ENFORCEMENT BRANCH
OF THE COMPLIANCE COMMITTEE

CC-2011-3-5/Lithuania/EB/Add.1*
16 November 2011

Vilnius, 1 October 2011

Potential Problems and Further Questions from the ERT formulated in the course of the 2011 review of the greenhouse gas inventories of Lithuania submitted in 2011

For the ERT,

Ms. Thelma Krug,
Lead Reviewer

Ms. Suvi Monni,
Lead Reviewer

* This document has been reissued for technical reasons.

Potential problems with non-inventory elements of the annual submission under the Kyoto Protocol

With reference to the Guidelines for review under Article 8 of the Kyoto Protocol the ERT requests that additional information corresponding to the potential problems identified in this paper be forwarded to the ERT, through the UNFCCC secretariat, not later than by 14 November 2011.

National System (1)

Potential problem/question:

In accordance with paragraph 16 of the annex to decision 19/CMP.1 each Party included in Annex I, as part of its inventory management, shall:

> (a) Archive inventory information for each year in accordance with relevant decisions of the COP and/or COP/MOP. This information shall include all disaggregated emission factors, activity data, and documentation about how these factors and data have been generated and aggregated for the preparation of the inventory. This information shall also include internal documentation on QA/QC procedures, external and internal reviews, documentation on annual key sources and key source identification and planned inventory improvements;
>
> (b) Provide review teams under Article 8 with access to all archived information used by the Party to prepare the inventory, in accordance with relevant decisions of the COP and/or COP/MOP;
>
> (c) Respond to requests for clarifying inventory information resulting from the different stages of the review process of the inventory information, and information on the national system, in a timely manner in accordance with Article 8.

Paragraph 11 of the annex to decision 19/CMP.1, states that in order to meet the objectives and perform the general functions of the national system described above, each Party included in Annex I shall undertake specific functions relating to inventory planning, preparation and management.

In accordance with paragraph 51 of the UNFCCC reporting guidelines on annual inventories, Annex I Parties should gather and archive all relevant inventory information for each year, including all disaggregated emission factors, activity data and documentation on how these factors and data were generated, including expert judgment where appropriate, and how they have been aggregated for reporting in the inventory. This information should allow reconstruction of the inventory by the expert review teams, inter alia. Inventory information should be archived from the base year and should include corresponding data on the recalculations applied. The "paper trail", which can include spreadsheets or databases used to compile inventory data, should enable estimates of emissions and removals to be traced back to the original disaggregated emission factors and activity data. Also, relevant supporting documentation related to QA/QC implementation, uncertainty evaluation, or key source analyses should be kept on file.

The ERT notes that Lithuania has not addressed the recommendations contained in paragraphs 32 and 38 of the 2009 and 2010 annual review reports, respectively, and it has not been able to provide archived documents requested by the ERT during the review. During the in-country review the ERT visited the archive and noted that it does not include all the information required. The ERT concluded that the archive in its current form does not fulfill all the above-mentioned requirements contained in decision 19/CMP.1.

Recommendation by the ERT:
The ERT recommends that Lithuania develop, within 6weeks, a comprehensive plan on how the archive will be improved by the next annual submission so that it conforms with the requirements related to the archived inventory information contained in the annex to decision 19/CMP.1.

The ERT recommends that the plan include the activities that will be implemented by Lithuania in order to ensure that the archive contains the following inventory information: disaggregated emission factors, activity data, and documentation about how these factors and data have been generated and aggregated for the preparation of the inventory; internal documentation on QA/QC procedures, external and internal reviews, documentation on annual key categories and key categories identification and planned inventory improvements. Lithuania must ensure that the review teams have access to all archived information used by Lithuania to prepare the inventory and that it is in position to respond to requests for clarifying inventory information resulting from the different stages of the review process of the inventory information, and information on the national system, in a timely manner in accordance with Article 8.

Furthermore, the ERT recommends that Lithuania put in place the archive in accordance with the above-mentioned decisions and report on the archive in its next annual submission.

