

Final report of the 2012 technical review of the greenhouse gas emission inventory of Greece

to support the determination of annual emission allocations under Decision 406/2009/EC

17 August 2012

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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 Greece was reviewed in accordance with these guidelines.

This report presents the findings of the 2012 technical review of the greenhouse gas emission inventory of Greece 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

⁽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.

National Greenhouse Gas Inventories', and with the requirements of Decision 280/2004/EC (the 'Greenhouse Gas Monitoring Mechanism' Decision) ⁽³⁾;

- 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 Greece 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 & IIs 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 Guegle 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).

⁽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.

The detailed timeline of the review, including a summary of the correspondence with Greece, is presented in Annex 3.

ESD 2012 technical review conclusions

Table 1. Main conclusions from the TERT

Findings
1. The TERT considers that the GHG emission inventory estimates of Greece for the years 2005, 2008, 2009 and 2010 submitted in 2012 under the MMD included 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 received revised GHG emission inventory estimates from Greece in response to its initial findings. (See Table 2).
4. The TERT considers that the aggregated revised GHG emission inventory estimates from Greece for the years 2005, 2008, 2009 and 2010 do not include emission overestimates .
5. 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 (see Table 2).
6. As stated beneath Table 1, Greece accepts the aggregated GHG emission inventory estimates presented in Table 2 including any revised estimate received from Greece and accepted by the TERT.
7. The TERT identified non-binding recommendations for improvements of Greece GHG inventory (see Table 3 in Annex 1).
8. The TERT considers that it received a response from Greece that was sufficient in order to undertake the review appropriately.

Statement from Greece on the conclusions of the TERT

Greece agrees with the conclusions of the TERT and accepts the aggregated GHG emission inventory estimates presented in Table 2 including the revised estimates provided by Greece and accepted by the TERT.

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 Gg CO ₂ eq.	2008 Gg CO ₂ eq.	2009 Gg CO ₂ eq.	2010 Gg CO ₂ eq.
Total GHG emissions as reported in the 2012 submission under the MMD	14 April 2012, GRC-2012-v1.4		135 661.353	131 263.404	124 692.765	118 286.730
Revised estimates provided by Greece (⁴)						
1A3c Railways, CH ₄ , liquid fuels	railways_ch4.xls, 13/6/2012	Accepted by the TERT	-1.391	-1.255	-1.051	-0.680
Total GHG emissions including any accepted revised estimate received from Greece and/or technical correction as proposed by the TERT			135 659.961	131 262.148	124 691.714	118 286.050
CO₂ emissions from 1.A.3.a Civil aviation	14 April 2012, GRC-2012-v1.4		1 212.787	1 295.536	1 451.764	1 307.504

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

⁴Difference: revised estimates –original estimates. A positive difference indicates an increase compared to reported emissions. A negative difference indicates a decrease compared to reported emissions. For more information on revised estimates, see Annex 1.

Annex 1 – Recommendations, revised estimates and technical corrections

Table 3. Recommendations of the TERT

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
Yes	1.A.2.c. Chemicals CO ₂ /Liquid 2005–2010	Greece reports very low CO ₂ IEFs in CRF 1.A.2.c. for liquid fuels (around 45 t CO ₂ /TJ in 2010). This is lower than any given CO ₂ EF in the NIR. During the technical review, Greece explained that the reason for the low IEFs is that fuels used for feedstock or non-energy purposes are included as fuel combustion (TJ), but that any associate emissions are not.	The TERT recommends that Greece reallocates the fuels reported under CRF 1.A.2.c. but used as feedstocks and non-energy purposes to CRF 1.A.d. The TERT also recommends that Greece reconciles the reporting of feedstocks and non-energy use of fuels between CRF 1.A.1.-1.A.5., 1.A.b. and 1.A.d.	No	No
Yes	1.A.3. Transport All gases All years	CO ₂ from aviation and navigation are key categories. However, the Revised 1996 IPCC Guidelines default EFs are used in the inventory. The 2000 IPCC Good Practice Guidance (GPG) states in this respect: ‘For traded fuels in common circulation, it is good practice to obtain the carbon content of the fuel and net calorific values from fuel suppliers, and use local values wherever possible. If these data are not available, default values can be	The TERT recommends that Greece obtains the carbon content and net calorific values of fuels used in aviation and navigation from fuel suppliers, develop country-specific EFs for CO ₂ for these fuels that are representative for fuels used in Greece and revise the CO ₂ emissions from aviation and navigation accordingly.	No	No

⁵ The GHG emission estimate for this category was revised by Greece during the technical review.

