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# **Review of the 2014 Adjustment Application by Belgium**

Expert Review Team Report for the EMEP Steering Body

<b>Report title</b>	Review of the 2014 Adjustment Application by Belgium
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## Expert Review Team

<b>Role</b>	<b>Sectors</b>	<b>Name</b>
Adjustment lead reviewer	All	Chris DORE (UK)
Primary expert reviewer	Energy (1.A.3.e)	Stephan POUPA (AT)
Secondary expert reviewer	Energy –(1.A.3.e)	Garnt Jans VENHUIS (NL)
Primary expert reviewer	Road transport (1.A.3.b)	Michael KOTZULLA (GER)
Secondary expert reviewer	Road Transport (1.A.3.b)	Jean-Marc ANDRE (FRA)
Primary expert reviewer	Off-road mobile machinery (1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.4.a ii, 1.A.4.b ii, 1.A.5.b)	Michael KOTZULLA (GER)
Secondary expert reviewer	Off-road mobile machinery (1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.4.a ii, 1.A.4.b ii, 1.A.5.b)	Jean-Marc ANDRE (FRA)
Basic checks (Step 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 CLRTAP the nominated Expert Review Team undertook a detailed review of the adjustment application submitted by Belgium. The review was undertaken on behalf of the EMEP Steering Body and following the guidance published in the Annex to decision 2012/12 (ECE/EB.AIR/113/Add.1).
2. Each sector of the application was reviewed by two independent sectoral experts during May and June 2014. The findings were discussed at the meeting held from 23-27 June 2014 in Copenhagen at the EEA. The conclusions and recommendations for the EMEP SB are documented in this country report.

**Table ES1 Summary Information on the Submitted Application**

Reasons for adjustment application (Decision 2012/3, para 6)	Road Transport 1.A.3.b: Significantly different EFs Off-road mobile machinery: New sources Pipeline Compressors 1.A.3.e: New source
Pollutants for which adjustment is applied for	NO <sub>x</sub>
Year(s) for which inventory adjustment is applied	2010, 2011, 2012
Date of notification of adjustment to the Secretariat	15 February 2014
Date of submission of supporting documentation	17 March 2014

3. The Expert Review Team reviewed and evaluated the documents submitted by Belgium.
4. **NO<sub>x</sub> emissions from 1.A.3.bi-iv:** The Expert Review Team concludes that the application will require additional information before a full assessment can be completed. The Expert Review Team considers the information provided to be nearly complete in presenting the impacts of changes to emission factors on the emissions. However, some details are currently unclear, for example the impact of revisions to activity data, especially for deriving the current version of 2010 emission estimates. The Expert Review Team note that the proposal presents information on GAINS data, rather than the official 2010 activity data as reported in the country's 2014 submission. A more detailed explanation of this recommendation can be found in section 2.2 of this report.
5. Within the available resources and time constraints, the Expert Review Team has not been able to determine whether the basis for this application meets all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. The Expert Review Team therefore recommends that the EMEP Steering Body assign this adjustment application an **OPEN** status, and seeks to arrange for further work to be undertaken that will conclude whether the application should be accepted or rejected.
6. NO<sub>x</sub> emissions from pipeline compressors (1.A.3.e) and from off-road mobile machinery (NFR categories 1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.4.a ii, 1.A.4.b ii, and 1.A.5.b): The Expert Review Team concludes that the applications do not fulfil the criteria in Decision 2012/3, as further elaborated in paragraph 2 of the annex to decision 2012/12.

7. **NO<sub>x</sub> emissions from natural gas pipeline compressors (1A3e):** The Expert Review Team conclude that emissions from gas pipeline compressors cannot be considered as a “new” source, because an emission factor is included in the EMEP CORINAIR Guidebook 2000. The Expert Review Team therefore recommends that the EMEP Steering Body **REJECT** this adjustment application.