National System issues specific to the activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol (2)

Potential problems/questions:

Paragraphs 5 to 9 of the annex to decision 15/CMP.1, and in particular paragraph 5, sets out the requirements for reporting of information on anthropogenic greenhouse gas emissions by sources and removals by sinks from land use, land-use change and forestry activities under Article 3, paragraph 3, and on forest management under Article 3, paragraph 4, of the Kyoto Protocol.

Paragraph 6(b) of the annex to decision 15/CMP.1 requests that “general information to be reported for activities under Article 3, paragraph 3, and any elected under Article 3, paragraph 4, shall include the geographical location of the boundaries of the areas that encompass:

(i) Units of land subject to activities under Article 3, paragraph 3;

(ii) Units of land subject to activities under Article 3, paragraph 3, which would otherwise be included in land subject to elected activities under Article 3, paragraph 4, under the provisions of paragraph 8 of the annex to decision 16/CMP.1;

(iii) Land subject to elected activities under Article 3, paragraph 4."

Further, the same paragraph 6(b) of the annex to decision 15/CMP.1 notes that the information is aimed to ensure that units of land and areas of land are identifiable and encourages Parties to elaborate on this information on the basis of any relevant decisions of the COP/MOP on good practice guidance associated with land use, land-use change and forestry under Article 8 .

Paragraph 20 of the annex to decision 16/CMP.1 sets out the requirements for the national inventory systems under Article 5, paragraph 1, that shall ensure that areas of land subject to the KP-LULUCF activities are identifiable, and information about these areas should be provided by each Party included in Annex I in their national inventories in accordance with Article 7. Paragraph 20 of the annex to decision 16/CMP.1 states that such information will be reviewed in accordance with Article 8.

The ERT noted that Lithuania has a national forest inventory system in place that is adequate to identify, in 5-year cycles, the changes in forest management land, including deforestation. However, the ERT noted that the national system of Lithuania could not ensure that all lands subject to the afforestation/reforestation activities[1] under Article 3, paragraph 3, of the Kyoto Protocol are identifiable since 1990.

Recommendation by the ERT:
The ERT recommends that Lithuania submit, within 6 weeks, a comprehensive action plan aimed to improve its existing legal, institutional and/or administrative arrangements, as necessary, in such a way that the Party is able to identify the land areas subject to the activities under Article 3, paragraph 3, of the Kyoto Protocol.

The ERT recommends that the action plan contain the measures of the short- and longer-term character, including the period up to the end of the commitment period reporting under the Kyoto Protocol. In preparation of the action plan, the ERT recommends that Lithuania follow the guidance provided in Chapter 4 of the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC/GPG for LULUCF).

Furthermore, the ERT recommends that the Party report, in its next annual submission, on the steps taken towards implementing the action plan submitted.

[1] Note that according to decision 16/CMP.1 reforestation and afforestation refers to conversion of non-forest land or land that has not been forested for at least 50 years to forest land, respectively.

Inventory-related potential problems

With reference to the Guidelines for review under Article 8 of the Kyoto Protocol, the ERT requests that additional information and/or revised estimates for the 2011 greenhouse gas (GHG) inventory corresponding to the potential problems identified in this paper (see attached tables) be forwarded to the ERT, through the UNFCCC secretariat, not later than by 14 November 2011.

Should Lithuania decide to submit by 14 November 2011, in response to some or all potential problems, revised estimates of its GHG emissions, the ERT requests that the revised estimates contain the following:

- Relevant background information and a descriptive summary of the revisions made by Lithuania in its 2011 inventory submission, in particular in the year 2009 with respect to:

  (a) CO_2 emissions from fuel combustion of peat in the energy sector;

  (b) CO_2 emissions from gaseous fuels from fuel combustion in the energy sector;

  (c) HFC emissions in refrigeration and air conditioning equipment in consumption of halocarbons and SF_6 in the industrial processes sector.

- A complete resubmission of the 2011 CRF tables, reflecting the revised estimates, for the complete time series;
- Party's revision of the calculation of the commitment period reserve, based on the recalculated emissions reported for 2009, if the calculation of the commitment period reserve is based on the inventory and not the assigned amount.