⁶ 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 ⁽⁵⁾	Technical correction ⁽⁶⁾
		<p>used.' Use of the default value is therefore not in line with good practice.</p> <p>In response to a question raised by the TERT during the technical review, Greece referred to discussions with national refineries and experts. However, no explanation was provided why the IPCC default values are representative for CO₂ emissions from aviation and navigation in Greece.</p>			
Yes	1.A.3.a. Civil aviation All gases All years	<p>Energy amounts for civil aviation in the CRF are significantly higher in later years than energy amounts reported in EUROSTAT energy data for aviation (27 to 86 % for the years 2008–2010). In addition, the TERT notes that Greece uses an old estimation technique for calculating the share of domestic versus international aviation that was originally produced by the UNFCCC ERT. Given the outdated estimation technique and the fact that EUROSTAT data differ, the TERT believes that emissions from civil aviation might be overestimated. Greece informed the TERT that it has started an enquiry with the agency that is responsible for the aviation ETS in order to find the reason for this problem.</p>	<p>The TERT recommends that Greece continues with its efforts to obtain accurate data on civil aviation, revise estimated emissions and include a transparent description of the estimation method in its NIR and CRF.</p>	No	No
No	1.A.3.b. Road transportation CH ₄ and N ₂ O All years	<p>For CH₄ and N₂O from road transportation, EFs for at least one of the two major fuels and at least one of the gases CH₄ and N₂O changed more than 10 % for Greece between the last two submissions. Greece informed the TERT in response to a question</p>	<p>The TERT recommends that Greece checks with the developers of the COPERT model what the reason is that the latest EFs for CH₄ and N₂O are lower than those used before and to include this explanation in the NIR.</p>	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
		raised during the technical review that the changes are due to updates of the EFs in COPERT 4 as compared to COPERT 3. However, Greece did not provide more detailed information on which parameters have changed in COPERT 4.			
Yes	1.A.3.b. Road transportation IEF CO ₂ gasoline	CO ₂ from gasoline used for road transportation is a key category. However, the Revised 1996 IPCC Guidelines default EF is used. The 2000 IPCC GPG states in this respect: 'For traded fuels in common circulation, it is good practice to obtain the carbon content of the fuel and net calorific values from fuel suppliers, and use local values wherever possible. If these data are not available, default values can be used.' Use of the default value therefore is not in line with good practice. The implied EF is at the low end compared with other MS. Unless gasoline in Greece is very different than gasoline used in other MS, the Revised 1996 IPCC Guidelines default EF is not representative for Greece. In response to a question raised by the TERT during the technical review, Greece referred to discussions with national refineries and experts. However, no explanation was provided why the IPCC default value is representative for gasoline used in Greece.	The TERT recommends that Greece obtains the carbon content and net calorific values of gasoline from fuel suppliers, develop a country-specific EF for CO ₂ from gasoline that is representative for gasoline used in Greece and report revised data.	No	No
No	1.A.3.b. Road transportation IEF N ₂ O diesel oil	N ₂ O emissions from diesel oil are calculated with COPERT and not with statistical diesel consumption. No calibration with fuels statistics is done, and because of	The TERT recommends that Greece calibrates emissions from road transport with fuel statistics to ensure that emissions are not over- or underestimated	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
	Recent years	this the IEF for N ₂ O from diesel oil fluctuates significantly, especially for recent years when fuel sales decreased due to the financial crisis. The TERT concludes that emissions for recent years are probably underestimated.	for any years in the time series.		
No	1.A.3.c. Railways CH ₄ liquid fuels All years	The IEF for CH ₄ from liquid fuels used in railways is approximately ten times higher than the IEF from other MS. Greece confirmed that there is an error in the calculations and provided a revised EF of 180 kg/kt or 4 kg/TJ. During the technical review Greece also provided revised CH ₄ emissions estimates for this category.	The TERT recommends that Greece uses the revised EF and includes the revised estimates in future inventories.	Yes	No
No	Energy: Country-specific issues Biomass 2005–2010	There are large differences between biomass consumption reported in the CRF and to EUROSTAT for the residential sector (CRF 1.A.4.b.). About 60 % more biomass is reported in 1.A.4.b. in Eurostat data compared to the CRF. In the NIR it is described that the source of activity data has changed from the energy balance to the fuel wood statistics of the Ministry of Rural Development and Food (MRDF).	The TERT recommends that Greece includes in the NIR a description of the reasons of and the consequences for changing the data source for the activity data.	No	No
