

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

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## Introduction

Pursuant to Article 3.2 of Decision 406/2009/EC<sup>(1)</sup> (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 (CO<sub>2</sub> 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 15<sup>th</sup> 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<sup>(2)</sup>. The 2012 greenhouse gas emission inventory of Croatia was reviewed in accordance with these guidelines.

This report presents the findings of the 2012 technical review of the greenhouse gas emission inventory of Croatia 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)<sup>(3)</sup>;

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<sup>(1)</sup> 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.

<sup>(2)</sup> 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.

<sup>(3)</sup> 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 Croatia 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 SF<sub>6</sub> + 2.F Consumption of Halocarbons and SF<sub>6</sub>; 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 15<sup>th</sup> of April, 2012 under the MMD. Resubmissions reported by Member States were taken into account until the 15<sup>th</sup> 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 Croatia, 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 Croatia for the years 2005, 2008, 2009 and 2010 submitted in 2012 under the MMD <b>included emission overestimates and underestimates</b> .
2. During the course of the technical review, the TERT did receive revised GHG emission inventory estimates from Croatia in response to its draft review report (see Table 2)..
3. The TERT considers that the aggregated <b>revised GHG emission inventory estimates from Croatia for the years 2005, 2008, 2009 and 2010 include emission overestimates</b> .
4. The TERT therefore suggests that <b>it is necessary to implement a technical correction</b> to the GHG emission inventory estimates and to amend the reported GHG total (see Table 2).
5. As stated beneath Table 1, Croatia <b>accepts</b> the aggregated GHG emission inventory estimates presented in Table 2 including any revised estimate received from Croatia and accepted by the TERT, and the technical correction as proposed by the TERT.
6. The TERT identified non-binding recommendations for improvements of Croatia's GHG inventory (see Table 3 in Annex 1).
7. The TERT considers that it received a response from Croatia that was sufficient in order to undertake the review appropriately. The possibility of a country visit significantly contributed to undertake the review appropriately given the specific national circumstances of Croatia.
8. The TERT supports the efforts of Croatia to further strengthen its national system in order to meet all reporting requirements in a timely manner.

### Statement from Croatia on the conclusions of the TERT

Croatia accepts the aggregated GHG emission inventory estimates presented in Table 2 including any revised estimate received from Croatia and accepted by the TERT and including the technical correction.

**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 <sub>2</sub> eq.	2008 Gg CO <sub>2</sub> eq.	2009 Gg CO <sub>2</sub> eq.	2010 Gg CO <sub>2</sub> eq.
<b>Total GHG emissions as reported in the 2012 submission under the MMD</b>	25 April 2012, HRV-2012-v2.1		<b>30 244.221</b>	<b>31 048.977</b>	<b>29 056.476</b>	<b>28 597.025</b>
<b>Revised estimates provided by Croatia<sup>(4)</sup></b>						
1.A.3.b Road transportation, gaseous fuels	30 July 2012 6_COPERT IV-1990-2010_TERTcorrection_all transport_10_07_2012.xls	Accepted by the TERT			2.807	41.273
1.A.3.b. Road transportation, gasoline, N <sub>2</sub> O	Correction of erroneous EF for N <sub>2</sub> O 2005 using interpolation of IEFs reported by Croatia 2003 and 2006. See file "Technical correction HR-1A3+1C-2", HR-1A3+1C-2	Accepted by MS	-50.905			
1.A.3.c Railways CH <sub>4</sub> , N <sub>2</sub> O Liquid fuels, 2010	30 July 2012 1_Podsektori – 1990-2010_TERTcorrection_rail_10_07_2012.xls	Accepted by the TERT				-0.403
4.B. Manure management, CH <sub>4</sub> , all years	30 July 2012 ESD_Croatia_Agriculture_TERT_MM_CH4_devEF .xls	Accepted by the TERT	0.779			
6.B.2.a. Domestic wastewater treatment, CH <sub>4</sub> , Bo, all years	30 July 2012 ESD_Croatia_Waste_TERT_Domestic	Accepted by the TERT	122.726	119.705	118.759	118.759

<sup>4</sup> Difference: 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.