ATTACHMENT A

Overview of inventory potential problems identified for 2009

Annex A sources

2011 GHG inventory review

Lithuania

Abbreviations:
GPG: IPCC good practice guidance
AD: activity data, EF: emission factor, IEF: implied emission factor
KC: key category, ERT: Expert Review Team

Sector, category, sub-category (with code)	Gas	KC / non-KC	Identified inventory problem in terms of:		
			Missing estimate	Estimate provided but not in line with GPG	Estimate provided but lack of transparency
1. Energy, 1.A Fuel Combustion, Solid Fuels (1.A.1 Energy Industries, 1.A.2 Manufacturing Industries and Construction, 1.A.4 Other Sectors)	CO_2	KC			X
Description of problem identified: In its 2011 annual submission, Lithuania reported CO_2 emissions from peat combustion using an emission factor of 102 kg/GJ, which could not be fully substantiated. The full documentation for the derivation of this emission factor was not made available to the ERT during the review week. Furthermore, this emission factor is lower than the default emission factor (106.0 kg/GJ) provided for CO_2 emissions from peat in the Revised 1996 IPCC guidelines. The ERT notes that the reported emissions from peat could represent a potential underestimate of CO_2 emissions.					
Recommendation by ERT: The ERT recommends that Lithuania justify the use of its current emission factor for CO_2 emissions from peat combustion and provide documentation to substantiate its derivation and applicability to Lithuania. If that cannot be provided, the ERT recommends that Lithuania recalculate its emissions using the default emission factor in table 1.1 on page 1.13 of the Revised 1996 IPCC Guidelines: Reference Manual.					
Response / Information by Party:					
Potential problem unsolved? Rationale:					

Overview of inventory potential problems identified for 2009

Annex A sources

2011 GHG inventory review

Lithuania

Abbreviations:
GPG: IPCC good practice guidance
AD: activity data, EF: emission factor, IEF: implied emission factor
KC: key category, ERT: Expert Review Team

Sector, category, sub-category (with code)	Gas	KC / non-KC	Identified inventory problem in terms of:		
			Missing estimate	Estimate provided but not in line with GPG	Estimate provided but lack of transparency
1. Energy, 1.A Fuel Combustion, Gaseous Fuels	CO_2	KC			X

Description of problem identified:

In its 2011 annual submission, Lithuania reported CO_2 emissions from gaseous fuels in the amount of 4,652.96 Gg for 2009 following the reference approach. Lithuania also reported CO_2 emissions from gaseous fuels in the amount of 3,792.16 Gg for 2009 following the sectoral approach. At the same time, Lithuania reported apparent energy consumption of 67.17 PJ following the reference approach and 66.65 PJ following the sectoral approach for the year 2009.

During the review, Lithuania explained that the difference in CO_2 emissions (22.7 per cent) was due to the non-energy use of natural gas for ammonia production, but was not able to demonstrate this quantitatively. The ERT notes that Lithuania provided an explanation in the NIR that was not sufficiently transparent, especially with respect to the fact that the large difference in estimated CO_2 emissions is accompanied by such a small difference (0.79 per cent) in apparent energy consumption, as calculated by the two approaches. Therefore, the ERT considers that the difference in emissions implies a potential underestimate of CO_2 emissions from gaseous fuel combustion.

Recommendation by ERT:

The ERT recommends that Lithuania improve the transparency by recalculating CO_2 emissions from gaseous fuels by the reference approach, appropriately taking into account the full use of natural gas for feedstocks and non-energy use (especially considering ammonia production). The ERT recommends that Lithuania provide an explanation about the non-energy use of gaseous fuels in the documentation boxes in the relevant CRF tables 1A(c) and (d) to confirm that there is no underestimate of CO_2 emissions calculated following the sectoral approach.

In case Lithuania cannot demonstrate that there is no underestimation of CO_2 emissions, the ERT recommends that Lithuania recalculate CO_2 emissions from gaseous fuels following the sectoral approach.

