

Final report of the 2012 technical
review of the greenhouse gas emission
inventory of Austria
to support the determination of annual emission
allocations under Decision 406/2009/EC

17 August 2012

Reference: DG CLIMA.C.1/SER/2011/0019

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Introduction

Pursuant to Article 3.2 of Decision 406/2009/EC⁽¹⁾ (the 'Effort Sharing Decision' – ESD), the European Commission shall determine the annual emission allocations (maximum allowed greenhouse gas emissions) of Member States for the period from 2013 to 2020 in tonnes of carbon dioxide equivalent (CO₂ eq.), using reviewed and verified emission data.

Complete sets of greenhouse gas (GHG) emission estimates for the reference years (2005, 2008, 2009 and 2010) were submitted by each Member State by the 15th of May, 2012 as part of the 2012 national inventory submission under Decision 280/2004/EC (the 'Monitoring Mechanism Decision' – MMD). These estimates must have been reviewed to allow the determination in 2012 of the annual emission allocations for the period from 2013 to 2020.

The 'Guidelines for the 2012 technical review of greenhouse gas emission inventories to support the determination of Member States' annual emission allocations under Decision 406/2009/EC' were endorsed by the Climate Change Committee on 19 May 2011 and published as a European Commission Staff Working Document on 26 April 2012⁽²⁾. The 2012 greenhouse gas emission inventory of Austria was reviewed in accordance with these guidelines.

This report presents the findings of the 2012 technical review of the greenhouse gas emission inventory of Austria to support the determination of annual emission allocations under Decision 406/2009/EC.

Review Objectives

The purpose of the technical review of Member States' GHG inventories is to support the determination of the annual emission allocations by:

- a) ensuring that the European Commission has accurate, reliable and verified information on annual GHG emissions for the years 2005, 2008, 2009 and 2010 to determine the annual emission allocations under Decision 280/2004/EC;
- b) providing the European Commission and its Member States with a consistent, transparent, thorough and comprehensive technical assessment of GHG emissions, with a focus on data for the years 2005, 2008, 2009 and 2010 reported in 2012;
- c) examining, in a facilitative and open manner, the reported inventory information for consistency with the 'Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories', with the 2000 'Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories', and with the requirements of Decision 280/2004/EC (the 'Greenhouse Gas Monitoring Mechanism' Decision)⁽³⁾;

⁽¹⁾ Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020. OJ L 140, 5.06.2009, p. 136.

⁽²⁾ Commission Staff Working Document of 26 April 2012: Guidelines for the 2012 technical review of greenhouse gas emission inventories to support the determination of Member States' annual emission allocations under Decision 406/2009/EC. SWD(2012) 107 final.

⁽³⁾ Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto protocol. OJ L 140, 5.06.2009, p. 136.

- d) assisting Member States in improving the quality of their GHG inventories.

Review approach and scope

The technical review of the 2012 GHG inventory estimates of Austria for the years 2005, 2008, 2009 and 2010 was performed by a Technical Expert Review Team (TERT) under service contract 2011/S 234-378130 to the Directorate General for Climate Action of the European Commission.

The review was conducted by the following experts: Kristien Aernouts & Tomas Gustafson for Stationary combustion (CRF categories 1.A.1, 1.A.2, 1.A.4, 1.A.5) + Reference approach; Maria Liden & Tinus Pulles for CRF categories 1.A.3 Transport + 1.C International bunkers; Ralph Harthan & John Watterson for CRF category 1.B Fugitive; Anke Herold & Ils Moorkens for CRF categories 2.A Mineral products + 2.B Chemical industry + CRF sector 3 Solvents; Kristina Saarinen & Dusan Vacha for CRF categories 2.C Metal production + 2.D Other production + 2.G Other; Maria Jose Lopez & Karin Kindbom for CRF categories 2.E Production of Halocarbons and SF₆ + 2.F Consumption of Halocarbons and SF₆; Michael Anderl & Steen Gyldenkaerne for CRF categories 4.A Enteric fermentation + 4.B Manure management; Sorin Deaconu & Etienne Mathias for CRF categories 4.C Rice cultivation + 4.D Agricultural soils, 4.E Prescribed burning of savannas, 4.F Field burning of agricultural residues; Juraj Farkas & Celine Gueguen for CRF sector 6 Waste. Ole-Kenneth Nielsen, Suvi Monni, Klaus Radunsky and Tatiana Tugui acted as lead reviewers. The review was coordinated by Bernd Gugele and Justin Goodwin. The TERT acknowledges the support of the EEA review secretariat Martin Adams, Francois Dejean and Melanie Sporer.