	Wastewater_correction.xls					
<b>Technical correction proposed by the TERT <sup>(5)</sup></b>						
<b>Total GHG emissions including any accepted revised estimate received from Croatia and/or technical correction as proposed by the TERT</b>			30 316.821	31 168.682	29 178.041	28 756.655
<b>CO<sub>2</sub> emissions from 1.A.3.a Civil aviation</b>	25 April 2012, HRV-2012-v2.1		<b>66.609</b>	<b>88.228</b>	<b>77.418</b>	<b>81.104</b>

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

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<sup>5</sup> Difference: technical correction – original estimates. A positive difference indicates an increase compared to reported emissions. A negative number indicates a decrease compared to reported emissions. For more information on technical corrections, see Annex 2.

## Annex 1 – Recommendations, revised estimates and technical corrections

Table 3. Recommendations of the TERT

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate <sup>(6)</sup>	Technical correction <sup>(7)</sup>
Yes	1.A.3. Transport All gases All years	CO <sub>2</sub> from aviation is a key category. 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 used.’ The use of the default value is therefore not in line with good practice. In response to a question raised by the TERT during the review, Croatia confirmed that a process of data collection is ongoing for estimating emissions by a Tier 2 approach. In response to the draft review report Croatia informed that it will make efforts to implement these improvements in the next submission.	The TERT recommends that Croatia obtains the carbon content and net calorific values of fuels used in aviation from fuel suppliers, develops county-specific EFs for CO <sub>2</sub> for these fuels that are representative of fuels used in Croatia and reports revised data. The TERT also recommends that Croatia continues its efforts of developing the Tier 2 approach for this category.	No	No

<sup>6</sup> The GHG emission estimate for this category was revised by Croatia during the technical review.