Response / Information by Party:

Potential problem unsolved? Rationale:

Overview of inventory potential problems identified for 2009

Annex A sources

2011 GHG inventory review

Lithuania

Abbreviations:
GPG: IPCC good practice guidance
AD: activity data, EF: emission factor, IEF: implied emission factor
KC: key category, ERT: Expert Review Team

Sector, category, sub-category (with code)	Gas	KC / non-KC	Identified inventory problem in terms of:		
			Missing estimate	Estimate provided but not in line with GPG	Estimate provided but lack of transparency
2. Industrial processes, 2.F Consumption of Halocarbons and SF_6, 2.F.1 Refrigeration and air conditioning equipment	HFCs	KC (Consumption of HFCs identified as KC)	X		

Description of problem identified:

Lithuania did not estimate HFC emissions from transport refrigeration (part of the category refrigeration and air conditioning equipment) for the entire time series in the 2011 annual submission. However, Lithuania reported in Section 4.7 on Planned improvements of the 2011 National Inventory Report that it will estimate HFC emissions from transport refrigeration in its next annual submission.

The ERT considers that the omission of HFC emissions from transport refrigeration leads to an underestimation of HFC emissions from refrigeration and air conditioning equipment.

Recommendation by ERT:

The ERT recommends that Lithuania estimate HFC emissions from transport refrigeration (sub-category of refrigeration and air conditioning equipment) by collecting the missing activity data and using the available IPCC methodology contained in Chapter 3.7.4 on Stationary refrigeration sub-source category of the IPCC Good Practice Guidance, which provides guidance on transport refrigeration.

In case the activity data cannot be collected, within 6weeks, following the Article 8 guidelines, the Party may wish to consider making a preliminary emission estimate using an average emission rate from a cluster of countries based on a driver such as population. In case the cluster of countries approach is used for the preliminary estimate, the ERT recommends that for its 2012 annual submission Lithuania collect the national activity data and estimate and report HFC emissions by using the methodology contained in Chapter 3.7.4 on Stationary refrigeration sub-source category of the IPCC Good Practice Guidance, which provides guidance on transport refrigeration.

Response / Information by Party:

Potential problem unsolved? Rationale:

Lithuania's answers to the report
"Potential Problems and Further Questions from the ERT formulated in the course of the 2011 review of the greenhouse gas inventories of Lithuania submitted in 2011"

Ministry of Environment
11 November 2011, Vilnius

In response to the potential problems related to non-inventory elements of the annual submission under the Kyoto Protocol, Lithuania submits (attached as a separate files):

1. Lithuania's GHG inventory archive improvement plan
2. Action plan to improve LULUCF reporting of Lithuania

As a supplementary information to the "Action plan to improve LULUCF reporting", Lithuania submits the document "Surveying of carbon stock in Lithuanian forests".

Responding to the ERT findings on inventory-related potential problems, Lithuania is providing answers in Attachment A (pages 8-12) and in the attached file "*Energy recalculations_2011.xls*" and resubmits 2011 greenhouse gas inventory. CRF tables have been uploaded to the UNFCCC submission portal on 4th November 2011. In addition, the list of the revisions of GHG estimates by sector is provided below:

Energy:

- 1.AA.1.A Public Electricity and Heat production/ Solid fuels/ Peat, CO_2
- 1.AA.2.E Food processing, beverages and tobacco/ Solid fuels/ Peat, CO_2
- 1.AA.1.C Manufacture of Solid Fuels and Other Energy Industries/ Solid fuels/ Peat, CO_2
- 1.AA.2.F Other non-specified/ Solid fuels/ Peat, CO_2
- 1.AA.4.A Commercial/Institutional/ Solid fuels/ Peat, CO_2
- 1. AA.4.B Residential/ Solid fuels/ Peat, CO_2
- 1.AA.4.C Agriculture/Forestry/Fisheries/ Solid fuels/ Peat, CO_2
- 1.AB Fuel combustion - Reference approach/ Gaseous fuels/ Natural gas
- 1.AC Difference –Reference and sectoral approach/ Gaseous fuels
- 1.AD Feedstocks and non-energy use of fuels/ Natural gas

Industrial processes:

- 2.F.1 Refrigeration and air-conditioning equipment/ Transport refrigeration, HFC

Due to recalculation of GHG emissions, calculation of the commitment period reserve is also revised and provided below.

