Carbon Market PROFILE 2013/04

Republic of Korea

Official name: National Emissions Trading Scheme

Date of launch: Scheduled for 01 Jan 2015

BMU Capacity Building Program: YES
Partnership for Market Readiness: No

1 General political, legal and administrative aspects

1.1 Legal status of the ETS

- The *Emission Trading Law* has been passed by National Assembly in May 2012, during the final plenary session of the 18th National Assembly.
- Date of launch of the ETS was originally planned for 1 January 2013 but has been postponed, due to resistance from industry, to 1 January 2015.
- Currently, the details of the ETS are under development and are going to be set under a *Fundamental ETS Plan* to be released in the near future.

1.2 Administration

Ministry of Environment (MoE)\(^1\) - responsible supervisor/coordinator of the ETS (TMS)

Administrative Structures under the TMS – numerous competent authorities

Source: GIR, Presentation of Dr. Seung Jick Yoo (President GIR), June 2012

1.3 Political embedding of the ETS

- Low Carbon Green Growth has been announced as a new national paradigm, enacted under *Framework Act on low Carbon, Green Growth* (04/10)
- ETS as one aspect of the national strategy along with capacity building, taxation, *the Smart Grid Act* (11/2011) and *Green Building Act* (02/12)
- A *GHG/Energy Target Management System (TMS)* has been introduced in 2011, serving as a preparative scheme for the obligatory ETS for covered entities.\(^2\)

1.4 Cross-link to the national GHG-inventory

- Currently, data collected under the TMS is used to compile the national inventory.

---

\(^1\) Contact: Mr. Jae-wung Yun; Greenhouse Gas Management Team; rocklee@korea.kr; p: +82-44-201-6957

\(^2\) By Notification No. 2011-29 of the Ministry of Environment
2 General ETS/TMS data

2.1 Covered GHGs under the ETS/TMS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂</td>
<td>CH₄</td>
<td>N₂O</td>
</tr>
<tr>
<td>SF₆</td>
<td>HFC</td>
<td>PFC</td>
</tr>
</tbody>
</table>

2.2 Covered sectors under ETS/TMS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Generation (ETS+TMS)</td>
<td>Manufacturing/Industry (ETS+TMS)</td>
</tr>
<tr>
<td>Transportation, Aviation &amp; Building (TMS)</td>
<td>Agriculture and Fisheries (TMS)</td>
</tr>
<tr>
<td>Land Sector (TMS)</td>
<td>Waste (TMS)</td>
</tr>
</tbody>
</table>

2.3 Covered installations under the ETS

- About 500 entities (approx. 1,500 installations) are covered by the TMS (2010).
- The thresholds for coverage under the ETS are most likely going to be same as under the TMS in 2010/2011:
  - On installation level > 25,000 tCO₂e/a
  - On entity level > 125,000 tCO₂e/a
- Installations between 15,000-25,000 tCO₂e/a remain under TMS³, although a voluntary opt-in is possible. In current ETS architecture, transportation, agriculture and land sector emissions are excluded (but included in the TMS).

2.4 Coverage of GHGs by TMS

- **Absolute:** ca. 400 MtCO₂e
- **Percentage:** ca. 60% of total CO₂e emissions

2.5 Covered emissions under TMS

- **Direct:** Yes
- **Indirect:** Yes (electricity and heating steam usage)

In order to address potential double counting upstream and downstream in the context of direct and indirect emissions, it is discussed to oblige both, energy suppliers and end users to surrender emission units in accordance to the respective direct and indirect emissions from energy production/consumption.

2.6 Emission reduction target

The *Presidential Enforcement Decree of the Framework Act on Low Carbon, Green Growth* (2010) sets the unconditional target of overall GHG reduction up to -30% by 2020 compared to the business-as-usual scenario for that year.

- **2.6.1 Cap:** Emission cap to be defined (scheduled for 2014).
- **2.6.2 Stringency (relative to EU-ETS):** n.a.

---

³ State and Trends of the Carbon Market 2012, Carbon Finance (World Bank)
3 MRV/Compliance cycle under TMS

3.1 Status
Until December 2013 Korea will finalise MRV guidelines. Currently, there is no translation of the draft-MRV guidelines, setting the monitoring provisions under the ETS. Thus, in the following, the provisions established under the TMS in March 2011, which constitutes the first mandatory reporting scheme in Korea, will be outlined in brief. However, this regulation was revised twice in the last 2 years and will serve as basis for the MRV process under the ETS.