8. Off-road mobile machinery (NFR categories 1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.4.a ii, 1.A.4.b ii, and 1.A.5.b): Emissions from these NFR categories have already been included in the IIASA models used for deriving the 2010 National Emissions Ceiling and therefore cannot be accepted as “new” sources. The Expert Review Team therefore recommends that the EMEP Steering Body **REJECT** this adjustment application.

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# 1 Introduction and Context

9. Parties may apply to adjust their inventory data or emission reduction commitments if they are (or expect to be) in non-compliance with their emission reduction targets<sup>1</sup>. However, in making an adjustment application, they must demonstrate that extraordinary circumstances have given rise to revisions to 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; or
- b) For a particular source, the emission factors used to estimate emissions for the year in which emissions reduction commitments are to be attained are significantly different to those used when the emission reduction commitments were set; or
- c) The methodologies used for determining emissions from specific source categories have undergone significant changes between the time when emission reduction commitments were set and the year they are to be attained.

10. 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 must be provided (either as part of the Informative Inventory Report, or in a separate report) by 15 March of the same year.

11. As mandated by Decision 2012/12 of the Executive Body of the CLRTAP, applications for adjustments that are submitted by Parties are subject to an expert review<sup>2</sup>. Technical coordination and support to 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>3</sup> that Parties have nominated to the CEIP roster of experts.

12. The Expert Review Team (ERT) undertakes a detailed technical review of the adjustment application in cooperation with the EMEP technical bodies 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 any adjustment application based on the outcome of the technical assessment completed by ERT.

13. 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 describe in detail the findings of the ERT at each of the decision gates in the process.

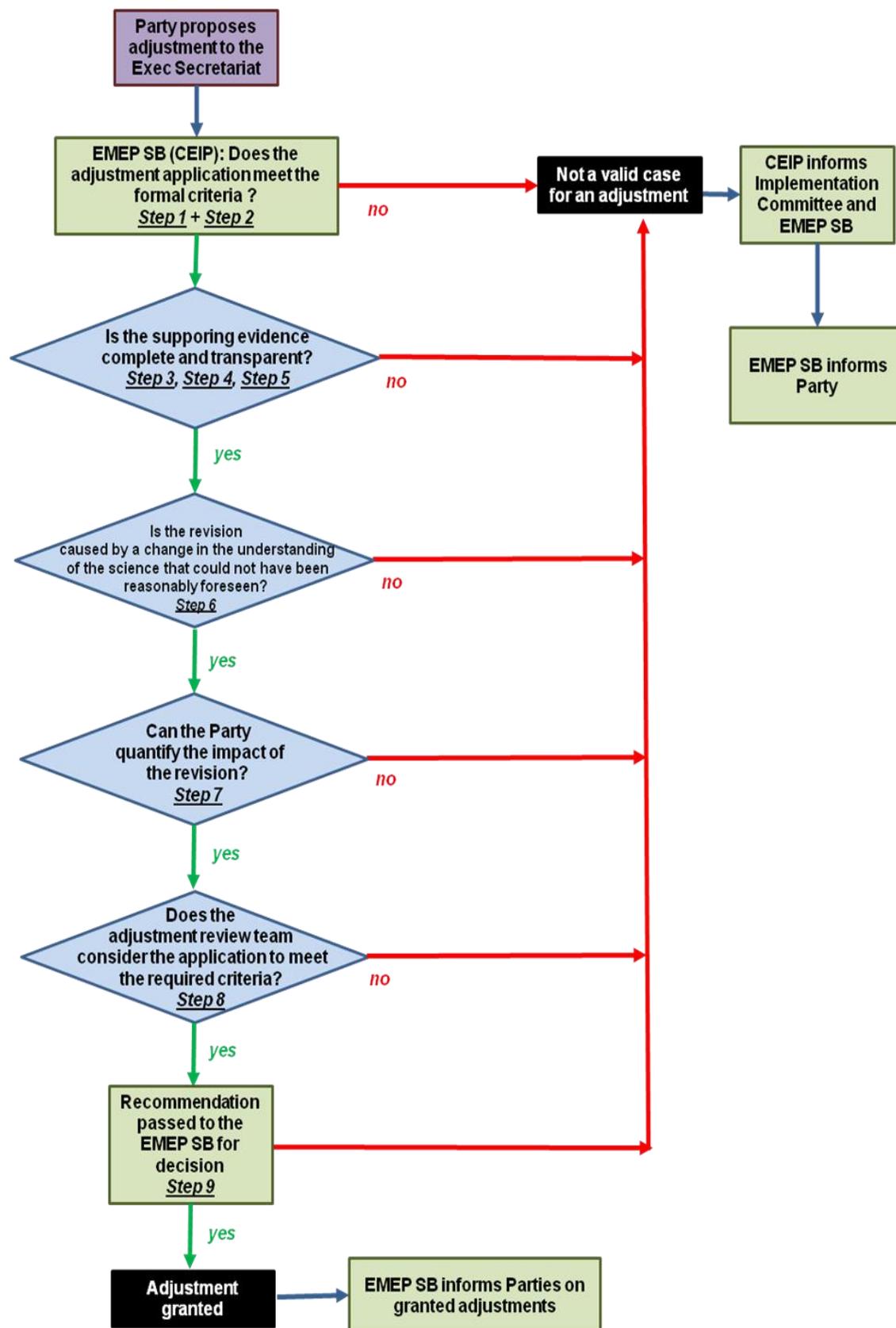
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<sup>1</sup> Throughout this report the term "emission reduction commitments" is used. However, the term "emission ceilings" is equally applicable.