Revision of the calculation of the commitment period reserve

As a result of the revision of estimations, total greenhouse gas emission in 2009 has changed, therefore calculation of the commitment period reserve is revised.

The commitment period reserve is calculated in accordance with decision 11/CMP.1 as 90% of assigned amount or 100% of its most recently reviewed inventory times five, whichever is lowest.

In the case of the Lithuania, the relevant size of the commitment period reserve is five times the 2009 inventory (submitted in November 2011), which is calculated below:

5 x 20 418,33 Gg CO_2 eq = **102 091 669 tonnes CO_2 eq.**

Potential problems with non-inventory elements of the annual submission under the Kyoto Protocol

With reference to the Guidelines for review under Article 8 of the Kyoto Protocol the ERT requests that additional information corresponding to the potential problems identified in this paper be forwarded to the ERT, through the UNFCCC secretariat, not later than by 14 November 2011.

National System (1)

Potential problem/question:

In accordance with paragraph 16 of the annex to decision 19/CMP.1 each Party included in Annex I, as part of its inventory management, shall:

> (a) Archive inventory information for each year in accordance with relevant decisions of the COP and/or COP/MOP. This information shall include all disaggregated emission factors, activity data, and documentation about how these factors and data have been generated and aggregated for the preparation of the inventory. This information shall also include internal documentation on QA/QC procedures, external and internal reviews, documentation on annual key sources and key source identification and planned inventory improvements;
>
> (b) Provide review teams under Article 8 with access to all archived information used by the Party to prepare the inventory, in accordance with relevant decisions of the COP and/or COP/MOP;
>
> (c) Respond to requests for clarifying inventory information resulting from the different stages of the review process of the inventory information, and information on the national system, in a timely manner in accordance with Article 8.

Paragraph 11 of the annex to decision 19/CMP.1, states that in order to meet the objectives and perform the general functions of the national system described above, each Party included in Annex I shall undertake specific functions relating to inventory planning, preparation and management.

In accordance with paragraph 51 of the UNFCCC reporting guidelines on annual inventories, Annex I Parties should gather and archive all relevant inventory information for each year, including all disaggregated emission factors, activity data and documentation on how these factors and data were generated, including expert judgment where appropriate, and how they have been aggregated for reporting in the inventory. This information should allow reconstruction of the inventory by the expert review teams, inter alia. Inventory information should be archived from the base year and should include corresponding data on the recalculations applied. The "paper trail", which can include spreadsheets or databases used to compile inventory data, should enable estimates of emissions and removals to be traced back to the original disaggregated emission factors and activity data. Also, relevant supporting

documentation related to QA/QC implementation, uncertainty evaluation, or key source analyses should be kept on file.

The ERT notes that Lithuania has not addressed the recommendations contained in paragraphs 32 and 38 of the 2009 and 2010 annual review reports, respectively, and it has not been able to provide archived documents requested by the ERT during the review. During the in-country review the ERT visited the archive and noted that it does not include all the information required. The ERT concluded that the archive in its current form does not fulfill all the above-mentioned requirements contained in decision 19/CMP.1.

Recommendation by the ERT:
The ERT recommends that Lithuania develop, within 6weeks, a comprehensive plan on how the archive will be improved by the next annual submission so that it conforms with the requirements related to the archived inventory information contained in the annex to decision 19/CMP.1.

The ERT recommends that the plan include the activities that will be implemented by Lithuania in order to ensure that the archive contains the following inventory information: disaggregated emission factors, activity data, and documentation about how these factors and data have been generated and aggregated for the preparation of the inventory; internal documentation on QA/QC procedures, external and internal reviews, documentation on annual key categories and key categories identification and planned inventory improvements. Lithuania must ensure that the review teams have access to all archived information used by Lithuania to prepare the inventory and that it is in position to respond to requests for clarifying inventory information resulting from the different stages of the review process of the inventory information, and information on the national system, in a timely manner in accordance with Article 8.

Furthermore, the ERT recommends that Lithuania put in place the archive in accordance with the above-mentioned decisions and report on the archive in its next annual submission.