This technical review was performed on the basis of GHG emission data and the national inventory report (NIR) officially reported by Member States by the 15th of April, 2012 under the MMD. Resubmissions reported by Member States were taken into account until the 15th of May, consistent with the reporting practice for resubmissions under Decision 280/2004/EC. Emissions from international transport and land use, land-use change and forestry (LULUCF) were not reviewed. The review was performed with a focus on data for the years 2005, 2008, 2009 and 2010, reported in 2012.

The technical review process for GHG inventories comprised three stages, each of which considered different aspects of the inventories in such a way that the purposes described above were achieved by the end of the process. The three stages were:

- Stage 1, completed by 15 April 2012 – initial completeness checks of each Member State GHG inventory (submitted by 15 January and by 15 March);
- Stage 2, completed by 15 April 2012 – initial consistency and comparability checks of each Member State GHG inventory (submitted by 15 January and by 15 March);
- Stage 3, to be completed by the end of August 2012 – detailed *technical review* of each Member State GHG inventory (submitted by 15 May).

The detailed timeline of the review, including a summary of the correspondence with Austria, is presented in Annex 4.

ESD 2012 technical review conclusions

Table 1. Main conclusions from the TERT

Findings
1. The TERT considers that the GHG emission inventory estimates of Austria for the years 2005, 2008, 2009 and 2010 submitted in 2012 under the MMD do not include emission overestimates .
2. The TERT did not identify inconsistency issues between the reported GHG emission inventory estimates and verified emission data under the EU ETS.
3. During the course of the technical review, the TERT did not receive any revised GHG emission inventory estimate from Austria in response to its initial findings.
4. The TERT considers that it is not necessary to implement any technical correction to the GHG emission inventory estimates and to amend the reported GHG total.
5. As stated beneath Table 1, Austria accepts the aggregated GHG emission inventory estimates presented in Table 2.
6. The TERT identified non-binding recommendations for improvements of Austria's GHG inventory (see Table 3 in Annex 1).
7. The TERT considers that it received a response from Austria that was sufficient in order to undertake the review appropriately.

Statement from Austria on the conclusions of the TERT

Thank you for sending us the draft review report. Austria has reviewed the main conclusions in Table 1 and non-binding recommendations from the TERT as listed in Table 3 and has no comments on it. We appreciate the outcome of the review and thank you for the careful, well organized review and the suggestions given for further improvement.

Table 2. Summary of national totals, including any revised estimates or technical corrections identified during the review

Data / Category	Reference	Status of GHG emission revision or correction	2005	2008	2009	2010
			Gg CO ₂ eq.			
Total GHG emissions as reported in the 2012 submission under the MMD	12 April 2012, AUT-2012-v1.3		92 879.515	86 955.534	79 739.349	84 593.939
Total GHG emissions including any accepted revised estimate received from Austria and/or technical correction as proposed by the TERT			92 879.515	86 955.534	79 739.349	84 593.939
CO₂ emissions from 1.A.3.a Civil aviation	12 April 2012, AUT-2012-v1.3		66.784	70.783	67.491	63.535

Note: National totals exclude emissions from LULUCF and emissions reported under memo items (e.g. international aviation and maritime transport).