<sup>2</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 paragraph 6 of decision 2012/3 and the further guidance in decision 2012/12.

<sup>3</sup> [http://www.ceip.at/fileadmin/inhalte/emep/pdf/2014/0\\_Roster\\_2014.pdf](http://www.ceip.at/fileadmin/inhalte/emep/pdf/2014/0_Roster_2014.pdf)

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



## 2 Review of Submitted Adjustments

### 2.1 Assessment of Formal Criteria

14. Belgium notified the Convention Secretariat through the Executive Secretary of its intention to apply for a new adjustment on 15/02/2014 and thus before the legal deadline of 15 February. All supporting information requested by Decision 2012/12 was provided as part of the Informative Inventory Report before the legal deadline of the 15 March of the same year that it is being 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.

15. Belgium submitted an application for emissions adjustments to NO<sub>x</sub> for 2010-2012 for the following sectors:

- a) Road transport 1.A.3.bi-iv
- b) Off road mobile sources: 1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.4.a ii, 1.A.4.b ii, 1.A.5.b
- c) Pipeline compressors 1.A.3.e

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

17. Belgium provided information on the impact of the adjustment to its emission inventory, and the extent to which it would reduce the current exceedance and possibly bring the Party in compliance with emission reduction commitments.

18. Belgium did not include any information on when it will meet its emission ceiling for NO<sub>x</sub> in the supporting documentation.

### 2.2 Road Transport 1.A.3.bi-iv (NO<sub>x</sub>)

#### 2.2.1 Assessment of Consistency with Requirements of Decision 2012/3

19. The Party made an application based on significant revisions to emission factors (EFs) and methodology.

20. The adjustment application requires the provision of specific supporting information to demonstrate compliance with specific criteria (Decision 2012/3, para. 6a-c). The ERT reviewed the supporting documentation (see section 4) with regard to these criteria and concluded that emission factors used to determine emission levels for the road transport source categories 1.A.3.bi-iv 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.

21. The changes in EFs highlighted in the adjustment application could not have been foreseen at the time of setting 2010 emission ceilings, and result entirely from the Euro standards not delivering the originally predicted emissions reductions in the real world.

22. The ERT therefore concludes that the provided supporting evidence does comply 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 when the emission ceilings were established for 2010.