3.2 “Compliance” Cycle under the TMS

3.3 Monitoring methodology
- The controlled entity shall calculate and report the emissions by categorizing the type into direct and indirect emissions and report the emission by corporation level, business site level, emission facility level and activity level.
- A TIER system, which is comparable to the system under the EU-ETS, has been established, allowing both, calculation and direct measurement approaches.
- In parallel, a classification of installations has been set, which is almost similar to the categories (A-C, “installations with low emissions” is not defined) under the EU-ETS, defining the respective monitoring requirements:
  - **Group A**: < 50,000 tCO₂e/a
  - **Group B**: > 50,000 tCO₂e/a, and < 500,000 tCO₂e/a
  - **Group C**: > 500,000 tCO₂e/a

- Exemplarily, the defined TIER requirements stationary combustion facilities are:

<table>
<thead>
<tr>
<th>Emission Activity</th>
<th>Calculation Method</th>
<th>Activity data</th>
<th>Emission factor</th>
<th>Oxidation factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Facility Size</td>
<td></td>
<td>Fuel consumption</td>
<td>Net Calorific value</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>I. Stationary combustion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>① Solid Fuel</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>② Gaseous Fuel</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>③ Liquid Fuel</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
3.3.1 Requirements on calculation/measurements

- Basically, for all activities covered by the TMS, detailed calculation methods, outlining the requirements under all TIERs, are defined by the regulation.
- For stationary combustion facilities, the TIER requirements to determine the respective parameters (Emission Factor [EF], Net Calorific Value [NCV]) of source streams are the following:
  - **TIER 1** – Use IPCC default EF and IPCC default NCV as outlined in Appendix 18 of the regulation.
  - **TIER 2** – National EF and NCV as defined in the regulation
  - **TIER 3** – Specific EF for the production site or each activity, which is developed by the operator and has to be approved by the MoE have to be used. Samples of material/fuel/etc. have to be taken by
    - Institutes that are certified according to ISO 17025
    - Facility laboratory in case of satisfying the requirements according to ISO 17025
    - A measuring agency in accordance with article 16, ‘Test and Verification in Environment Field Act’
  - **TIER 4** – Continuous Emission Monitoring (CEM)

- For determination of N₂O and CH₄ emissions from the combustion of solid fuels, TIER 1 – IPCC default values – may to be used.
- Specific TIER requirements for determination of the Oxidation Factor are defined.

3.3.2 Established uncertainty thresholds

- To determine activity data, the following uncertainty thresholds apply:
  - **TIER 1** – Consumption data where measurement uncertainty is < 7,5% measured by participant or fuel supplier
  - **TIER 2** – Consumption data where measurement uncertainty is < 5,0% measured by participant or fuel supplier
  - **TIER 3** – Consumption data where measurement uncertainty is < 2,5% measured by participant or fuel supplier
  - **TIER 4** – Use the CEM – requirements outlined in Appendix 22 (Regulation)

3.3.3 Special provisions for installations with low emissions (thresholds)

- Emission sites contributing less than 5% to the total emissions of an entity, in case the entity is above the 125,000tCO₂e threshold and the installation below the 25,000tCO₂e threshold, do not need to be included in the annual report but need to be reported in a specific small emission site performance form (Clause 68).
- However, currently, no special provisions for those installations are defined.

3.3.4 Special provisions for installations using biomass

- GHG emissions from combustion of biomass will be excluded from the total GHG emissions. However, it shall be included when calculating energy consumption.
- Regulation defines in detail, which fuel/material etc. is counted as biomass.

3.3.5 Quality Assurance

- The controlled entity may conduct quality control (QC) activities for data collection, emission calculation, uncertainty management, information storage, and emission report, to increase the accuracy of calculation.
• The controlled entity shall conduct quality assurance (QA) activities for emission calculation and report by maintaining continuous improvement of data quality as outlined in Appendix 22 of the regulation.

• QA means the planned system of review procedure conducted by personnel not directly involved in the emission calculation process (statement preparation, etc.).

3.3.6 Reporting Requirements

• Facilities have to compile an annual monitoring plan (Clause 54) including:
  - Organizational boundaries
  - List of facility emissions, activities and source streams
  - Contents of QA/QC related to calculation
  - Monitoring methodologies for each monitored activity
  - Explanation of compliance with requested TIERs and planned actions in case TIERs could not be met etc.
  - Alignment test result and maintenance report of CEMS, flow meter and other measuring devices related to emission calculation

• The Monitoring Plan is annually incorporated in the fulfilment plan and sent to as well as checked by the authority responsible for the respective sector. The authority checks whether the controlled entity’s fulfillment plan is properly devised. If the plan is poorly written, or in need of revision, the authorities can ask the controlled entity for a revised plan.