<sup>7</sup> 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 <sup>(6)</sup>	Technical correction <sup>(7)</sup>
Yes	1.A.3.b. Road transportation N <sub>2</sub> O gasoline All years	Please see technical correction reference HR-1.A.3.+1.C-2. in Annex II.	The TERT recommends that the inventory is revised to address the issues raised in the technical correction. Furthermore, the TERT recommends that time series consistency is ensured by implementing the revision for all relevant years of the time series.	No	Yes
Yes	1.A.3.b. Road transportation Gaseous 2009–2010	Emissions from natural gas used for road transport are reported as NO in the CRF. However, according to Eurostat energy data 50-90 TJ were combusted in 2009–2010. In response to a question raised by the TERT during the review, Croatia indicated that emissions from natural gas will be added in the next submission. In response to the draft review report Croatia submitted a recalculation on 30 July 2012, which was accepted by the TERT.	The TERT recommends that Croatia includes these revised estimates in future submissions.	Yes	No
No	1.A.3.c. Railways CH <sub>4</sub> , N <sub>2</sub> O liquid fuels 2010	The TERT identified errors for EFs used for CH <sub>4</sub> and N <sub>2</sub> O from liquid fuels used in railways in 2010. In response to the draft review report Croatia submitted a recalculation on 30 July 2012, which was accepted by the TERT.	The TERT recommends that Croatia includes the revised estimates in future submissions.	Yes	No
No	1.A.3.d. Navigation CO <sub>2</sub> Gas/Diesel oil 2008–2009	The time series for CO <sub>2</sub> and TJ for gas/diesel oil and residual oil used for national navigation are volatile and the TERT concludes that they are probably partly inaccurate. In response to a question raised by the TERT during the review, Croatia explained that the data are obtained from the national energy balance. In response to the draft review report Croatia replied that it will verify the time series during the preparation of	The TERT recommends that Croatia verifies AD used for residual oil and gas/diesel oil in national navigation together with the experts estimating the national energy balance. Croatia should ensure that the time series is reasonable and complete and correct the estimates as appropriate.	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate <sup>(6)</sup>	Technical correction <sup>(7)</sup>
		the next submission.			
Yes	2.B.1. Ammonia production CO <sub>2</sub> All years	<p>The IEF for CO<sub>2</sub> emissions from ammonia production decreased from 2009 to 2010 to a very low value of 1.14 t CO<sub>2</sub>/t NH<sub>3</sub>. Throughout the time series this IEF is very low compared to other countries or compared with IPCC defaults (the lowest CO<sub>2</sub> EF for excess air reforming process in the 2006 IPCC GL is 1.67 t CO<sub>2</sub>/t NH<sub>3</sub>). The AD reported in the CRF for NH<sub>3</sub> production also seems to be too high compared with the natural gas consumption for NH<sub>3</sub> production reported in the NIR Table 4.3-1.</p> <p>In response to a question raised by the TERT during the review, Croatia explained that emission calculations are based on consumption and composition of natural gas which is used as a feedstock for ammonia production. Activity data were provided by the fertiliser producer for the entire time series. No subtractions of CO<sub>2</sub> from downstream processes (urea, dry ice) were made as required by the IPCC methodology. Taking into account that the natural gas consumption for ammonia production is broadly consistent with the natural gas reported as feedstock use in the energy sector, the TERT concludes that the problem seems to be related to the AD indicated for ammonia production in the CRF. In response to the draft review report Croatia replied that it uses a higher tier method based on natural gas consumption</p>	The TERT recommends that Croatia checks the low IEF for ammonia production and either corrects the estimation if an error is found or provides additional explanations for the low IEF in its next NIR. Another option is to indicate natural gas consumption as AD in the CRF instead of NH <sub>3</sub> production as done in the NIR.	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate <sup>(6)</sup>	Technical correction <sup>(7)</sup>
		<p>applying a country-specific EF based on measurements of natural gas composition (with detailed explanation in the NIR 2012). According to an ERT recommendation after the in-country review 2008, activity data on ammonia production was included as activity data in the CRF table instead of data on natural gas consumption.</p>			
No	<p>2.B.5. Other (chemical industry) CO<sub>2</sub> All years</p>	<p>While CH<sub>4</sub> emissions from other chemical production such as carbon black, ethylen or dichlorethylen production are estimated, it is unclear whether and how CO<sub>2</sub> emissions from the petrochemical industry were estimated. In the NIR, page 101, it is stated that 'The emissions of indirect GHGs from Production of Other Chemicals for the period 1990-2010 are presented in the review on indirect GHG emissions from non-energy industrial processes'. However, there is no clear description for CO<sub>2</sub> emissions from the use of feedstocks in the petrochemical industry. In the NIR, on page 125, it is stated that 'According to ERT recommendation during the in-country review, CO<sub>2</sub> emissions from non-energy use of naphtha, lubricants, ethane and other have been removed from inventory, because there is no available information or supporting documentation on the oxidation or use of these substances.' It is incorrect to subtract the fuel consumption for non-energy uses and feedstocks and not to account for any emissions from the chemical</p>	<p>The TERT recommends that Croatia estimates emissions under 2.B.5. from those fuels that are excluded in the energy sector and reported as non-energy/feedstock use (ethane, lubricants and bitumen in accordance with Table 1.A.(d)).</p>	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate <sup>(6)</sup>	Technical correction <sup>(7)</sup>
		industry under 2.B. (all related categories are not estimated). This results in an underestimation of emissions. In response to the draft review report Croatia replied that it will make efforts to implement improvements during the preparation of the next submission.			
