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

Expert review team report for the EMEP Steering Body

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## Expert Review Team

<b>Role</b>	<b>Sector</b>	<b>Name</b>
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Primary expert reviewer	Road transport (1.A.3.b.i and 1.A.3.b.iii)	Yvonne PANG (UK)
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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 Spain. 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 1A3bi, 1A3biii: Significantly different EFs
Pollutants for which adjustment is applied for	NO <sub>x</sub>
Year(s) for which adjustment is applied	2010-2012
Date of notification of adjustment to the Secretariat	4 December 2013
Date of submission of supporting documentation	Up to 19 April 2014

3. The Expert Review Team reviewed and evaluated the documents submitted by Spain.
4. **Road Transport Passenger Cars (1.A.3.b.i) and Heavy Duty Vehicles (1.A.3.b.iii), NO<sub>x</sub>:** Spain provided information to support their application for an adjustment. During the review, the Expert Review Team requested more detailed information from Spain – 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 Expert Review Team did not allow the review of any further material to be completed within the assessment timescales. The Expert Review Team therefore recommends that EMEP Steering Body assigns the status of this adjustment application as “OPEN” until the assessment can be completed.
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.

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## 1 Introduction and Context

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

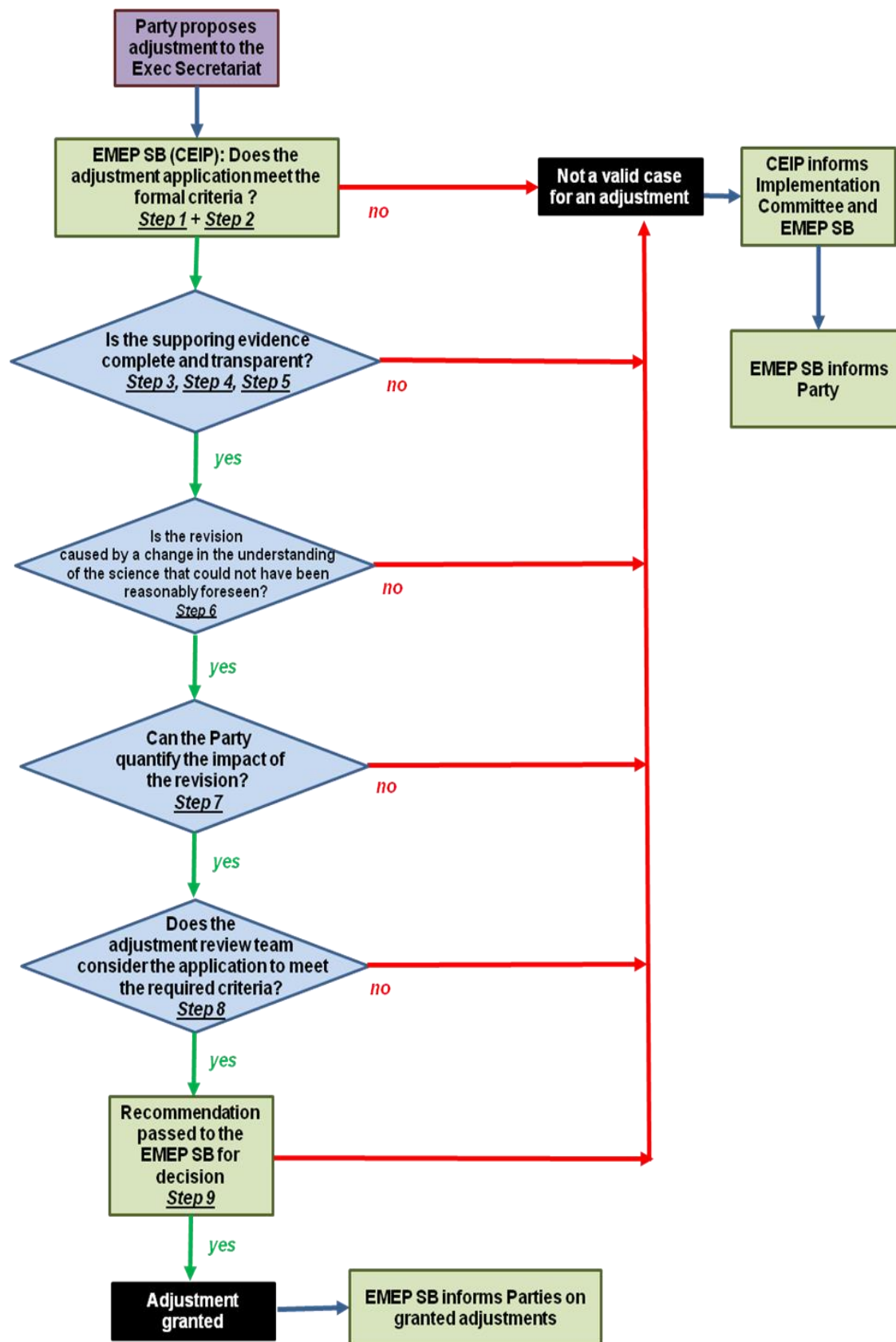
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<sup>1</sup> Throughout this report the term "emission reduction commitments" is used. However, the term "emission ceilings" is equally applicable.

