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# **Review of the 2015 Adjustment Application by Luxembourg**

Expert Review Team Report for the EMEP Steering Body

<b>Report title</b>	Review of the 2015 Adjustment Application by Luxembourg
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## Expert Review Team

<b>Role</b>	<b>NFR14 sectors</b>	<b>Name (country)</b>
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Primary expert reviewer	Road transport (1A3bi-iv)	Yvonne Pang (UK)
Secondary expert reviewer	Road transport (1A3bi-iv)	Michael Kotzulla (DE)
Basic checks (Steps 1 and 2)	N/A	Katarina Mareckova (CEIP)

## Executive Summary

1. As mandated by decision 2012/3 (ECE/EB.AIR/111/Add.1) of the Executive Body of the Convention on Long-range Transboundary Air Pollution (CLRTAP), the nominated expert review team (ERT) undertook a detailed review of the adjustment application submitted by Luxembourg. The review was undertaken on behalf of the EMEP<sup>1</sup> Steering Body (SB) and following the guidance published in the Annex to decisions 2012/12 (ECE/EB.AIR/113/Add.1) and 2014/1 (ECE/EB.Air/130).
2. Each section of the application was reviewed by two independent sectoral experts in May and June 2015. The findings were discussed at the meeting held from 22 to 26 June 2015 at the EEA in Copenhagen. The conclusions and recommendations for the EMEP SB have been documented in this country report.

**Table ES1: Summary Information on the Submitted Application, Luxembourg 2015**

Reasons for adjustment application (decision 2012/3, para 6 as amended by decision 2014/1, annex, para 3)	Road transport (1A3bi-iv): significantly different EFs
Pollutant/sector for which adjustment is applied for	NO <sub>x</sub>
Year(s) for which inventory adjustment is (are) applied for	2010, 2011, 2012, 2013
Date of notification of adjustment to the Convention Secretariat	2 March 2015
Date of submission of supporting documentation	16 March 2015

3. The expert review team (ERT) reviewed and evaluated the documents submitted by Luxembourg.
4. **NO<sub>x</sub> emissions from road transport (1A3bi-iv):** Luxembourg provided information that transparently presented “extraordinary” revisions of NO<sub>x</sub> emission factors and, moreover, clearly quantified the impact of the EF revisions separately. The ERT concluded that the application meets all the requirements set out in decision 2012/12 of the Executive Body of the CLRTAP and therefore recommends that the EMEP Steering Body **ACCEPT** this adjustment application.
5. The quantity and impact of the adjustment recommended for acceptance is summarized in tables ES2 and ES3 below.

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<sup>1</sup> Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe

**Table ES2: Sum Total of Recommended Inventory Adjustments (ktonnes), Luxembourg, 2010-2013**

Pollutant		2010	2011	2012	2013
NO <sub>x</sub>	kt	-2.70	-2.87	-2.97	-3.02

**Table ES3: Impact of Recommended Inventory Adjustments on National Emissions, Luxembourg, 2010 and 2013**

Poll.	GP emission reduction commitment (kt)	2010 emissions reported in 2015 (kt)	2010 emissions (adjusted) (kt)	Difference (%)	2013 emissions reported in 2015 (kt)	2013 emissions (adjusted) (kt)	Difference (%)
NO <sub>x</sub>	11	17.05	14.35	16%	13.69	10.67	22%

6. Luxembourg's total national emissions will be below the Gothenburg Protocol ceilings from 2013 onwards if the proposed adjustments are accepted.

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# 1 Introduction and Context

7. Parties may apply for an adjustment to their inventory data or emission reduction commitments whenever they are (or expect to be) in non-compliance with their emission reduction targets<sup>2</sup>. However, in making an adjustment application, they must demonstrate that extraordinary circumstances have given rise to the need to revise their emissions estimates. These extraordinary circumstances fall into three broad categories:

- a) emission source categories are identified that were not accounted for at the time when the emission reduction commitments were set (for a more detailed definition see decision 2014/1, annex, para. 3 (a) (i)–(iii)); or
- b) emission factors used to determine emissions levels for the year in which emissions reduction commitments are to be attained are significantly different than the emission factors applied to these categories when emission reduction commitments were set; or
- c) the methodologies used to determine emissions from specific source categories change significantly between the time the emission reduction commitments are set and the year they must be attained.

