Guidance for reporting of ETS and ESD projections under the EU MMR

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1 Purpose of this document

This document presents a guidance for reporting of the projections covered by the EU Emissions Trading System (ETS) and Effort Sharing Decision (ESD)([1]) to be reported under the Monitoring Mechanism Regulation (MMR) (EU, 2013).

Under Article 14(1)(b) of the EU MMR Member State shall report, every two years, total greenhouse gas (GHG) projections as well as separate estimates for emissions covered under the EU ETS and under ESD. Once adopted, the Effort Sharing Regulation (ESR) will replace the ESD from 2021 onwards. This document refers only to 'ESD emissions' to refer to emissions in effort sharing sectors.

The MMR's Implementing Regulation (EU, 2014) sets out the format for this reporting in Annex XII, Table 1.

2 Reporting of ETS and ESD emissions

This section proposes a step-wise approach for the estimation of projected emissions under the ETS and the ESD.

2.1 Determining a 'reference year' for projections

Member States should identify the reference year used for their projections. This reference year is usually the latest year of reported (historical) emissions in the GHG inventory. The reference year is the starting point of the projections, consequently all tools which are used to calculate projections should be calibrated with the reference year in order to be in line with historical emissions[2].

When Member States report the reference year for their projections, they must ensure that total GHG emissions levels for this reference year are consistent between the projections dataset and the latest national GHG inventory. It is also necessary to ensure consistency with historical verified emissions under the EU ETS and ESD emissions. It has to be ensured that all tools underpinning reported projections have to be calibrated to the respective sectoral historical numbers for GHG emissions and ETS emissions in the reference year. In addition it has to be ensured that the sum of sectoral ETS and GHG emissions adds up to historical emissions at least in the reference year so that the projection starts with a consistent dataset.

It is strongly recommended that Member States use a reference year after 2012, in order to work on the basis of historic ETS emissions corresponding to the current scope of the EU ETS and ESD — which is assumed to remain stable in future years. Using a reference year before 2013 requires additional estimates of historic ETS emissions to reflect the current scope of the EU ETS and ESD. It would also require taking account of the inventory changes from applying the 2006 IPCC guideline methodologies, which has had significant effects for some sectors.

If Member States have selected a reference year which is before 2013, their ETS emissions have to be adjusted in order to reflect the current scope of the EU ETS (third trading period 2013–2020). This can be done by adding, to historic verified emissions, estimates to reflect the current scope of the EU ETS. These data are available from the EEA ETS data viewer and related documentation (EEA

[1] Emission sources covered by Directive 2003/87/EC and by Decision No 406/2009/EC

[2] For more information about the reference year check see the 'QA/QC procedures for national and Union GHG projections' http://acm.eionet.europa.eu/reports/docs/ETCACM_TP_2015_11_QA_PROC.pdf

2017a, 2017b). Correspondingly, these added ETS emissions need to be deducted from ESD emissions.

2.2 Identifying historical stationary ETS and ESD emissions in GHG inventory source categories to calculate the ETS/ESD split for the projections reference year

Under the MMR, Member State have to report for the year X-2, with their national GHG inventories, on the actual allocation of stationary ETS emissions to the source categories of the national greenhouse gas inventory, where possible, and the ratio of those verified emissions to the total reported greenhouse gas emissions in those source categories. See Article 7(1)(k) of the MMR, as well as Article 10 and Annex V of the MMR's Implementing Regulation (EU, 2014).

This information concerns the following sectors and gases:

Source category	**CO_2 emissions**	**N_2O emissions**	**PFC emissions**
1.A Fuel Combustion Activities	X		
• 1.A.1 Energy Industries	X		
○ 1.A.1.a Main Activity Electricity and Heat Production	X		
○ 1.A.1.b Petroleum Refining	X		
○ 1.A.1.c Manufacture of Solid Fuels and Other Energy Industries	X		
• 1.A.2 Manufacturing Industries and Construction	X		
○ 1.A.2.a Iron and Steel	X		
○ 1.A.2.b Non-Ferrous Metals	X		
○ 1.A.2.c Chemicals	X		
○ 1.A.2.d Pulp, Paper and Print	X		
○ 1.A.2.e Food Processing, Beverages and Tobacco	X		
○ 1.A.2.f Non-Metallic Minerals	X		
○ 1.A.2.g Transport Equipment	X		
• 1.A.3 Transport	X		
○ 1.A.3.e Other Transportation	X		
• 1.A.4 Other Sectors	X		
○ 1.A.4.a Commercial / Institutional	X		
○ 1.A.4.c Agriculture / Forestry / Fishing / Fish farms	X		
1.B Fugitive Emissions from Fuels	X		
1.C Carbon Dioxide Transport and Storage	X		
• 1.C.1	X		
• 1.C.2 Transport of CO_2	X		
• 1.C.3 Other	X		
2.A Mineral Industry	X		
• 2.A.1 Cement Production	X		
• 2.A.2 Lime Production	X		