Response/ Information by Party

Responding on the issue raised above and aiming to improve GHG inventory archive, Lithuania submits "Lithuania's GHG inventory archive improvement plan" (attached as a separate file).

National System issues specific to the activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol (2)

Potential problems/questions:

Paragraphs 5 to 9 of the annex to decision 15/CMP.1, and in particular paragraph 5, sets out the requirements for reporting of information on anthropogenic greenhouse gas emissions by sources and removals by sinks from land use, land-use change and forestry activities under Article 3, paragraph 3, and on forest management under Article 3, paragraph 4, of the Kyoto Protocol.

Paragraph 6(b) of the annex to decision 15/CMP.1 requests that "general information to be reported for activities under Article 3, paragraph 3, and any elected under Article 3, paragraph 4, shall include the geographical location of the boundaries of the areas that encompass:

(i) Units of land subject to activities under Article 3, paragraph 3;

(ii) Units of land subject to activities under Article 3, paragraph 3, which would otherwise be included in land subject to elected activities under Article 3, paragraph 4, under the provisions of paragraph 8 of the annex to decision 16/CMP.1;

(iii) Land subject to elected activities under Article 3, paragraph 4."

Further, the same paragraph 6(b) of the annex to decision 15/CMP.1 notes that the information is aimed to ensure that units of land and areas of land are identifiable and encourages Parties to elaborate on this information on the basis of any relevant decisions of the COP/MOP on good practice guidance associated with land use, land-use change and forestry under Article 8 .

Paragraph 20 of the annex to decision 16/CMP.1 sets out the requirements for the national inventory systems under Article 5, paragraph 1, that shall ensure that areas of land subject to the KP-LULUCF activities are identifiable, and information about these areas should be provided by each Party included in Annex I in their national inventories in accordance with Article 7. Paragraph 20 of the annex to decision 16/CMP.1 states that such information will be reviewed in accordance with Article 8.

The ERT noted that Lithuania has a national forest inventory system in place that is adequate to identify, in 5-year cycles, the changes in forest management land, including deforestation. However, the ERT noted that the national system of Lithuania could not ensure that all lands subject to the afforestation/reforestation activities[1] under Article 3, paragraph 3, of the Kyoto Protocol are identifiable since 1990.

Recommendation by the ERT:
The ERT recommends that Lithuania submit, within 6 weeks, a comprehensive action plan aimed to improve its existing legal, institutional and/or administrative arrangements, as necessary, in such a way that the Party is able to identify the land areas subject to the activities under Article 3, paragraph 3, of the Kyoto Protocol.

The ERT recommends that the action plan contain the measures of the short- and longer-term character, including the period up to the end of the commitment period reporting under the Kyoto Protocol. In preparation of the action plan, the ERT recommends that Lithuania follow the guidance provided in Chapter 4 of the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC/GPG for LULUCF).

[1] Note that according to decision 16/CMP.1 reforestation and afforestation refers to conversion of non-forest land or land that has not been forested for at least 50 years to forest land, respectively.

Furthermore, the ERT recommends that the Party report, in its next annual submission, on the steps taken towards implementing the action plan submitted.

Response/ Information by Party

Responding on the issue raised above and aiming to improve existing legal, institutional and administrative arrangements in order to be able to identify the land areas subject to the activities under Article 3, paragraph 3, of the Kyoto Protocol, Lithuania submits "Action plan to improve LULUCF reporting" (attached as a separate file).

ATTACHMENT A

Overview of inventory potential problems identified for 2009

Annex A sources

2011 GHG inventory review

Lithuania

Abbreviations:
GPG: IPCC good practice guidance
AD: activity data, EF: emission factor, IEF: implied emission factor
KC: key category, ERT: Expert Review Team

Sector, category, sub-category (with code)	Gas	KC / non-KC	Identified inventory problem in terms of:		
			Missing estimate	Estimate provided but not in line with GPG	Estimate provided but lack of transparency
1. Energy, 1.A Fuel Combustion, Solid Fuels (1.A.1 Energy Industries, 1.A.2 Manufacturing Industries and Construction, 1.A.4 Other Sectors)	CO_2	KC			X

Description of problem identified:

In its 2011 annual submission, Lithuania reported CO_2 emissions from peat combustion using an emission factor of 102 kg/GJ, which could not be fully substantiated. The full documentation for the derivation of this emission factor was not made available to the ERT during the review week.