8. Any Party submitting an application for an adjustment to its inventory is required to notify the Convention Secretariat through the Executive Secretary by 15 February at the latest. The supporting information detailed in decision 2012/12 the Technical Guidance document (ECE/AB.Air/130) must be provided (either as part of the Informative Inventory Report or in a separate report) by 15 March of the same year.

9. Decision 2012/12, as amended by the decision 2014/1, of the Executive Body of the CLRTAP, mandates that applications for adjustments submitted by Parties shall be subject to an expert review<sup>3</sup>. Technical coordination and support in the review is provided by EMEP's Centre on Emission Inventories and Projections (CEIP). The members of the review team are selected from the available review experts<sup>4</sup> nominated by Parties to the CEIP roster of experts.

10. The Expert Review Team (ERT) undertakes a detailed technical review of the adjustment application in cooperation with the technical bodies under EMEP and makes a recommendation to the EMEP Steering Body on the acceptance or rejection of the application. The EMEP Steering Body then takes its decision on each adjustment application based on the outcome of the technical assessment completed by the ERT.

11. The flow diagram below outlines the different stages of the technical review. The following sections of this report are structured in the same way and provide a detailed description of the ERT findings at each of the decision gates in the process.

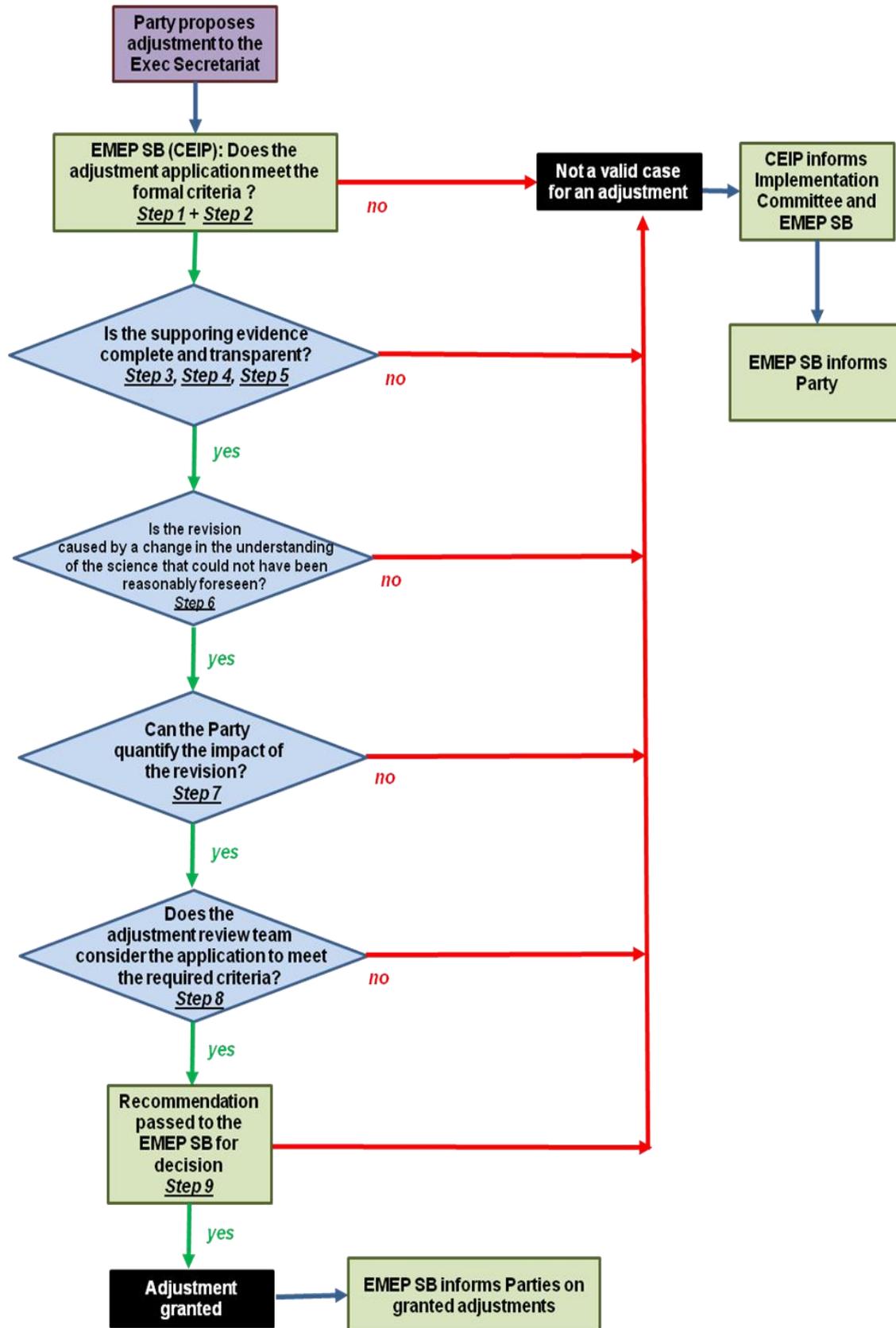
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<sup>2</sup> The term "emission reduction commitments" is used throughout this report. However, the term "emission ceilings" is equally applicable.