No	2.C.1. Iron and steel production CO ₂ 2008	The IEF of CO ₂ from 2.C.1. significantly decreases between 2008 and 2009. The NIR does not provide any explanation for this decline, only descriptions of data and methodology are provided. In response to questions raised by the TERT during the technical review, Greece provided an explanation,	The TERT recommends that Greece includes the explanations provided during the technical review in future NIRs in order to improve on the transparency of IEF trend changes in this category.	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
		which was also supported by verified data from the EU ETS. Greece explained that the difference in the IEF was probably due to annual variations of the reduced agents/fuels used and their respective carbon content as well as other material used (e.g. scrap). In addition, Greece provided confidential data related to the carbon content of scrap derived from the different iron and steel plants. The TERT considers the explanations provided as satisfactory.			
No	2.C.3. Aluminium production PFC All years	The description of the methodology and parameters used for estimating PFC emissions from aluminium production are not transparently explained in the Greek NIR. During the technical review Greece provided more detailed descriptions in response to a question raised by the TERT. The TERT considers these explanations to be satisfactory.	The TERT recommends that Greece improves on the transparency in the NIR concerning the description of the methodology for PFC emissions from aluminium production, for example by including the information provided during the technical review.	No	No
No	2.F(a).2. Foam blowing HFCs 2005–2010	It was previously recommended that Greece investigates the import of HFC-containing foam products. The omission of possible imports leads to an underestimation of emissions from this source. In the NIR 2012, Greece explains that this issue has been investigated but that no certain conclusions could be drawn that could have been used in the current submission.	The TERT recommends that Greece further pursues these investigations for greater certainty on the potential amounts of HFC imported in foam products.	No	No
No	2.F(a).3. Fire extinguishers	Greece explains in the NIR that its method for estimating HFC-227ea emissions from fire	The TERT recommends that Greece investigates this matter further in order to be able to report emissions	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
	HFC-227ea 2005–2010	<p>extinguishers is based on data from Spain, Italy and Portugal. Greece also explains that there is no indication from the Greek Fire Service that HFCs or PFCs are used in Greece, but reporting continues to be based on Spain, Italy and Portugal so as to maintain consistency.</p> <p>Greece replied to a question from the TERT on plans for collecting national data and that in line with the 2012 Improvement Plan, the Fire Service is considered as the main possible data source on the use of f-gases for fire-extinguishers. Given the scarcity of such information in the Fire Service, the inventory team is planning to use the information that will be gathered in the framework of the Common Ministerial Decision 18694, which was published on 11 April 2012 and requires the annual reporting of f-gases used in fire systems. Since it is a new decision, the inventory team will formulate a plan to ensure time series consistency of reporting, depending on the information gathered as applicable.</p>	of f-gases from fire extinguishers based on national data.		
Yes	4.B.1. Cattle CH4 All years	<p>Greece reports the share of liquid systems as '0.0'. Therefore the CH4 IEF of cattle is among the lowest of all MS. The consideration that no cattle are held in liquid systems is based on information provided by the Greek legislation and official documents (guidelines). Nevertheless, the available official information related to manure management systems applied in Greece per animal species is limited. For this reason, several</p>	The TERT recommends that Greece updates its AWMS distribution by involving the relevant livestock experts (from scientific institutes, administration, chambers, etc.).	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
No	4.D.1.6. Other direct emissions N ₂ O 2006–2007	<p>assumptions had to be taken.</p> <p>The trend change of sewage sludge used in agriculture as fertiliser was unclear to the TERT for 2006–2007. In response to a question raised by the TERT during the technical review, Greece answered that the application of sewage sludge in agriculture as fertiliser started in 2004 and remains limited, mainly in the context of research projects and pilot studies. These studies were carried out from 2004 to 2006 while for the other years (2007–2010) significantly fewer experimental studies were conducted according to the waste management department of the Ministry of Environment, Energy and Climate Change (MEECC). The TERT considers this explanation as satisfactory.</p>	The TERT recommends that Greece adds this explanation on sludge application in agriculture in future NIRs.	No	No
