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English ONLY

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

Expert Review Team Report for the EMEP Steering Body

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

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Secondary expert reviewer	Road transport (1A3bi-iv)	Michael Kotzulla (DE)
Primary expert reviewer	Agriculture (3B, 3D)	Michael Anderl (EU)
Secondary expert reviewer	Agriculture (3B, 3D)	Jim Webb (UK)
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 Belgium. 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 22-26 June 2015 at the EEA in Copenhagen. The conclusions and recommendations for the EMEP Steering Body have been documented in this country report.

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

Reasons for adjustment application (decision 2012/3, para 6 as amended by decision 2014/1, annex, para 3)	Road transport (1A3bi-iv): revision of EFs and methodology Agriculture (3B <sup>2</sup> , 3Da1, 3Da2a, 3De): new sources
Pollutant /sector for which adjustment is applied for	Road transport, NO <sub>x</sub> Agriculture, NO <sub>x</sub> and NMVOC
Year(s) for which inventory adjustment is (are) applied for	2010, 2011, 2012, 2013
Date of notification of adjustment to the Convention Secretariat	13 February 2015
Date of submission of supporting documentation	17 March 2015

3. The expert review team (ERT) reviewed and evaluated the documents submitted by Belgium.

4. **NO<sub>x</sub> emissions from road transport (1A3bi-iv):** Belgium 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 expert review tea has 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. NO<sub>x</sub> emissions from Manure management (3B), inorganic N-fertilizers (3Da1) and animal manure applied to soils (3Da2a). NMVOC emissions from Manure management (3B) and cultivated crops (3De): Belgium provided information that transparently presented the addition of new NO<sub>x</sub> and NMVOC sources and further clearly quantified the impact of adding the new source. The ERT has

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

<sup>2</sup> NFRs 3B1a, 3B1b, 3B2, 3B3, 3B4d, 3B4e, 3B4f, 3B4gi,ii, 3B4iv and 3B4h hereinafter referred to as 3B

concluded that the application meets all of 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.

6. A summary of the quantity and impact of the adjustments recommended for acceptance is provided in tables ES2 and ES3 below.

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

Pollutant		2010	2011	2012	2013
NO <sub>x</sub>	kt	-61.90	-61.30	-60.26	-59.60
NMVOG	kt	-37.81	-37.10	-36.79	-36.56

**Table ES3: Impact of Recommended Inventory Adjustments on National Emissions, Belgium 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>	176	231.79	169.89	27%	199.49	139.89	30%
NMVOG	139	153.72	115.91	25%	136.68	100.12	27%

7. Belgium's total national emissions will be below the Gothenburg Protocol ceilings from 2010 onwards if the proposed adjustments are accepted.

## Content

<b>1</b>	<b>Introduction and Context .....</b>	<b>6</b>
<b>2</b>	<b>Review of Adjustments Submitted in 2015 .....</b>	<b>8</b>
2.1	Assessment of Formal Criteria.....	8
2.2	Road Transport (1A3bi-iv), NO <sub>x</sub> .....	8
2.2.1	Assessment of Consistency with Requirements of EB Decision 2012/3 as amended by EB Decision 2014/1 ..	8
2.2.2	Assessment of the Quantification of the Revision Impact.....	9
2.3	Manure Management (3B), Inorganic N-fertilizers (3Da1), Animal Manure Applied to Soils (3Da2a), NO <sub>x</sub> ; Manure Management (3B), and Cultivated Crops (3De), NMVOC.....	9
2.3.1	Assessment of Consistency with Requirements of EB Decision 2012/3 as amended by EB Decision 2014/1 ..	9
2.3.2	Assessment of the Quantification of the Revision Impact.....	10
<b>3</b>	<b>Conclusions and Recommendations .....</b>	<b>12</b>
<b>4</b>	<b>Information Provided by the Party.....</b>	<b>13</b>
<b>5</b>	<b>References .....</b>	<b>14</b>

# 1 Introduction and Context

8. 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>3</sup>. However, in making an adjustment application, they must demonstrate that extraordinary circumstances have given rise to the need to revise their emission estimates. These extraordinary circumstances fall into three broad categories:

- a) emission source categories are identified that were accounted for at the time the emission reduction commitments are 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 emission reduction commitments are to be attained are significantly different than the emission factors applied to these categories when the 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.

9. 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 and the Technical Guidance document (ECE/EB.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.

10. Decision 2012/12, as amended by 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>4</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>5</sup> nominated by Parties to the CEIP roster of experts.

11. 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.

12. 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.