<sup>3</sup> The EMEP Steering Body, in conjunction with other appropriate technical bodies under EMEP, shall review the supporting documentation and assess whether the adjustment is consistent with the circumstances described in para 6 of EB decision 2012/3 and the further guidance in EB decision 2012/12 as amended by EB decision 2014/1 and Technical Guidance ECE/AB.Air/130 ..

<sup>4</sup> [http://www.ceip.at/fileadmin/inhalte/emep/pdf/2015/0\\_Roster\\_2015.pdf](http://www.ceip.at/fileadmin/inhalte/emep/pdf/2015/0_Roster_2015.pdf)

Figure 1: Flow Diagram/Decision Tree for the Review of Adjustment Applications



## 2 Review of Adjustments Submitted in 2015

### 2.1 Assessment of Formal Criteria

12. Luxembourg notified the Convention Secretariat through the Executive Secretary of its intention to apply for a new adjustment on 2 March 2015 and thus after the legal deadline of 15 February. All supporting information requested by decision 2012/12 amended by decision 2014/1 was provided as part of the Informative Inventory Report one day after the legal deadline of 15 March of the same year it was submitted for review by the EMEP Steering Body (decision 2012/12, annex, para 1). Additional documentation was provided during the review in response to requests from the ERT. Section 4 lists the documentation provided by the Party.

13. Luxembourg submitted an application for NO<sub>x</sub> emissions adjustments for 2010-2013 for the sectors indicated below:

a) Road transport (1A3bi-iv)

14. Luxembourg does not comply with its emission reduction commitments listed in Annex II of the Gothenburg Protocol (para 1 of decision 2012/3).

15. Luxembourg provided information on the adjustment impact on its emission inventory and the extent to which it would reduce the current exceedance and presumably bring the Party in compliance with the emission reduction commitments.

16. In the supporting documentation, Luxembourg failed to include any information on when it expects to meet its NO<sub>x</sub> emission ceiling without the adjustment.

### 2.2 Road Transport (1A3bi-iv), NO<sub>x</sub>

#### 2.2.1 Assessment of Consistency with Requirements of EB Decision 2012/3 as amended by EB Decision 2014/1

17. Luxembourg submitted an application for significant emission factor revisions.

18. The adjustment application requires the provision of specific supporting information to demonstrate compliance with specific criteria (decision 2012/3, para 6a-c) as amended by decision 2014/1, annex, para 3). The ERT reviewed the supporting documentation on the basis of these criteria (see Section 4) and concluded that emission factors used to determine emission levels for road transport source categories 1A3bi-iv for the year in which emissions reduction commitments were to be attained are significantly different than the emission factors applied to these categories when the emission reduction commitments were set.