Source category	CO_2 emissions	N_2O emissions	PFC emissions
• 2.A.3 Glass Production	X		
• 2.A.4 Other Process Uses of Carbonates	X		
2.B Chemical Industry	X	X	
• 2.B.1 Ammonia Production	X		
• 2.B.2 Nitric Acid Production		X	
• 2.B.3 Adipic Acid Production	X	X	
• 2.B.4 Caprolactam, Glyoxal and Glyoxylic Acid Production	X	X	
• 2.B.5 Carbide Production	X		
• 2.B.6 Titanium Dioxide Production	X		
• 2.B.7 Soda Ash Production	X		
• 2.B.8 Petrochemical and Carbon Black Production	X		
2.C Metal Industry	X		X
• 2.C.1 Iron and Steel Production	X		
• 2.C.2 Ferroalloys Production	X		
• 2.C.3 Aluminium Production	X		X
• 2.C.4 Magnesium Production	X		
• 2.C.5 Lead Production	X		
• 2.C.6 Zinc Production	X		
• 2.C.7 Other	X		

If Member States have chosen a reference year after 2012 it is recommended to calibrate ETS verified emissions for each of these subcategories and categories in their projections as reported in the table from Annex V of the MMR's Implementing Regulation (EU, 2014), for the reference year selected – as far as the level of detail reported in this table allows.

For some source categories ETS emissions are higher than inventory emissions e.g. due to recovered emissions from ammoniac production in source category 2B or due to uncertainties of sectoral disaggregation which is different between inventory and ETS sectors. It is recommended to check that ETS emissions are not higher than GHG projections in each sector apart from the sector of ammonia production (2.B.1). In this sector, recovered CO_2 emissions may result in higher ETS than GHG emissions, in parallel to inventory information.

ESD emissions by (sub-) sector are derived by subtracting ETS emissions from stationary installations, NF_3 emissions and CO_2 emissions from domestic aviation (1.A.3.a) from Total GHGs(CO_2 eq) in each sector.

CH_4 and N_2O emissions of domestic aviation are allocated to ESD emissions, but as these are usually very small, they might be neglected in GHG projections.

The following emissions should neither be allocated to ESD nor ETS emissions:

- CO_2 emissions of domestic aviation,
- LULUCF emissions/removals,

- Emissions from Memo Items, such as international bunkers (aviation and navigation)
- NF_3 emissions.

2.3 Ensuring consistency with verified ETS emissions and reviewed ESD emissions

When the ETS reference year emissions have been identified for each (sub)category, total stationary ETS emissions[3] should be aggregated and checked against actual verified emissions from the EUTL (European Union Transaction Log) for the reference year (cf. EEA ETS data viewer).

The same consistency check should take place for ESD projections so that the level of total ESD emissions in the projections dataset, for the selected reference year, is similar to historic ESD emissions for that year. Small differences might occur if ESD emissions in the reference year are compared between *calculated* values resulting from the latest GHG inventory and EUTL data and *reviewed* ESD emissions. The latter are fixed values after the review process, which do not change any more, whereas *calculated* ESD emissions are subject to small annual changes due to recalculations in GHG inventories or small changes in the EUTL data of former years, depending on extraction dates.

The main aim should be to ensure that ETS and ESD projections are consistent with historic trends. If Member States have selected a reference year which is before 2013, estimates to reflect the current scope of the EU ETS have to be considered (see section 2.1).

2.4 Projecting stationary ETS emissions

This guidance recommends to calculate projections separately for ETS and ESD emissions in subcategories, starting from the share of ETS emissions identified for each source category in the reference year (cf. section 2.2.). Different development of ETS and ESD emissions in specific sectors due to anticipated changes from policies or measures or other assumptions should be considered, such as planned plant closures, increasing efficiencies, assumed increasing EU ETS carbon prices (see also the recommended values provided by the European Commission in June 2016) or effects of the application of renewable energies .

If no specific estimate for the different development of ETS or ESD emissions by subcategory is available for a certain subcategory, Member States should apply the ETS share calculated per source category of the Total w.out LULUCF for the reference year to all projected years. For example, if the development of ETS and ESD emissions in sector 1.A.4 is unknown and the ETS share of the Total w.out LULUCF in the Reference year is 4%, then in the projections of sector 1.A.4. ETS emissions have a constant share of 4% of the Total w.out LULUCF emissions in projected years). This assumes a stable share of ETS and ESD emissions at source category level, consistent with the ratio calculated for the reference year. Further refinements to this method are possible, such as calculating the change of the ratio of ETS emissions over a certain period (e.g. an average ratio for the period 2013–2015).