23. The ERT reviewed the documentation that was provided to support the application (listed in Appendix 1).

24. The supporting information provided by the Party on the revisions made to emission factors was considered to be complete. However, the ERT found that numerous changes had been made to the calculation methodology and the underlying data, and the information provided by the Party on the impact on NO<sub>x</sub> emissions from these different changes was not fully transparent. The ERT therefore requested that the Party provided clarification and information on the following points:

- The separation of the changes to EFs that arise from the Euro standard not delivering as expected, and development of the models used (from Copert II to Copert 4);
- The separation of other changes (e.g. changes to AD) to the impacts from EF revisions; and
- Quantification of the contribution to exceeding the 2010 ceiling from each of the above.

25. The Party provided clarifications on these issues (See section 4). However the ERT concluded that this additional information did not fully explain the impact on the NO<sub>x</sub> emissions from the different revisions that had been made to the calculation methodology that resulted in the exceedance of the 2010 ceiling. The Party indicated that they were able to provide further information, but the ERT did not have the resources or time available to continue with the review activities.

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

26. The adjustment application process requires that the Party submit a quantification of the impact of the adjustment for which an application has been submitted. Table 1 **Fehler! Verweisquelle konnte nicht gefunden werden.** 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**

Reference number	Pollutant	NFR09	unit	2010	2011	2012
BEL/2014/1a	NO <sub>x</sub>	1.A.3.b i	kt	-27.75	-28.34	-28.76
BEL/2014/1b	NO <sub>x</sub>	1.A.3.b ii	kt	-5.66	-5.46	-5.41
BEL/2014/1c	NO <sub>x</sub>	1.A.3.b ii	kt	-17.07	-15.45	-13.64
BEL/2014/1d	NO <sub>x</sub>	1.A.3.b iv	kt	1.03	1.01	1.01
	<b>NO<sub>x</sub></b>	<b>Total 1.A.3.b</b>	<b>kt</b>	<b>-49.45</b>	<b>-48.22</b>	<b>-46.81</b>

Due to resource constraints, the ERT were not able to establish whether the quantification of the impact of this adjustment, as calculated by the Party, included any calculation errors. However the ERT did conclude that the information presented by the Party is line with the most up-to-date available EMEP/EEA Inventory guidebook and scientific literature.

## 2.3 Off-road Mobile Machinery: 1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.4.a ii, 1.A.4.b ii, 1.A.5.b (NO<sub>x</sub>)

### 2.3.1 Assessment of Consistency with Requirements of Decision 2012/3

27. The Party made an application based on new sources.

28. The adjustment application requires the provision of specific supporting information to demonstrate compliance with specific criteria (Decision 2012/3, para. 6a-c). The ERT reviewed the supporting documentation (see section 4) with regard to these criteria and noted that emission estimates from these sources were included in the GAINS model when emission reduction commitments were set.

29. The expert review team therefore concludes that the supporting documentation does not support the view that the circumstances on which the adjustment is based follows the Guidance presented in (Decision 2012/3, para. 6a-c).

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

30. The adjustment application process requires that the Party submit a quantification of the impact of the adjustment for which an application has been submitted. Table 2 provides an overview of the NO<sub>x</sub> adjustment applications of Belgium in the Off-road Mobile Machinery sector.

**Table 2: Belgium's NO<sub>x</sub> Adjustment Applications for Off-road Mobile Machinery**

Reference number	Pollutant	NFR09	unit	2010	2011	2012
BEL/2014/2a	NO <sub>x</sub>	1.A.2.f ii	kt	-4.25	-4.13	-3.49
BEL/2014/2b	NO <sub>x</sub>	1.A.3.d i (ii)	kt	3.83	3.77	-3.64
BEL/2014/2c	NO <sub>x</sub>	1.A.3.a i (i)	kt	-2.16	-2.21	-2.10
BEL/2014/2d	NO <sub>x</sub>	1.A.3.a ii (i)	kt	-0.05	-0.05	-0.05
BEL/2014/2e	NO <sub>x</sub>	1.A.4.a ii	kt	IE	IE	IE
BEL/2014/2f	NO <sub>x</sub>	1.A.4.b ii	kt	-0.18	-0.19	-0.19
BEL/2014/2g	NO <sub>x</sub>	1.A.5.b	kt	-0.39	-0.36	-0.36
	<b>NO<sub>x</sub></b>	<b>Off road TOTAL</b>	<b>kt</b>	<b>-10.86</b>	<b>-10.71</b>	<b>-9.83</b>