Furthermore, this emission factor is lower than the default emission factor (106.0 kg/GJ) provided for CO_2 emissions from peat in the Revised 1996 IPCC guidelines. The ERT notes that the reported emissions from peat could represent a potential underestimate of CO_2 emissions.

Recommendation by ERT:

The ERT recommends that Lithuania justify the use of its current emission factor for CO_2 emissions from peat combustion and provide documentation to substantiate its derivation and applicability to Lithuania. If that cannot be provided, the ERT recommends that Lithuania recalculate its emissions using the default emission factor in table 1.1 on page 1.13 of the Revised 1996 IPCC Guidelines: Reference Manual.

Response / Information by Party:
Emissions from peat combustion were recalculated using default emission factor (106.0 kg/GJ) provided for CO_2 emissions from peat in the Revised 1996 IPCC guidelines. As a result of recalculations the total energy sector emissions increased in various years from 0.008% to 0.029% and 0.016% in 2009 (results are presented in the attached file *Energy recalculations_2011.xls*).

Potential problem unsolved? Rationale:

Overview of inventory potential problems identified for 2009

Annex A sources

2011 GHG inventory review

Lithuania

Abbreviations:
GPG: IPCC good practice guidance
AD: activity data, EF: emission factor, IEF: implied emission factor
KC: key category, ERT: Expert Review Team

Sector, category, sub-category (with code)	Gas	KC / non-KC	Identified inventory problem in terms of:		
			Missing estimate	Estimate provided but not in line with GPG	Estimate provided but lack of transparency
1. Energy, 1.A Fuel Combustion, Gaseous Fuels	CO_2	KC			X

Description of problem identified:

In its 2011 annual submission, Lithuania reported CO_2 emissions from gaseous fuels in the amount of 4,652.96 Gg for 2009 following the reference approach. Lithuania also reported CO_2 emissions from gaseous fuels in the amount of 3,792.16 Gg for 2009 following the sectoral approach. At the same time, Lithuania reported apparent energy consumption of 67.17 PJ following the reference approach and 66.65 PJ following the sectoral approach for the year 2009.

During the review, Lithuania explained that the difference in CO_2 emissions (22.7 per cent) was due to the non-energy use of natural gas for ammonia production, but was not able to demonstrate this quantitatively. The ERT notes that Lithuania provided an explanation in the NIR that was not sufficiently transparent, especially with respect to the fact that the large difference in estimated CO_2 emissions is accompanied by such a small difference (0.79 per cent) in apparent energy consumption, as calculated by the two approaches. Therefore, the ERT considers that the difference in emissions implies a potential underestimate of CO_2 emissions from gaseous fuel combustion.

Recommendation by ERT:

The ERT recommends that Lithuania improve the transparency by recalculating CO_2 emissions from gaseous fuels by the reference approach, appropriately taking into account the full use of natural gas for feedstocks and non-energy use (especially considering ammonia production). The ERT recommends that Lithuania provide an explanation about the non-energy use of gaseous fuels in the documentation boxes in the relevant CRF tables 1A(c) and (d) to confirm that there is no underestimate of CO_2 emissions calculated following the sectoral approach.

In case Lithuania cannot demonstrate that there is no underestimation of CO_2 emissions, the ERT recommends that Lithuania recalculate CO_2 emissions from gaseous fuels following the sectoral approach.

Response / Information by Party:
After additional consultations with the Statistics Lithuania it was clarified that natural gas category "non-energy use" includes natural gas consumption for ammonia and methanol production. Emissions from these processes are reported in Industrial Processes sector, therefore evaluating natural gas balance in fuel reference approach natural gas consumed for non-energy use (i.e. consumed in industrial processes) was subtracted from the total amount included in calculations. As a result of recalculation, difference between CO_2 emission in reference approach and sectoral approach (from gaseous fuels) decreased to -0.50- 1.90% and for 2009 the difference was -1.12%. Difference between CO_2 emission in reference approach and sectoral approach (total fuels) decreased to -4.66- 1.76% and for 2009 the difference was 1.09% (results are presented in the attached file *Energy recalculations_2011.xls*).