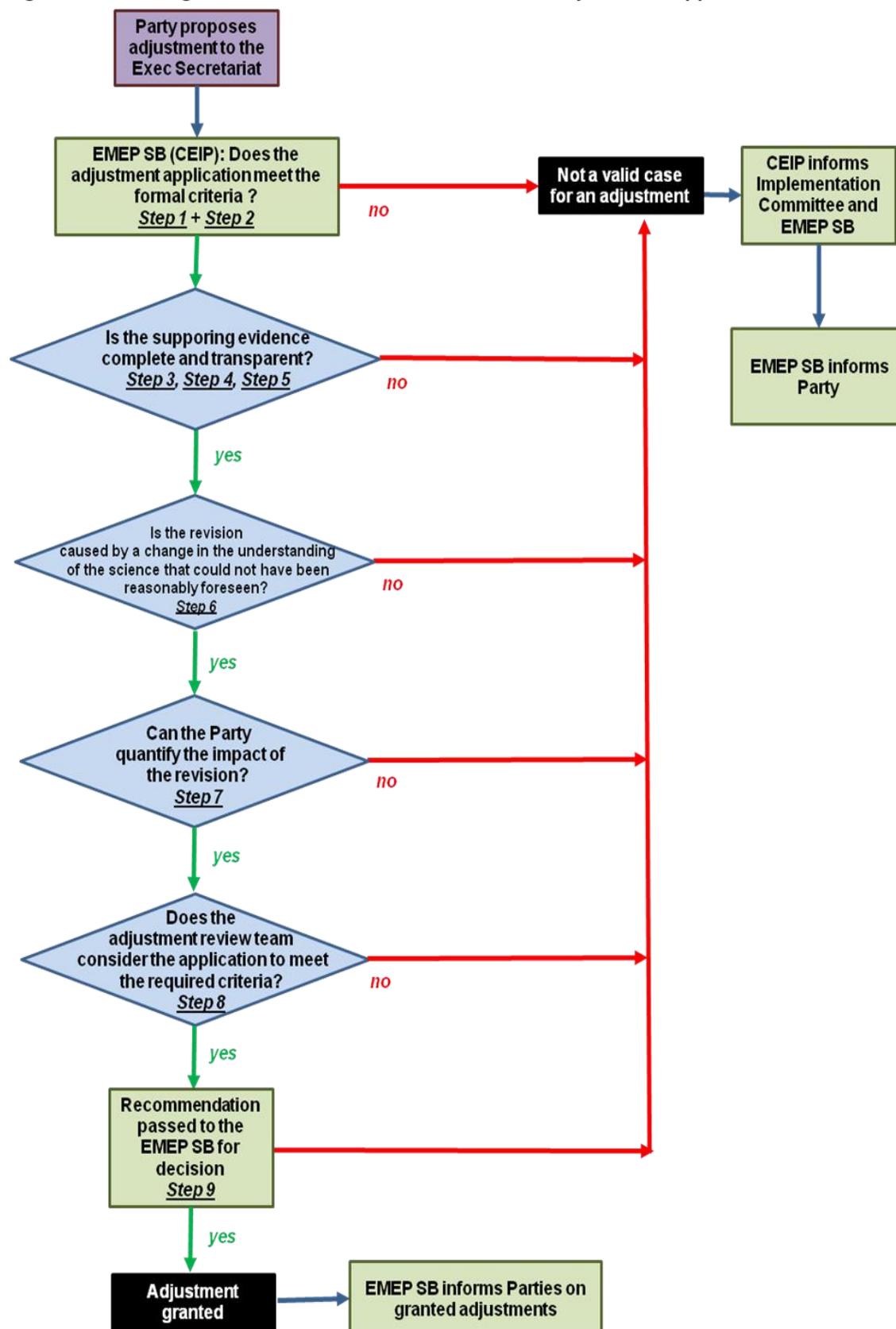
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<sup>3</sup> The term "emission reduction commitments" is used throughout this report. However, the term "emission ceilings" is equally applicable.

<sup>4</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 as described in the Technical Guidance ECE/EB.Air/130.

<sup>5</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

13. Belgium submitted an adjustment application in 2014, which was given an “open” status. It was therefore scheduled to be reviewed in 2015. Belgium notified the Convention Secretariat through the Executive Secretary of its intention to apply for a new adjustment on 13 February 2015, i.e. before the legal deadline of 15 February. Supporting information requested by decision 2012/12, as amended by decision 2014/1, was provided as part of the Informative Inventory Report before 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.