No	2.F. Consumption of halocarbons and SF <sub>6</sub> HFC, PFC, SF6 2005–2010	In the NIR 2012 (page 260) Croatia states that for the purpose of an accurate estimation of actual emissions of halocarbons and SF <sub>6</sub> , both data on annual stocks in operating systems and data on decommissioning and disposal need to be further investigated. In reply to a question by the TERT regarding progress in the data collection process, Croatia stated that MENP together with the inventory compiler are constantly working on improving the estimation of emissions from SF <sub>6</sub> and other F-gases. A series of meetings and workshops were organised with operators and some improvements in activity data collection were made. Croatia expects that in the next submission a more detailed assessment of actual emission will be provided. In response to the draft review report Croatia replied that it will make efforts to implement improvements during the preparation of the next submission.	The TERT recommends that Croatia improves on the completeness and accuracy of activity data and other parameters in order to ensure that emissions are not underestimated.	No	No
Yes	2.F. Consumption of halocarbons and SF6	Croatia reports potential emissions of HFC-23, HFC-152a, CF <sub>4</sub> and C <sub>3</sub> F <sub>8</sub> , but no actual emissions of these species. This leads to an underestimation of actual	The TERT recommends that Croatia estimates and reports actual emissions of the relevant species in order not to underestimate the actual emissions of F-	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate <sup>(6)</sup>	Technical correction <sup>(7)</sup>
	HFCs, PFCs 2005–2010	emissions. During the review, Croatia replied that in the next submission Croatia plans to improve estimations from this sector and use activity data collected by the ministry to estimate actual emissions from some sub-sectors. In response to the draft review report Croatia replied that it will make efforts to implement improvements during the preparation of the next submission.	gases in Croatia.		
No	2.F(a).2. Foam blowing HFC-152a 2005–2010	Actual emissions of HFC-152a from foam blowing are reported as NE for 2006–2010. However, in the NIR Table 4.6-4 there are data for potential emissions of HFC-152a from foam blowing for 2006–2010. In response to a question raised by the TERT, Croatia explained that there are not sufficient data available for calculating actual emissions. In response to the draft review report Croatia replied that it will make efforts to implement improvements during the preparation of the next submission.	The TERT recommends that Croatia estimates actual emissions of HFC-152a from foam blowing since data on potential emissions are available. An omission of this source leads to an underestimate of actual emissions.	No	No
No	2.F(a).8. Electrical equipment SF <sub>6</sub> All years	In the CRF Table 2.(II)Fs2 there is no information on the product life factor for SF <sub>6</sub> from electrical equipment. Furthermore, the number for the total charge of SF <sub>6</sub> in operating systems is the same as the emission number. According to the NIR (page 122), actual emissions of SF <sub>6</sub> have been calculated using data on total charge of SF <sub>6</sub> contained in the existing stock of equipment and leakage and maintenance losses as a fixed percentage	Since information on total stock and of leakage rates and other parameters are available according to the NIR, the TERT recommends that Croatia improves on transparency and reports on its underlying data and calculations. The TERT also recommends that Croatia ensures that the CRF-table 2.(II)Fs2 is correctly filled in to reflect the background data and parameters used in the calculations.	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate <sup>(6)</sup>	Technical correction <sup>(7)</sup>
		of the total charge provided by the Croatian Electricity Utility Company (Hrvatska elektroprivreda, HEP) and Končar – Electrical Industries Inc. Data on total charge of SF <sub>6</sub> contained in the gas-insulated switchgear and circuit-breakers and leakage/maintenance losses of the total charge, as well as losses during SF <sub>6</sub> manipulation and testing of high voltage circuit breakers and apparatus before delivery were provided. In response to the draft review report Croatia replied that improvements and corrections will be done during the preparation of the next submission.			
No	4.B. Manure management CH <sub>4</sub> All years	The tier 1 EF for developing countries has been used for 1990–2007 for all animals except cattle and swine. From 2008 onwards the EF of developed countries has been used. This change of EF is not in line with the IPCC and causes inconsistency of the time series. EFs of developing countries are lower than those of developed countries used from 2008 onwards. Therefore, the change of EF results in an underestimation for 2005. In response to the draft review report Croatia submitted a recalculation on 30 July 2012, which was accepted by the TERT.	The TERT recommends that Croatia includes the revised estimates in future submissions.	Yes	No
Yes	6.A. Solid waste disposal on land CH <sub>4</sub> , AD All years	No information is provided in the NIR concerning organic industrial waste (including sludge from wastewater treatment) disposed in solid waste disposal sites. In response to a question raised by the TERT during the review, Croatia acknowledged that	The TERT recommends that Croatia includes in the inventory emissions related to the disposal of organic industrial waste and sludge in solid waste disposal sites as specified in the 2000 IPCC GPG.	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate <sup>(6)</sup>	Technical correction <sup>(7)</sup>
		organic industrial waste (including sludge from wastewater treatment) disposed in solid waste disposal sites is not considered in the inventory. In response to the draft review report Croatia replied that there are no data available on industrial waste and sludge in the required form but that Croatia will make efforts to improve AD collection during the preparation of the next submission.			
Yes	6.B.2.a. Domestic wastewater treatment CH <sub>4</sub> , Bo All years	The Bo value applied concerning domestic wastewater is 0.25 kg CH <sub>4</sub> /kg BOD as specified in the Revised 1996 IPCC Guidelines. However, this value has been updated in the 2000 IPCC GPG and the default value that should be applied is 0.6 kg CH <sub>4</sub> /kg BOD or 0.25 kg CH <sub>4</sub> /kg COD. Croatia indicated during the review that the updated value from 2000 IPCC GPG will be used in the next submission and a recalculation will be performed. In response to the draft review report Croatia submitted a recalculation on 30 July 2012, which was accepted by the TERT.	The TERT recommends that Croatia includes the revised estimates in future submissions.	Yes	No