31. The ERT concluded that the quantification of the recalculations, as calculated by the Party, on national total emissions does not include any calculation errors. Furthermore, the expert review team concludes that the information presented by the Party is line with the most up-to-date available EMEP/EEA Inventory guidebook and scientific literature. However, the ERT noted the comments above, which indicate that these recalculations do not constitute a valid case for an adjustment.

## 2.4 Energy - 1 A 3 e Pipeline Compressors (NO<sub>x</sub>)

### 2.4.1 Assessment of Consistency with Requirements of Decision 2012/3

32. The Party made an application based on a new source.
33. The adjustment application requires the provision of specific supporting information to demonstrate compliance with specific criteria (Decision 2012/3, para. 6a-c). The ERT reviewed the supporting documentation (see section 4) with regard to these criteria and noted that emission estimates from these sources were included in the GAINS model when emission reduction commitments were set.
34. The ERT therefore concludes that the supporting documentation does not support the view that the circumstances on which the adjustment is based follows the Guidance presented in (Decision 2012/3, para. 6a-c).
35. The ERT found that the supporting information provided by the Belgium was not transparent.
36. The ERT noted that the 2014 IIR of Belgium does not provide all relevant information which allows the calculation of category *1 A 3 e Pipeline compressors- NO<sub>x</sub> emissions*. The IIR only provides NO<sub>x</sub> emission factors for pipeline compressors, but no activity data of natural gas consumption. The IIR does not include any information about mobile machinery included in category 1 A 3 e.
37. The IIR 20014 p3-72 states: "In the category 1A3e the emissions originating from the transport of natural gas through pipelines are allocated as well as emissions of off road machinery in harbours, airports and due to storage and handling." The ERT notes that no evidence has been provided that none of these emissions have been considered elsewhere in the historic inventory, e.g. diesel/gasoline and natural gas consumption included elsewhere.
38. The 2004 IIR p 3-93 states, that the following recalculations have been performed: "*Reallocation of the emissions from pipeline compressors (1A1c to 1A3e) in the Walloon region.*" Therefore the ERT considers this as an evidence that emissions from pipeline compressors have already reported in historic inventories.

### 2.4.2 Assessment of the quantification of the impact of the revision

39. The adjustment application process requires that the Party submit a quantification of the impact of the adjustment for which an application has been submitted. Table 3 provides an overview of the NO<sub>x</sub> adjustment applications for Pipeline Compressors.

**Table 3: Belgium's NO<sub>x</sub> Adjustment Applications for Pipeline Compressors**

Reference number	Pollutant	NFR09	unit	2010	2011	2012
BEL/2014/3a	NO <sub>x</sub>	1.A.3.e	kt	-0.58	-0.53	-0.47

### 3 Conclusions and Recommendations

40. The ERT has undertaken a full and thorough assessment of the application for an adjustment of NO<sub>x</sub> emissions inventory that was submitted by Belgium for the following source sectors:

- a. Road transport 1.A.3.bi-iv
- b. Off road mobile sources: 1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.4.a ii, 1.A.4.b ii, 1.A.5.b
- c. Pipeline compressors 1.A.3.e

41. The review of the submitted application followed the guidance provided in the Annex to Decision 2012/12 of the Executive Body of the CLRTAP. The findings of the ERT are described in detail in Section 2 of this report.

42. Table 4 below provides a summary of the adjustment applications received from Belgium, and the subsequent recommendations made by the ERT to the EMEP SB.