14. Belgium submitted an application for emission adjustments for 2010-2013 for the pollutants and sectors indicated below:

- a) NO<sub>x</sub>, Road transport (1A3bi-iv);
- b) NO<sub>x</sub>, Manure management (3B1a, 3B1b, 3B2, 3B3, 3B4d, 3B4e, 3B4f, 3B4gi,ii, 3B4iv and 3B4h; hereinafter referred to as 3B);
- c) NO<sub>x</sub>, Inorganic N-fertilizers (3Da1);
- d) NO<sub>x</sub>, Animal manure applied to soils (3Da2a);
- e) NMVOC, Manure management (3B1a, 3B1b, 3B2, 3B3, 3B4d, 3B4e, 3B4f, 3B4gi,ii, 3B4iv and 3B4h; hereinafter referred to as 3B); and
- f) NMVOC, Cultivated crops (3De)

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

16. Belgium provided information relating to 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.

17. In the supporting documentation, Belgium included information on when it expects to meet its NO<sub>x</sub> emission ceiling.

### 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

18. Belgium submitted an application for significant EF and methodology revisions.

19. 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 emission reduction commitments were to be attained varied significantly from the emission factors applied to these categories at the time the emission reduction commitments were set.

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

21. 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.

22. The ERT reviewed the documentation that was provided to support the application (listed in Section 4).

23. The supporting information provided by the Party on the EF revisions made was fully transparent. The ERT was satisfied that this information fully explained the impact of the different calculation methodology revisions on NO<sub>x</sub> emissions (resulting in the exceedance of the 2010 ceiling).

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

24. The adjustment application requires that the Party submit a quantification of the impact of the adjustment for which an application is submitted. Table 1 provides an overview of the NO<sub>x</sub> adjustment applications of Belgium in the road transport sector.

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

Reference number	Pollutant	NFR14	Unit	2010	2011	2012	2013
BEL/2015/1a	NO <sub>x</sub>	1A3bi-ii	kt	-30.82	-31.83	-32.59	-32.80
BEL/2015/1c	NO <sub>x</sub>	1A3biii	kt	-17.16	-15.94	-14.58	-13.74
BEL/2015/1d	NO <sub>x</sub>	1A3biv	kt	0.003	0.003	0.003	0.002
	<b>NO<sub>x</sub></b>	<b>Total 1A3b</b>	<b>kt</b>	<b>-47.98</b>	<b>-47.77</b>	<b>-47.17</b>	<b>-46.54</b>

25. The ERT concluded that the quantification of the impact of this adjustment, as calculated by Belgium, 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 Belgium is in line with the most up-to-date guidance available from the EMEP/EEA Guidebook and the scientific literature.

## 2.3 Manure Management (3B), Inorganic N-fertilizers (3Da1), Animal Manure Applied to Soils (3Da2a), NO<sub>x</sub>; Manure Management (3B), and Cultivated Crops (3De), NMVOC

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

26. Belgium made an application based on a new source.

27. An 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). Belgium provided supporting documentation and the ERT reviewed this

information ('Adjustment Review Report' of Belgium, see Section 4) with regard to these criteria. The ERT deemed the supporting information provided by Belgium complete.

28. The ERT noted that no methodologies for the estimation of NO<sub>x</sub> and NMVOC emissions from animal husbandry and manure management (including manure application on land), inorganic N-fertilizer application and cultivated crops were included in the 1999 Guidebook and concluded that the provided supporting evidence meets the criteria set forth by 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.

29. The ERT therefore concluded that the provided supporting evidence meets 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.

30. The ERT reviewed the documentation that was provided to support the application (listed in Section 4).

31. The supporting information Belgium provided on the new sources was fully transparent. The ERT was satisfied that this information fully explained the impact of the new sources on the NO<sub>x</sub> and NMVOC emissions (resulting in the exceedance of the 2010 ceiling).

### 2.3.2 Assessment of the Quantification of the Revision Impact

32. The adjustment application requires that Belgium submit a quantification of the impact of the adjustment for which an application is submitted. Table 2 provides an overview of Belgium's NO<sub>x</sub> and NMVOC adjustment applications in the agriculture sector.

**Table 2: Belgium's NO<sub>x</sub> and NMVOC Adjustment Applications for Agriculture, 2010-2013**

Reference number	Pollutant	NFR14	Unit	2010	2011	2012	2013
BEL/2015/2	NO <sub>x</sub>	3B	kt	-0.39	-0.38	-0.38	-0.37
BEL/2015/3	NO <sub>x</sub>	3Da1	kt	-5.94	-5.85	-5.64	-5.73
BEL/2015/4	NO <sub>x</sub>	3Da2a	kt	-7.60	-7.29	-7.07	-6.95
	<b>NO<sub>x</sub></b>	<b>Total</b>	<b>kt</b>	<b>-13.92</b>	<b>-13.52</b>	<b>-13.09</b>	<b>-13.06</b>
Reference number	Pollutant	NFR14	Unit	2010	2011	2012	2013
BEL/2015/5	NMVOC	3B	kt	-36.59	-35.90	-35.60	-35.37
BEL/2015/6	NMVOC	3De	kt	-1.22	-1.20	-1.19	-1.19
	<b>NMVOC</b>	<b>Total</b>	<b>kt</b>	<b>-37.81</b>	<b>-37.10</b>	<b>-36.79</b>	<b>-36.56</b>

33. The ERT concluded that there is no calculation error in the quantification of the recalculations, as calculated by Belgium, on total national emissions. Furthermore, the ERT concluded that the information presented by Belgium is in line with the most up-to-date EMEP/EEA Guidebook and scientific literature available.