19. The EF changes highlighted in the adjustment application could not have been foreseen at the time the 2010 emission ceilings were set and result entirely from the Euro standards not delivering the originally projected emission reductions in the real world.

20. The ERT therefore concluded that the supporting evidence provided complies with the criteria presented in decision 2012/3 and that the circumstances on which the adjustment is based could not have been reasonably foreseen by the Party at the time the emission ceilings were established for 2010.

21. The ERT reviewed the documentation provided to support the application (listed in Section 4). The supporting information provided by the Party on the EF revisions was deemed complete, except that the Party failed to provide any information on when it expects to meet its NO<sub>x</sub> emission ceiling without the adjustment. The ERT therefore requested that the Party provide information to this end.

22. The Party provided the requested information (see Section 4) and confirmed that, without the adjustment, it would meet its NO<sub>x</sub> emission ceiling shortly after 2020.

### 2.2.2 Assessment of the Quantification of the Revision Impact

23. The adjustment application requires that the Party submit a quantification of the impact of the adjustment for which an application is submitted. The ERT found that the activity data provided in Table 2 of the Annex II adjustment application spreadsheet was inconsistent with the values reported in the Party's Informative Inventory Report. The ERT therefore asked the Party to provide clarification and information on the following points:

- clarification on whether the activity data on fuel used or fuel sold has been used for the adjustment calculations;
- clarification on whether the activity data has been filled in correctly in the adjustment application spreadsheet and provision of a correct version if necessary

24. The Party provided clarifications on these issues (see Section 4). The ERT concluded that this additional information fully resolved the inconsistency issues regarding the adjustment proposals made for 2010 to 2013. Table 1 provides an overview of Luxembourg's NO<sub>x</sub> adjustment applications for the road transport sector.

**Table 1: Luxembourg's NO<sub>x</sub> Adjustment Applications for Road Transport, 2010-2013**

Reference number	Pollutant	NFR14	Unit	2010	2011	2012	2013
LU_1A3b_NOx	NO <sub>x</sub>	1A3bi-iv	kt	-2.70	-2.87	-2.97	-3.02

25. The ERT concluded that the quantification of the impact of this adjustment, as calculated by the Party, on total national emissions is based on an appropriate methodology and does not include any calculation errors. Furthermore, the ERT concluded that the information presented by the Party is in line with the most up-to-date available guidance from the EMEP/EEA Guidebook and the scientific literature.

### 3 Conclusions and Recommendations

26. The ERT has undertaken a full and thorough assessment of the application for an adjustment of the NO<sub>x</sub> emission inventory submitted by Luxembourg for road transport (1A3bi-iv).

27. The review of the submitted application was performed in accordance with the guidance provided in the Annex to decision 2012/12 of the Executive Body of the CLRTAP and in the Technical Guidance ECE/EB.AIR/130. The ERT findings are described in detail in Section 2 of this report.

28. Table 2 below provides a summary of the adjustment applications received from Luxembourg as well as the subsequent recommendations the ERT made to the EMEP Steering Body.

**Table 2: ERT Recommendations to the EMEP Steering Body, Luxembourg 2015**

Country	Sector	NFR14	Pollutant	Years	ERT recommendation
Luxembourg	Road transport	1A3bi-iv	NO <sub>x</sub>	2010- 2013	Accept

29. **Road transport (1A3bi-iv), NO<sub>x</sub>**: Luxembourg provided information to support their application for an adjustment. During the review, the ERT requested further information and clarifications from the Party, in particular, information that allowed the ERT to assess the quantification of the revision impact. The ERT deemed that this additional information fully explained the activity data used to quantify the adjusted amount. The ERT therefore recommends that the EMEP Steering Body **ACCEPT** this adjustment application.