**Table 4: Recommendations from the ERT to the EMEP SB**

Country	Sector	NFRs	Pollutant	Years	ERT Recommendation
Belgium	Road Transport	1A3bi - iv	NO <sub>x</sub>	2010- 2012	Open status *
	Off-road mobile machinery	1A2fii, 1A3di(ii), 1A3ai(i), 1A3aii(i), 1A4aii, 1A4bii, 1A5b	NO <sub>x</sub>	2010 - 2012	Reject
	Energy (Pipeline Compressors)	1A3e	NO <sub>x</sub>	2010 - 2012	Reject

\*- Within the available resources and time constraints, the ERT has not been able to determine whether this adjustment application meets all of the requirements included in Decision 2012/12 of the EB of the CLRTAP. The ERT therefore recommends that the EMEP SB assign such adjustment application an "OPEN" status, and seeks to arrange for further work to be undertaken to conclude whether the application should be accepted or rejected.

43. **Road Transport NO<sub>x</sub>:** Belgium provided information to support their application for an adjustment. During the review, the ERT requested more detailed information from Belgium – in particular, information that allowed the impacts of revising EFs to be isolated from other developmental changes to the methodology. The Party indicated that they were able to provide such material, however, the resources available to the ERT did not allow the review of this additional detailed material to be completed within the assessment timescales. The ERT therefore recommends that EMEP Steering Body assigns the status of this adjustment application as "OPEN" until the assessment can be completed.

44. The ERT further concludes that the application regarding **NO<sub>x</sub> from 1.A.3.e, 1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.4.a ii, 1.A.4.b ii, and 1.A.5.b** does not meet the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. The NFR sub-

sectors (for off-road mobile) included in the application have already been included in the IIASA models used for deriving the 2010 National Emission Ceiling and therefore cannot be considered new emission sources. The ERT therefore recommends that the EMEP Steering Body **REJECT** the adjustments submitted for these sectors.

45. Belgium did not provide information on when it will meet its emission ceiling for NO<sub>x</sub> in the supporting documentation.

## 4 Information Provided by the Party

46. Table 5 lists the information provided by the Party in its adjustment application. The information provided by Party can be downloaded from the CEIP website<sup>4</sup>.

**Table 5: Information Provided by the Party**

Filename	Short description of content
Adjustment_Inventory_Report-LRTAP2014_v2.docx	MS Word file describing the proposed adjustments, including: <ul style="list-style-type: none"> <li>• Reasons for adjustment of emission inventory for NO<sub>x</sub> emissions</li> <li>• Compliance check</li> <li>• Outlook on Future evolution of transport emissions</li> </ul> + ANNEXES
Annex_VII_Adjustments_summary_BE.xlsx	MS Excel file with detailed data underlying the proposed adjustment applications for NO <sub>x</sub> from (a) 1.A.3.b and (b) 1.A.2.f ii, 1.A.3.d i (ii), 1.A.3.a i (i), 1.A.3.a ii (i), 1.A.3.e, 1.A.4.a ii, 1.A.4.b ii, and 1.A.5.b
IIR_BE_2014.pdf	IIR 2014, pdf-document; here especially: Chapter 13. Emission inventory adjustments

47. The ERT found it necessary to ask the Party for further information. The information provided is described in Table 6 below.

**Table 6: Additional Information Provided by the Party**

Filename	Short description of content
answer from the Party Belgium_clean.docx	Text states that besides changes in EF the contribution of unforeseen changes in AD have already been considered within the original proposal.
answer from the Party Belgium_clean2.docx	With additional table on NO <sub>x</sub> amounts proposed for adjustment in 2010, 11 and 12 are <u>only</u> due to changes in EFs.
Annex_VII_Adjustments_summary_20140624_included RAINS_clean.xlsx	Further assessment of the sources included in the RAINS model.

<sup>4</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

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

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

2009 Reporting Guidelines (ECE/EB.AIR/97) for Estimating and Reporting Emission Data under CLRTAP

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

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