For the key source category 1.A.1 Energy Industries (power and heat, refineries, other energy industries), for which usually close to 100% of material emissions are covered by the EU ETS, the described approach should however only be used if there are significant non-ETS emissions. Otherwise, full coverage of emissions by the EU ETS and the application of future EU ETS carbon prices to the whole 1.A.1 sector should be assumed.

[3] Stationary ETS emissions are all ETS emissions apart from those of the aviation sector.

Member States should also check that stationary ETS emissions do not include emissions from domestic and international aviation, see section 2.5.

2.5 Aviation in the EU ETS

Aviation (domestic and international within the European Economic Area) is included under the EU ETS since 2012. The calculation of ETS aviation projections on Member State level is difficult because ETS aviation emissions are not related to inventory emissions of Member States, neither for domestic nor for international aviation: aviation operators are administered by single Member States irrespective of the flight activities of these operators. This means that e.g. emissions from a domestic flight in Member State A might be reported as ETS emissions in Member State B, because the operating company is registered in Member State B.

As a result, the linking of inventory based aviation projections to ETS aviation projections – as intended in Annex XII, Table 1 –leads to ambiguous information and it has to be stated, that ETS emissions from domestic aviation can't be projected on MS level in a consistent way related to inventory emissions[4].

In addition, if ETS emissions from domestic aviation are reported in the template, they are automatically summed up with ETS emissions from stationary installations. A mix of stationary and aviation ETS emissions is not relevant for any further analysis, because of the reasons explained above. Therefore, it is necessary to focus separately on ETS emissions from stationary installations in EU ETS.

A solid estimate for ETS emissions from aviation can only be conducted on the level of all countries taking part in the EU ETS, considering general projected trends in national GHG projections for domestic and international aviation and taking assumptions on the further scope of covered emissions.

Due to these reasons, projections of ETS emissions of domestic and international aviation don't have to be reported. The columns of ETS emissions for these rows should be left empty to allow the automatic calculation of total ETS emissions from stationary installations (see dark grey fields).

Category (1,3)	Scenario (WEM, WAM, WOM)	Total GHGs (ktCO2e)	Total GHGs (ktCO2e)	Total GHGs (ktCO2e)	Total GHGs (ktCO2e)	Total GHGs (ktCO2e)	Total GHGs (ktCO2e)	Total ETS GHGs (ktCO2e)	Total ETS GHGs (ktCO2e)	Total ETS GHGs (ktCO2e)	Total ETS GHGs (ktCO2e)	Total ETS GHGs (ktCO2e)	Total ETS GHGs (ktCO2e)	Total ESD GHGs (ktCO2e)	Total ESD GHGs (ktCO2e)	Total ESD GHGs (ktCO2e)	Total ESD GHGs (ktCO2e)	Total ESD GHGs (ktCO2e)	Total ESD GHGs (ktCO2e)
		projection base year (Please add year)	2015	2020	2025	2030	2035	projection base year	2015	2020	2025	2030	2035	projection base year (Please add year)	2015	2020	2025	2030	2035
1.A.3.a. Domestic aviation	WEM																		
M.IB.Aviation	WEM																		

For the reason of completeness, projections of emissions from domestic aviation covered under the ESD (i.e. CH_4 and N_2O emissions from domestic aviation) can be reported in fields, which are marked in light grey, but it is not mandatory because their contribution is usually very small.

[4] Inventory emissions strictly refer to fuel consumption of aircrafts, which started in the respective country. Domestic emissions (1.A.3.a) are calculated from fuel consumption of flights which started and landed in the respective country (country A), whereas emissions of international flights relate to those flights which started in country A and landed in country B.

3 References

EEA, 2017a, EEA greenhouse gas data viewer (www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer), accessed September 2017.

EEA, 2017b, Trends and projections in the EU ETS in 2017 (https://www.eea.europa.eu/publications/trends-and-projections-EU-ETS-2017), accessed January 2018.

EEA, 2017c, EU ETS data viewer user manual and background note. EEA, Copenhagen (www.eea.europa.eu/data-and-maps/data/european-union-emissions-trading-scheme-eu-ets-data-from-citl-8/eu-ets-data-viewer-manual/eu-ets-data-viewer-manual/at_download/file), accessed September 2017.

EU, 2013, Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC (2013/162/EU). In: OJ L (165), p. 13–40 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0525&from=EN), accessed January 2018.

EU, 2014, Commission implementing regulation (EU) No 749/2014 of 30 June 2014 on structure, format, submission processes and review of information reported by Member States pursuant to Regulation (EU) No 525/2013 of the European Parliament and of the Council. In: OJ L (203), p. 23–90 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0749&from=EN), accessed January 2018.