Yes	6.A.1. Managed waste disposal on land recovery All years	<p>In Greece, out of 71 managed SWDS 4 are equipped with CH₄ recovery systems (2 with energy recovery, and 2 with flaring of the biogas). The TERT noticed that the calculation of CH₄ recovered on the basis of the national energy balance is not presented in the NIR. The TERT also observed that the CH₄ recovered and flared is based on an assumption of 60 % recovery of CH₄ generated and that this value is not justified. Greece provided some clarifications concerning CH₄ recovery for energy recovery and flaring during the technical review. Estimation of CH₄ recovered and used for energy purposes is based on data from SWDS as recommended by the 2011 UNFCCC Review.</p>	The TERT recommends that Greece improves the methodology applied to estimate the amount of CH ₄ recovered and flared, using monitored data if available, or documents further the ratio of CH ₄ recovered. When direct data from landfills are used, the completeness of the reporting should be presented and recalculations made for undocumented sites (e.g. closed landfills) should be explained in the NIR. The type of monitored parameters used for this estimation should be indicated (amount of CH ₄ /biogas recovered, flared or used for energy purposes (in mass or energy units), energy generation, etc.). If monitored data is not available in terms of amounts of CH ₄ or biogas, but	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
		Estimation of CH ₄ recovered and flared is made assuming a recovery rate of 60 % in SWDS on the basis of expert judgement (similar to the recovery rate for energy purposes).	only in energy units (e.g. TJ, electricity/heat generation), the parameters used for the conversion of energy data to CH ₄ amounts (e.g. efficiency of the energy plants, NCV, on-site energy use) should be well documented.		
Yes	6.B.1. Industrial wastewater Bo All years	It is specified in the Greek NIR (NIR, 2012, page 309) that the Bo applied to industrial wastewater is similar to the one used for domestic wastewater. Furthermore, the NIR indicates (NIR, 2012, page 306) that the value of 0.6 kg CH ₄ /kg BOD was used for domestic wastewater handling while the value of 0.25 kg CH ₄ /kg COD was used for industrial wastewater handling. During the technical review, Greece confirmed that appropriate values recommended by the 2000 IPCC GPG are applied.	The TERT encourages Greece to improve on the transparency of the NIR by adapting the sentence on page 309 and explicitly mentioning the Bo applied to industrial wastewater.	No	No
Yes	6.B.1. Industrial wastewater Wastewater treatment systems, Dind, MCF All years	Parameters applied to calculate CH ₄ emissions from industrial wastewater treatment, for example industrial degradable organic component (Dind) or MCF, are not presented in the NIR. Greece provided these data during the technical review.	The TERT encourages Greece to include data provided during the technical review in the NIR in order to improve transparency.	No	No
Yes	6.B.2. Wastewater handling & MCF All years	In the NIR, a description of the Greek situation concerning domestic wastewater treatment is not transparent. The fraction of the population connected to each type of wastewater treatment	The TERT recommends that Greece improves on the transparency of the NIR by including the information provided to the TERT during the technical review.	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
		<p>system (WS) is not documented. An MCF value of 1 is applied without explaining the type of anaerobic treatment system considered.</p> <p>During the technical review Greece provided more clarifications.</p>			
Yes	<p>6.B.3.a. Domestic wastewater treatment Ddom All years</p>	<p>The domestic/commercial degradable organic component (Ddom) value applied in the inventory is 50 g BOD/inhab./day (NIR, 2012, page 306) although the default value proposed in the 2000 IPCC GPG is 60 g BOD/inhab./day. The value used in the inventory corresponds to the value proposed for Europe in the Revised 1996 IPCC Guidelines Workbook (page 6.23). Greece indicated during the technical review that the value proposed for Europe in the Revised 1996 IPCC Guidelines is considered to be more representative for the national circumstances of Greece (Europe) than the general Ddom proposed for all countries as default value in the 2000 IPCC GPG and that the 60 g BOD/inhab./day value is proposed as an overall default value for quality checking country-specific estimates. However, the TERT would like to underline that in the 2006 IPCC Guidelines, the Ddom value proposed for Europe is 60 g BOD/inhab./day and the value proposed for Greece is 67 g BOD/inhab./day (2006 IPCC, Chap. 6, page 6.13, Table 6.4).</p>	<p>The TERT recommends that Greece updates the Ddom value with the value recommended in the 2000 IPCC GPG. Otherwise, the TERT recommends that Greece further justifies the use of a national value in the NIR by providing documents and evidence supporting this assumption.</p>	No	No

Annex 2 – Detailed technical corrections

There are no technical corrections applied to the Greece'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 (⁷), as well as data from other international organisations.

⁷ Service contract 070307/2009/548866/SER/C4 to the European Commission

Annex 4 – Correspondence references

Date	Reference
14 April 2012	Final CRF submission under the MMD, version GRC-2012-v1.4
19 April 2012	Final NIR submission under the MMD
21, 23 May 2012	Initial questions raised by the TERT during the desk review
5, 7, 11, 13 June 2012	Additional questions raised by the TERT during the centralised review
31 May, 6, 8, 14, 15 June 2012	Responses from Greece to TERT questions
13 July 2012	Draft review report from TERT to Greece
20 July 2012	<i>Response from Greece to draft review report</i>
13 August 2012	<i>Draft final review report from TERT to Greece</i>
14 August 2012	<i>Response and additional information from Greece to final review report</i>
17 August 2012	<i>Final review report to European Commission</i>