34. In its 2015 submission, Belgium reported NO<sub>x</sub> and NMVOC emissions from manure management category (3B) and animal manure applied to soils (NFR 3Da2a) for the first time. The improvement is based on the updated EMEP/EEA Guidebook which provides new EFs for animal husbandry and manure management (3B).

35. For its 2015 submission, Belgium estimated NO<sub>x</sub> emissions from inorganic N-fertilizers (3Da1) for the first time. At the time the reduction commitments were set, no valid methodology was provided by the 1999 Guidebook.

36. In its 2015 submission, Belgium reported NMVOC emissions from cultivated crops (NFR 3De) for the first time. At the time the reduction commitments were set, no valid methodology was provided by the 1999 Guidebook.

37. In its application for an adjustment, Belgium indicated that, from 2010 onwards, its national totals of both NO<sub>x</sub> and NMVOC emissions would be below their ceilings in accordance with the Gothenburg Protocol if the proposed adjustments are accepted.

38. In its adjustment proposal, Belgium transparently demonstrated that increased emissions resulted from the new emission sources reported by Belgium. Increased emissions were not the result of new specific agriculture activities causing additional emissions in Belgium. The ERT is therefore of the opinion that an adjustment is justified.

### 3 Conclusions and Recommendations

39. The ERT has undertaken a full and thorough assessment of the application for an adjustment of the emission inventory submitted by Belgium for the following pollutants and source sectors:

- a) NO<sub>x</sub>, Road transport (1A3bi-iv);
- b) NO<sub>x</sub>, Manure management (3B);
- c) NO<sub>x</sub>, Inorganic N-fertilizers (3Da1);
- d) NO<sub>x</sub>, Animal manure applied to soils (3Da2a);
- e) NMVOC; Manure management (3B);
- f) NMVOC; Cultivated crops (3De)

40. 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.

41. Table 3 below provides a summary of the adjustment applications received from Belgium as well as the subsequent recommendations the ERT made to the EMEP SB.

**Table 3: ERT Recommendations to the EMEP SB, Belgium 2015**

Country	Sector	NFR14	Pollutant	Years	ERT recommendation
Belgium	Road transport	1A3bi - iv	NO <sub>x</sub>	2010- 2013	Accept
	Manure management Inorganic N-fertilizers	3B 3Da1	NO <sub>x</sub>	2010–2013	Accept
	Animal manure applied to soils	3Da2a			
	Manure management Cultivated crops	3B 3De	NMVOC	2010–2013	Accept

42. **Road transport (1A3bi-iv), NO<sub>x</sub>**: Belgium provided information that transparently presented “extraordinary” revisions of the NO<sub>x</sub> emission factors and, moreover, clearly quantified the impact of the EF revisions separately. The ERT has 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.

43. Manure management (3B), inorganic N-fertilizers (3Da1) and animal manure applied to soils (3Da2a), NO<sub>x</sub>. Manure management (3B) and cultivated crops (3De), NMVOC: Belgium provided information that transparently presented the addition of new NO<sub>x</sub> and NMVOC sources and further clearly quantified the impact of adding the new source. The ERT has concluded that the application meets all of 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.

44. In the supporting documentation, Belgium provided information on when it expects to meet its emission ceiling for NO<sub>x</sub>, indicating that, from 2010 onwards, both NO<sub>x</sub> and NMVOC emissions will be below the respective ceilings in accordance with the Gothenburg Protocol if the adjustments be accepted.

## 4 Information Provided by the Party

45. Table 4 below lists the information provided by the Party in its adjustment application. The information provided by the Party can be downloaded from the CEIP website<sup>6</sup>.

**Table 4: Information Provided by Belgium**

Filename	Short description of content
NotificationTemplate__CLRTAP_EMEP_emission_inventory_status_report_2015_RECALCULATION.doc	Word file
Appendix_B1.xlsx	Excel file with detailed data serving as basis for the proposed adjustment applications for NO <sub>x</sub> for (a) 1.A.3.b
IIR_2015_BE.pdf	IIR 2015, pdf-document; especially: Chapter 12 adjustments
Adjustement_2015_BE.pdf	ADJUSTMENT EMISSION INVENTORY REPORT – NEC REPORT 31 December 2014 LRTAP REPORT 15 February 2015 LRTAP resubmission 15 March 2015, Version 1

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<sup>6</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)