin</th>
<th>Shanghai</th>
<th>Shenzhen</th>
<th>Guangdong</th>
<th>Hubei</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
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<td>Power</td>
<td>Power</td>
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<tr>
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<td></td>
<td>Refinery</td>
<td>Cement</td>
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<tr>
<td>Non-ferrous metal</td>
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<td>Non-ferrous metal</td>
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<td>Non-ferrous metal</td>
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<tr>
<td>Aviation</td>
<td>Other sectors</td>
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<td>Other sectors</td>
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<td>Other sectors</td>
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</tr>
</tbody>
</table>
2.1. Cover sectors and threshold

<table>
<thead>
<tr>
<th>Pilots</th>
<th>ETS</th>
<th>Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>10,000 tCO2 / 5,000 tce consumption</td>
<td>5,000 tCO2 / 2,000 tce</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>5,000 tCO2 / 20,000 sqm (Building)</td>
<td>3,000 tCO2</td>
</tr>
<tr>
<td>Shanghai</td>
<td>20,000 tCO2 (industry) / 10,000 tCO2 (other)</td>
<td>5,000 tce consumption</td>
</tr>
<tr>
<td>Guangdong</td>
<td>20,000 tCO2</td>
<td>10,000 tCO2</td>
</tr>
<tr>
<td>Chongqing</td>
<td>20,000 tCO2</td>
<td>20,000 tCO2</td>
</tr>
<tr>
<td>Tianjin</td>
<td>20,000 tCO2</td>
<td>20,000 tCO2</td>
</tr>
<tr>
<td>Hubei</td>
<td>60,000 tce consumption</td>
<td>8,000 tce consumption</td>
</tr>
</tbody>
</table>
2.2. Boundary

- Guangdong & Shenzhen: Organizational and operational boundary
- Other pilots: legal person

<table>
<thead>
<tr>
<th>Emission source:</th>
<th>Direct emission</th>
<th>Common</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion</td>
<td>All</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td>All</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste treatment</td>
<td></td>
<td></td>
<td>National, TJ, SH, SZ, HB</td>
</tr>
<tr>
<td>Mobile source</td>
<td></td>
<td></td>
<td>BJ, GD</td>
</tr>
<tr>
<td>Indirect emission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>All</td>
<td></td>
<td>BJ</td>
</tr>
<tr>
<td>Heat</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.3. Methodology

Calculation-based
- All pilots
- National MRG

Measurement-based
- Beijing, Shanghai
- Guangdong, Shenzhen
### General requirement

<table>
<thead>
<tr>
<th>Activity data</th>
<th>Emission factor</th>
<th>Indirect emission data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derived from energy or material consumption account</td>
<td>Measure (mandatory for some sector)</td>
<td>Activity data: Invoice/receipt</td>
</tr>
<tr>
<td></td>
<td>Default</td>
<td>Emission factor: default</td>
</tr>
</tbody>
</table>

### Tier approach (Shenzhen)

- Similar to the EU ETS
- Set out data tiers
- Prioritize higher level
- Provide reasons to apply lower level
2.4. Monitoring plan

 Adopted by:

• Tianjin; Shanghai; Guangdong; Hubei

Main content:

• general information
• methodology choice
• parameters monitoring frequency and method
• Other issues (uncertainty, data management, etc.)
5. Quality assurance and control

Core measures:
- Data management system
- Dedicated personnel/department

By all pilots

Supplemented measures:
- Trainings
- Uncertainty analysis
- Internal review

By some pilots
2.6. Verification Institutes

- Verified by:
  - Third Party Verifiers

- Funded by:
  - DRC

<table>
<thead>
<tr>
<th>Pilots</th>
<th>Number of verifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>15</td>
</tr>
<tr>
<td>Tianjin</td>
<td>4</td>
</tr>
<tr>
<td>Shanghai</td>
<td>10</td>
</tr>
<tr>
<td>Guangdong</td>
<td>5</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>18</td>
</tr>
</tbody>
</table>
2.7. Verification requirement & process

• Similar for all pilots

Preparation
- Contracting
- Set up verification team
- Verification plan

Implementation
- Document review
- Field visit

Reporting
- Report writing
- Internal review
- Submission
2.8. Penalty for non-compliance

Type 1 (all pilots)
• Emitters report fraudulent information, conceal information, refuse to report

Type 2 (except Beijing, Tianjin)
• obstruction to verification

Type 3 (except Beijing)
• verifiers provide fraudulent information or reveal confidential information
2.9. MRV challenges

Determining boundaries

1. Emission type (production/residential)
2. Merge, split, acquisition
3. Outsourcing
4. Overlapping operation

Development of methodology

1. Complex sector structure & production process
2. Technical issue of installation of CEMS
2.9. MRV challenges

Acquisition of parameters

1. Weighing of coal
2. Capability of measuring NCV, carbon content, oxidation factor
3. Calibration of meters

Evidence for cross check

1. Reporting period versus financial period
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