• Under the ETS an IT based register (GHG Information Registry) will be set and managed by the MOE to record allocation, trading, transfer of emission allowances.

3.4 Verification bodies

• The verification must be done based on objective data, evidence, and fact by relevant regulation, and it must be accurately recorded, while verification bodies shall request relevant data to be submitted electronically for verification.

• Verification body designates a verification team consisting of at least 2 verifiers, and assigns a team leader (responsible for verification report [Annex 12]). Verifying body shall request correction to the entity for errors that could influence the calculation of emission, or non-compliance matters (‘correction request’).

• The following matters shall be included in the verification report:
  - Verification summary and contents
  - Matters found in the verification and subsequent corrective actions
  - Final verification opinion and conclusion
  - Internal review process and outcome
  - Other verification-related matters

• Verification process is complemented by an internal review process, established by employees of the verified entity and a member of the verification body.

3.4.1 Accreditation system

No provisions on accreditation procedures are clarified at the moment. However, under TMS, those who desire to be designated as a verification body should submit an application (Annex 18 of the regulation) and documents to prove the conditions set in Annex 30 to the National Institute of Environmental Research (NIER). After confirmation, the MoE finally designates verification bodies.
3.4.2 Supervisory bodies

MoE serves as supervisory body

3.5 Sanctioning procedures under the ETS

A penalty of up to 3 times the market price of the allowance not surrendered additional to the surrendering of the missing allowance, with a maximum cap of 10 million Won (about 70 EUR) per allowance. Further details are going to be defined.

4 Linking activities

Korean Government considers a linking with other schemes for the future. Moreover, the Korea Legislation Research Institute and the Government of New Zealand have begun a joint study into whether both countries respective ETS can be linked. However, developments in the Asian regions are observed closely. Next steps towards 2015 are the finalization of the basic ETS plan by the end of 2013 and the preparation of the National Allocation Plan by June 2014.

5 Conclusion

MRV provisions under the TMS are highly comparable to the system under the EU-ETS. A more detailed analysis will show differences and potential obstacles for a future linking. However, the ETS is not finally established and the respective MRV system might deviate from the system briefly outlined above.

First years of operation will show whether the relatively small market will work properly (manipulation) and how a potentially inaccurate BAU forecasting, changing economic conditions or lack of accurate data will affect the market stability in the long term.

A linking with the South Korean market could be a “door opener” to other Asian systems in the future. Moreover, due to South Korea’s participation in BMU Capacity Building Program and ICAP (observer), a close cooperation could be established. According to Korean representative statements during the BMU ETS Conference in April 2012, South Korea will focus on operation of the domestic market at first. Linking activities are foreseen after having made first experience with the operation, expected for 2020. Asian ETS are most likely be targeted in this concern in a first step.

6 Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM</td>
<td>Continuous Emission Monitoring</td>
</tr>
<tr>
<td>CV</td>
<td>Calorific Value</td>
</tr>
<tr>
<td>EF</td>
<td>Emission Factor</td>
</tr>
<tr>
<td>EU-ETS</td>
<td>European Union Emissions Trading Scheme</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
</tr>
<tr>
<td>MOE</td>
<td>Ministry of Environment</td>
</tr>
<tr>
<td>BMU CB</td>
<td>BMU Capacity Building Program</td>
</tr>
<tr>
<td>MRV</td>
<td>Monitoring, Reporting, Verification</td>
</tr>
<tr>
<td>NIER</td>
<td>National Institute of Environmental Research</td>
</tr>
<tr>
<td>lCO₂e/a</td>
<td>Annual tonnes of CO₂ equivalent</td>
</tr>
<tr>
<td>TMS</td>
<td>GHG &amp; Energy Target Management System</td>
</tr>
<tr>
<td>QA/QC</td>
<td>Quality Assurance/ Quality Control</td>
</tr>
<tr>
<td>LNG</td>
<td>Liquified Natural Gas</td>
</tr>
<tr>
<td>PMR</td>
<td>Partnership for Market Readiness</td>
</tr>
</tbody>
</table>
7 Annex

MOE – Ministry of Environment
RM – Relevant Ministry
MKE – Ministry of Knowledge Economy
MLTM – Ministry of Land, Transport and Maritime Affairs
MIFAFF – Ministry for Food, Agriculture, Forestry and Fisheries
IR – Inventory Report
MP – Monitoring Plan
PR – Performance Report
GIR - Greenhouse Gas Inventory & Research Center