## 4 Information Provided by the Party

30. Table 3 lists the information provided by the Party in its adjustment application. The information provided by Party can be downloaded from the CEIP website<sup>5</sup>.

**Table 3: Information Provided by Luxembourg**

Filename	Short description of content
LU_2015_Appendix_B1_Adjustment_Application_Tables_VIII_140314.xlsx	MS Excel file with detailed data serving as basis for the proposed NO <sub>x</sub> adjustment applications from 1A3bi-iv
LU_IIR_2015_final_150421.pdf	PDF file of the Party's Informative Inventory Report (1990-2013): Chapter 11 details the proposed adjustments
LU_Notification_LU_2015v1_150227.docx	MS Word file of the Party's 2015 CLRTAP/EMEP Emission Inventory Status Report sent to the UNECE secretariat on 16 February 2015
Final_report_Luxemburg_HBEFA1-2_vs_3-2_aktuell_140314.pdf	PDF file of a report that provides background information on the "Assessment of transport emissions in Luxembourg based on emission factors from HBEFA1.2 and HBEFA3.2"

31. The ERT found it necessary to ask the Party for further information. The information provided is described in Table 4 below.

**Table 4: Additional Information Provided by Luxembourg**

Filename	Short description of content
2015 Adjustment_list_of_questions_Luxembourg v0.2_LUresponse_150611.docx	MS Word file with the clarifications from the Party to the ERT's questions
Annex_IV_Projections_NOx_LU_forAdjustmentReviewTeam_150611.xlsx	MS Excel file with preliminary NO <sub>x</sub> projections which provide an indication as to when the Party expects to meet its NO <sub>x</sub> emission ceiling without the adjustment
LU_2015_Appendix_B1_Adjustment_Application_Tables_VIII_150611.xlsx	MS Excel file with corrected activity data serving as basis for the proposed NO <sub>x</sub> adjustment applications from 1A3bi-iv

<sup>5</sup> [http://www.ceip.at/ms/ceip\\_home1/ceip\\_home/adjustments\\_gp/](http://www.ceip.at/ms/ceip_home1/ceip_home/adjustments_gp/)

## 5 References

Decision 2012/3 (ECE/EB.AIR/111/Add.1): Adjustments under the Gothenburg Protocol to emission reduction commitments or to inventories for the purposes of comparing total national emissions with them

Decision 2012/12 (ECE/EB.AIR/113/Add.1): Guidance for adjustments under the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to emission reduction commitments or to inventories for the purposes of comparing total national emissions with them

Decision 2014/1 (ECE/EB.Air/127/Add.1): Improving the guidance for adjustments under the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to emission reduction commitments or to inventories for the purposes of comparing total national emissions with them

Data submitted by Parties applying for an adjustment:

[http://www.ceip.at/ms/ceip\\_home1/ceip\\_home/adjustments\\_gp/](http://www.ceip.at/ms/ceip_home1/ceip_home/adjustments_gp/)

EMEP/EEA air pollutant emission inventory guidebook 2013 (EMEP/EEA Guidebook)

<http://www.eea.europa.eu/publications/emep-eea-guidebook-2013>

EMEP/CORINAIR atmospheric emission inventory guidebook- Second edition 1999. (1999 Guidebook)

<http://www.eea.europa.eu//publications/EMEPCORINAIR>

Guidelines for reporting emissions and projections data under the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/125)

[http://www.ceip.at/ms/ceip\\_home1/ceip\\_home/reporting\\_instructions/](http://www.ceip.at/ms/ceip_home1/ceip_home/reporting_instructions/)

ECE/EB.AIR/130: Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications, 14 April 2015

<http://www.unece.org/environmental-policy/conventions/envlrtapwelcome/guidance-documents-and-other-methodological-materials/emissions-reporting.html>

The 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol)

[http://www.unece.org/env/lrtap/multi\\_h1.html](http://www.unece.org/env/lrtap/multi_h1.html)