Annex 1 – Recommendations, revised estimates and technical corrections

Table 3. Recommendations of the TERT

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁴⁾	Technical correction ⁽⁵⁾
No	1.A.1.a. Public electricity and heat production CH ₄ solid fuels 2005, 2008–2010	The IEF for CH ₄ emissions for solid fuels in 1.A.1.a. is low in comparison to other countries. This could be a potential underestimation of emissions. The EFs are country specific and are listed in Table 31 of the NIR. Austria responded that they assume that CH ₄ emissions from coal power plants are negligible. They have used the EF from a national study but cannot currently provide an explanation as to why the implied EF is significantly different from other Member States.	The TERT recommends that Austria investigates the origin of the country-specific CH ₄ EF for coal-fired plants in 1.A.1.a. and to justify the use of country-specific assumptions in the NIR or corrects the EFs if necessary.	No	No
Yes	1.A.2.f. Other CO ₂ 2005, 2008–2010	The TERT noted a discrepancy between the amount of 'other fuels' AD and CO ₂ emissions for 1.A.2.f. In 1.A.2.f. – other fuels, there is a strong increase in the consumption of other fuels used, together with a decline in the CO ₂ IEF. Austria was asked to provide information on the type of fuels used, together with their EF. Austria replied that for waste used in the	The TERT recommends that Austria checks the type of fuels (AD and EF) included in other fuels in 1.A.2.f. (Especially in 2010) and corrects the data if applicable.	No	No

⁴ The GHG emission estimate for this category was revised by Austria during the technical review.

⁵ The GHG emission estimate for this category is subject to a technical correction proposal by the TERT.

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁴⁾	Technical correction ⁽⁵⁾
		<p>cement industry the composition is explained in the NIR, page 105. ff (Table 48). Austria also indicated that waste from other industries (mainly chip board industries) consists of mainly biomass but also has a fossil share. This amount reported under the EU ETS has increased from 1.5 PJ in 2005 to 3.1 PJ in 2010. The IEF for this fraction is only 14.3 t CO₂/TJ in 2010. This leads to a decreasing IEF of 1.A.2.f. – other fuels which does not fully explain the decline. In IEF for 1.A.2.f., a rough check of the data of other fuels in 1.A.2.f. as provided by Austria, without the use of waste in cement and the fossil waste part from the chip board industry, still leaves, in 2010, around 5 PJ unallocated (14.5 – 3.1 – 6.4 = 5 PJ). If the same is done for CO₂ emissions (total - emissions from cement - chip board industry), almost no CO₂ emissions remain. The TERT was concerned about how emissions from 5 PJ of fuel in this category, not consumed in the cement or chip-board industries, are dealt with in the GHG inventory. Although Austria explained that the 5 PJ is considered to be biogenic, the TERT questioned the validity of this assumption because of the strong increase in this AD over a short period of time and the lack of concrete evidence that it is biogenic. The TERT considers that there could be an underestimation of emissions if the AD in reality is fossil fuel based rather than biogenic. The TERT noted that Austria plans to contact the energy statistics office to investigate this issue further.</p>			

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁴⁾	Technical correction ⁽⁵⁾
Yes	2.F(a).1. Industrial refrigeration HFC 2008, 2009	The same emissions are estimated for HFC from industrial refrigeration in Austria for 2007, 2008 and 2009 and Austria only has data for 2007 and 2010. 2007 values have been assumed for 2008 and 2009. Austria is reassessing the option of interpolation to estimate emissions between 2007 and 2010.	The TERT recommends that Austria collects annual data in order to improve the accuracy of the estimates.	No	No
Yes	2.F(a).1. Stationary air conditioning HFC 2008-2010	The estimates of HFC emissions from air conditioning in Austria are not considered sufficiently accurate by the TERT. (assumed stable in 2008 and 2009 and showing a reduction of 50 % in 2010). Austria currently only have data available for the years 2007 and 2010 and have not interpolated due to the ban of R22 in 2010 despite the market showing a strong change in used refrigerants.	The TERT recommends that Austria collects annual data to improve the accuracy of the estimates.	No	No
Yes	2.F(a).3. Fire extinguishers HFC 2009,-2010	Despite an increased use of fire extinguishers in 2008 (2008 was a year with a high number of fires and activation of fire protection systems) HFC-23 emissions are assumed constant for 2008, 2009 and 2010 . Due to lack of plant-specific data, Austria has assumed that the HFC-23 emissions from stocks of fire extinguishers in 2009 and 2010 are the same as 2008. Austria confirmed that these emissions estimates could be inaccurate in 2009 and 2010.	In order to improve the accuracy of the estimates, the TERT recommends that Austria collects plant-specific data or, if this is not possible, uses appropriate interpolation/extrapolation techniques (for example, by using 2009 and 2010 statistics from the Austrian Fire Protection Association).	No	No

Annex 2 – Detailed technical corrections

There are no technical corrections applied to Austria's estimates of emissions.

