



Combining ETS and national MRV data management systems

Overview

- What is the value of ETS Data?
- Data Quality in an ETS and MRV?
- Data quality: ETS
- Data quality: National GHG Inventory
- How to use ETS data in a national GHG Inventory?
- Pros and cons
- Case study



What is the value of ETS Data?

- ETS data is used both as a market instrument and as an environmental regulation.
- Data quality from an ETS is of utmost importance due to its economic value, and also for its legal requirements.
- **1 ton =**



\$



CO₂e



Data Quality in an ETS and MRV?

- The principles of the EU-ETS system are: **Transparency, completeness, consistency, comparability, accuracy**, integrity of methodology, continuous improvement.
- The principles of data quality in a national GHG Inventory are **transparency, completeness, consistency, comparability**, and **accuracy**.
- These principles or indicators drive data quality in both ETS and MRV of emissions systems.



Data quality: ETS

- ETS data usually has to go through a thorough third party verification process which focuses on the measuring and reporting aspects.
- A validation/verification body (VV/B) has to be accredited by a national organization. For example, the United Kingdom Accreditation Service (UKAS) has an accreditation programme for VV/Bs who want to participate in the EU-ETS. Every certain period they also have to be assessed and surveilled to evaluate the competence and integrity of the VV/Bs. Usually compatible with international standards such as ISO 14065.
- ETS data is equal to an allowance of monetary value and also has to follow policies therefore uncertainty and materiality in GHG estimates have to aim to the lowest degrees possible.



Data quality: ETS

- The verification of GHG data is aimed to create trust in the data.
- Usually compatible with international standards such as ISO 14064-3
- ETS data is equal to an allowance of monetary value and also has to follow policies therefore uncertainty and materiality in GHG estimates have to aim to the lowest degrees possible.
- The role of a competent authority is to approve a monitoring plan, carry out inspections, ensure that verifiers are supervised, accept emission reports, ensures that allowances are surrendered and penalties paid, among others.

Source: <https://www.thepmr.org/system/files/documents/Preparing%20for%20an%20ETS%20-%20MRV%20Issues.pdf>



Data quality: National GHG Inventory

- A national GHG Inventory from annex I parties is subject to annual reviews by the United Nations Framework Convention on Climate Change (UNFCCC). For non-annex I parties, a national GHG inventory goes through a biennial analysis. Both the annual reviews and biennial analyses are carried out by a technical group of experts selected by the UNFCCC.
- This is seen as an important Quality Assurance (QA) mechanism to ensure that the national GHG inventory data is accurate, consistent, complete, comparable and transparent.



How to use ETS data in a national GHG Inventory?

- An ETS usually covers a specific group of categories that are aligned with the IPCC categories. For example, energy emissions including (1A) combustion emissions, and (2) IPPU emissions.
- According to the IPCC Technical Bulletin, corporate data can be used in the national GHG inventory in three ways:
 1. Using it directly in the national GHG inventory and replacing entire emission estimates
 2. Use it indirectly to either develop an accurate national emission factor, disaggregate national estimates to show more detail, etc.
 3. To compare the data from the GHGI and the ETS and validate results.

Source: http://www.ipcc-nggip.iges.or.jp/public/tb/TFI_Technical_Bulletin_1.pdf



Key questions to decide how to use facility level data in the GHGI

- Is the data based on measurements?
- Is additional information available to allow stratification (i.e., classes or categories)?
- Can the data be used to derive EFs or be used for QA/QC?
- Has clear guidance been developed on deciding how to use facility-level data?
- For combustion emissions: how does this data compare with national energy statistics?
- Is the sample size adequate compared with the number of facilities in the IPCC category?

Source: http://www.ipcc-nggip.iges.or.jp/public/tb/TFI_Technical_Bulletin_1.pdf



Key questions to decide how to use corporate/facility level data in the GHGI

- Has clear guidance been developed on deciding how to use facility-level data?
- Does the data provide a complete time series?
- If not, how will time series consistency be ensured?
- Is the data consistent?
- Does the data cover all facilities in an IPCC Category?
- How are recalculations dealt with?

Source: http://www.ipcc-nggip.iges.or.jp/public/tb/TFI_Technical_Bulletin_1.pdf



Specific Fuel Combustion Considerations

- For combustion emissions, compilers should consider how these facility-level data improve emission estimates. In particular:
 1. How do these data sets compare with national energy balance?
 2. Will using these data improve the national total or reallocate emissions between sub-categories? (e.g. where you have only part of a combustion category covered by facility-level data)

Source: http://www.ipcc-nggip.iges.or.jp/public/tb/TFI_Technical_Bulletin_1.pdf



Sample size

- Often the facility-level data do not cover all the facilities in an IPCC category.
- Perhaps only facility greater than a size threshold have to report, or maybe only larger facility have to produce measured emissions while smaller facility can report estimates based on emission factors. Compilers should:
 1. determine the sample size (data available for each category) compared to number of facilities in the category;
 2. consider the probability distribution for each category;
 3. a narrow range of measured emission rates implies that the emission rate can be extrapolated to the unmeasured facility with more accuracy;
 4. assess uncertainty and compare with the uncertainty of sectoral emission factor approaches.

Source: http://www.ipcc-nggip.iges.or.jp/public/tb/TFI_Technical_Bulletin_1.pdf



Other issues

- Time series issues
- Incomplete coverage
 - Reporting thresholds
 - Unknown facilities
 - Non-compliance
 - Incorrect reporting
 - Geographic incompleteness
 - Selection of methods

Source: http://www.ipcc-nggip.iges.or.jp/public/tb/TFI_Technical_Bulletin_1.pdf



Pros

- Pros
 - Improved accuracy of the national GHG Inventory
 - Integration of ETS and MRV
 - Improved consistency at a corporate/facility level data and at a national level
 - Access to high quality data
 - Reduces uncertainty
 - Enables to use bottom-up data, instead of focusing on a top-down data approach
 - Materiality reduces at a corporate/facility data due to the importance of the third-party verification process



Cons

- Cons
 - It is possible that not all data can be used in the national GHG inventory due to its high uncertainty or data availability.
 - It requires an in-depth analysis of the data to understand which categories can use ETS data.
 - Data discrepancies can occur, which will require the national GHG inventory agency to identify the reasons for this.



Case study: UK GHG inventory data

- The UK made an analysis of what was the impact of using ETS data in the national GHG inventory.
- Even though the GHG emissions did not suffer a significant increase in a variety of sectors, there was a significant improvement in the quality of the data underpinning the estimates of a variety of sectors such as iron and steel and petrochemical emissions.
- The UK GHG Inventory agency can now access a large dataset of recent fuel analysis data that have been derived using methods that are accredited to the required standards under EU ETS and are third-party verified.
- Uncertainty has been reduced by 30% in the iron and steel sector.

Source: https://uk-air.defra.gov.uk/assets/documents/reports/cat19/1405081135_GHG_Inventory_Research_Report_EUETS_final.pdf



Case Study: New Zealand

Data from the NZ ETS is used as input and for QC purposes for the national GHG inventory:

- ETS data related to forestry is used to update and improve the accuracy of their national land use map, which in turn is used as input to the national GHG inventory
- Used as dataset for comparison in certain energy and IPPU sectors, e.g. iron and steel
- Used as input in the form of GHG emissions in aluminium production and mineral industries
- Provides activity data for municipal solid waste collection



Thank you for your attention!

Any Questions?





On behalf of:



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