## Annex 2 – Detailed technical corrections

Name of technical correction	Trend in N <sub>2</sub> O emissions from road transport			
Reference to transcript finding record	HR-1.A.3+1.C-2			
Subsector	1.A.3.b. Road transportation			
Gas/fuel/activity	N <sub>2</sub> O gasoline			
	<b>2005</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Original estimate	88.89			Gg CO <sub>2</sub> eq.
Corrected estimate	37.98			Gg CO <sub>2</sub> eq.
The underlying problem	For N <sub>2</sub> O from gasoline used for road transport, the time series of the EF shows various inconsistent trends and changes. Croatia has informed the TERT that the EFs used are default values given in the COPERT model.			
The rationale for the technical correction	However, the IEF is too volatile to be accurate. The TERT concludes that N <sub>2</sub> O emissions from gasoline used for road transport are overestimated for at least 1999–2001 and 2004–2005 due to a lack of transparency in explaining the high IEF in 2005.			
The assumptions, data and methodology used to calculate the technical correction	For emissions in 2005, a technical correction is made using AD reported in the CRF tables and using an EF that has been calculated by an interpolation of the IEF for N <sub>2</sub> O for gasoline in the years 2003 and 2006.			

## Response from Croatia on technical correction

Croatia accepts the technical correction.

## Final remarks by TERT

The TERT thanks Croatia for the very good cooperation during the review process and the country visit.

## 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 (<sup>8</sup>), as well as data from other international organisations.

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<sup>8</sup> Service contract 070307/2009/548866/SER/C4 to the European Commission

## Annex 4 – Correspondence references

Date	Reference
<b>13 April 2012</b>	Final CRF and NIR submission to UNFCCC, version HRV-2012-v1.1
<b>21, 23 May 2012</b>	Initial questions raised by the TERT during the desk review
<b>30 May 2012</b>	Final NIR submission to UNFCCC
<b>7, 11 June 2012</b>	Additional questions raised by the TERT during the centralised review
<b>8, 15 June 2012</b>	Responses from Croatia to TERT questions
<b>8, 15 June</b>	Telephone conferences (EEA, TERT lead reviewers and Croatia)
<b>21 June 2012</b>	Draft technical corrections from TERT to Croatia
<b>5, 6 July 2012</b>	Response from Croatia to TERT draft technical corrections
<b>10 July 2012</b>	Country visit
<b>13 July 2012</b>	Draft review report from TERT to Croatia
<b>28 July, 3 August 2012</b>	Response from Croatia to draft review report
<b>13 August 2012</b>	Draft final review report from TERT to Croatia
<b>16 August 2012</b>	Response and additional information from Croatia to final review report
<b>17 August 2012</b>	Final review report to European Commission