Potential problem unsolved? Rationale:

Overview of inventory potential problems identified for 2009

Annex A sources

2011 GHG inventory review

Lithuania

Abbreviations:
GPG: IPCC good practice guidance
AD: activity data, EF: emission factor, IEF: implied emission factor
KC: key category, ERT: Expert Review Team

Sector, category, sub-category (with code)	Gas	KC / non-KC	Identified inventory problem in terms of:		
			Missing estimate	Estimate provided but not in line with GPG	Estimate provided but lack of transparency
2. Industrial processes, 2.F Consumption of Halocarbons and SF_6, 2.F.1 Refrigeration and air conditioning equipment	HFCs	KC (Consumption of HFCs identified as KC)	X		

Description of problem identified:

Lithuania did not estimate HFC emissions from transport refrigeration (part of the category refrigeration and air conditioning equipment) for the entire time series in the 2011 annual submission. However, Lithuania reported in Section 4.7 on Planned improvements of the 2011 National Inventory Report that it will estimate HFC emissions from transport refrigeration in its next annual submission.

The ERT considers that the omission of HFC emissions from transport refrigeration leads to an underestimation of HFC emissions from refrigeration and air conditioning equipment.

Recommendation by ERT:

The ERT recommends that Lithuania estimate HFC emissions from transport refrigeration (sub-category of refrigeration and air conditioning equipment) by collecting the missing activity data and using the available IPCC methodology contained in Chapter 3.7.4 on Stationary refrigeration sub-source category of the IPCC Good Practice Guidance, which provides guidance on transport refrigeration.

In case the activity data cannot be collected, within 6 weeks, following the Article 8 guidelines, the Party may wish to consider making a preliminary emission estimate using an average emission rate from a cluster of countries based on a driver such as population. In case the cluster of countries approach is used for the preliminary estimate, the ERT recommends that for its 2012 annual submission Lithuania collect the national activity data and estimate and report HFC emissions by using the methodology contained in Chapter 3.7.4 on Stationary refrigeration sub-source category of the IPCC Good Practice Guidance, which provides guidance on transport refrigeration.

Response / Information by Party:

HFC emissions from transport refrigeration were evaluated using Tier 2 bottom-up approach. The data on transport refrigerators including vehicle age were provided by a transport vehicles registration company *Regitra*. Parameters for emission calculations were taken from Revised 1996 IPCC Guidelines: average amount of HFC in transport refrigeration systems 8 kg, annual leakage rate 17%, average equipment lifetime 15 years. For estimating emissions of separate components, data on consumption of specific HFCs by two leading Lithuanian transport refrigeration service companies were used. Estimated emissions (in tonnes) are provided in the table below:

	1995	1996	1997	1998	1999	2000	2001	2002
HFC-125	0.00	0.01	0.02	0.03	0.06	0.12	0.25	0.49
HFC-134a	0.00	0.01	0.01	0.03	0.06	0.12	0.23	0.46
HFC-143a	0.00	0.01	0.02	0.04	0.07	0.15	0.29	0.58
Total Gg CO_2 eq	0.03	0.07	0.13	0,26	0,52	1,05	2,10	4.18

	2003	2004	2005	2006	2007	2008	2009
HFC-125	0.74	1.17	1.47	1.90	2.48	2.92	3.05
HFC-134a	0.70	1.09	1.38	1.78	2.32	2.74	2.86
HFC-143a	0.88	1.39	1.75	2.26	2.94	3.47	3.63
Total Gg CO_2 eq	6.35	9.96	12.57	16.22	21.12	24.91	26.06

The overall impact of this recalculation (inclusion of emission from transport refrigeration) in 2009 is an increase in 26.06 Gg CO_2 eq, equivalent to 1.18 per cent of emission from the industrial processes sector.

Potential problem unsolved? Rationale:

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