Annex 3 – Checks and tests completed

The initial checks (stage 1 and 2 checks), which cover the national inventory submissions, informed the stage 3 technical review with a view to:

- a) assess whether all emission source categories and gases are reported as required under Decision 280/2004/EC;
- b) assess whether sub-category sums are consistent with sectoral and national totals;
- c) assess whether emission data time series are consistent;
- d) assess whether implied emission factors across Member States are comparable;
- e) assess the use of 'Not Estimated' notation keys where IPCC Tier 1 methodologies exist;
- f) compare with the previous year's inventory submission of the Member State;
- g) limited sector-specific checks performed by ETC/ACM sector experts.

The EU initial checks were extended in 2012 to address additional elements needed for the 2012 technical review. The extended checks included:

- a) a detailed analysis of recalculations performed for the 2012 inventory submissions, in particular if recalculations are based on methodological changes.
- b) a comparison of the verified emissions reported under the EU ETS with the greenhouse gas emissions reported in GHG inventories. The verified emissions under the EU ETS are not fully comparable with the emissions reported in the GHG inventories. This comparison may only highlight areas where some Member States' data and trends deviate considerably from those of other Member States.
- c) a comparison of the results from Eurostat's reference and sectoral approach, based on energy data reported under Regulation (EC) No 1099/2008, with the Member States' reference and sectoral approach.

The specific activities of the 2012 technical review included:

- a) an analysis of the Member States' implementation of recommendations related to improving inventory estimates in accordance with the Revised 1996 IPCC Guidelines and the 2000 IPCC good practice guidance (GPG) as listed in the UNFCCC Annual Review Reports from the 2010 and 2011 UNFCCC review processes. Where UNFCCC recommendations have not been implemented, the analysis included an assessment as to whether the Member State provided adequate justification for this;
- b) an assessment of the time series consistency of the greenhouse gas emissions estimates, with a particular focus on the 2005 and 2008-2010 estimates;
- c) checking whether problems identified for one Member State in UNFCCC reviews might also have been a problem for other Member States (whether identified by the UNFCCC expert review team or not);
- d) an assessment of any recalculations made by a Member State in its inventory since the previous submission, and an assessment as to whether these were transparently reported and were in accordance with IPCC good practice guidance;
- e) a follow-up on any outstanding findings from existing and extended stage 1 and 2 checks;
- f) the inclusion of revised estimates as provided by Member States in response to the review, and as accepted by the TERT during the review;

- g) the provision of an estimate for any 'technical correction' to emission estimates reported by a Member State where it is believed that emissions reported by the Member State are overestimated, and a statement of the significance of these 'technical corrections' in comparison to the overall reported inventory estimates;
- h) the provision of recommendations where problems have been identified that do not require technical corrections.

Material from previous UNFCCC inventory reviews was used to inform the technical review, including the previous years' Annual Review Reports, which provide an indication of the overall quality of the inventory.

The TERT used additional technical information in the review process, such as EU ETS data, information from Eurostat, and F-gas data from the 'Preparatory study for a review of Regulation (EC) NO 842/2006 on certain fluorinated greenhouse gases (⁶), as well as data from other international organisations.

⁶ Service contract 070307/2009/548866/SER/C4 to the European Commission

Annex 4 – Correspondence references

Date	Reference
12 April 2012	Final CRF and NIR submission under the MMD, version AUT-2012-v1.3
21, 23 May 2012	Initial questions raised by the TERT during the desk review
5, 7 June 2012	Additional questions raised by the TERT during the centralised review
4, 5, 8 June 2012	Responses from Austria to TERT questions
13 July 2012	Draft review report from TERT to Austria
2 August 2012	Response from Austria to draft review report
17 August 2012	Final review report to European Commission