<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

11. Spain notified the Convention Secretariat through the Executive Secretary of its intention to apply for a new adjustment on 04/12/2013 and thus before the legal deadline of 15 February. Supporting information requested by Decision 2012/12 was provided as part of the Informative Inventory Report on the 19<sup>th</sup> April, i.e. after 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). However, the supporting information was used for the review. Additional documentation was provided during the review in response to requests from the ERT. Section 4 lists the documentation provided by the Party.

12. Spain 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 (Passenger Cars) and 1.A.3.b.iii (heavy Duty Vehicles)

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

14. Spain 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.

15. Spain has met its emission ceiling for NO<sub>x</sub> in year 2012, according to its 2014 submissions to the CLRTAP.

### 2.2 Road transport -1.A.3.b.i and 1.A.3.b.iii (NO<sub>x</sub>)

#### 2.2.1 Assessment of consistency with requirements of decision 2012/3

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

17. 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 and 1.A.3.b.iii 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.

18. 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.

19. Recent development in understanding and evidence gathered from vehicle emissions measurements have indicated that successive Euro standard (in particular for diesel vehicles) exceed their type approval limits for NO<sub>x</sub> in real-world driving conditions. Hence, the introduction of Euro standards has not delivered the emission reductions originally anticipated

(when the 2010 emission ceilings were set). This issue is not unique to any individual Party but is a common problem faced by the European countries. Emission factors used for estimating road vehicle emissions have therefore been evolved to reflect new evidence on vehicle emissions performance in order to provide 'best-science' emission estimates. This is the case with the emission factors provided in the EMEP/EEA Emission Inventory Guidebook which are originated from COPERT methodology<sup>4</sup> and were used by Spain. Thus, the basis of the NO<sub>x</sub> adjustment application made by Spain was that NO<sub>x</sub> emission factors for passenger cars (1.A.3.b.i) and heavy duty vehicles (1.A.3.b.iii) have been significantly revised between COPERT III (factors which underpins the derivation of the 2010 ceilings proposal) and COPERT 4 version 10 (the version with underpins Spain's 2014 submission to CLRTAP).

20. The expert review team therefore concludes that the provided supporting evidence does fully support the view that the circumstances on which the adjustment is based could not have been reasonably foreseen by the Party when the emission targets were established for 2010.

21. The ERT found that the information provided by Spain up to 19/04/2014 was not fully transparent and contacted the Party to request clarification on the following points:

- a) Information of COPERT III on the relevant prospective EFs reductions potential of the concerned EURO technologies as they were expected when the 2010 NO<sub>x</sub> ceiling of the GP was established - this is to allow the ERT to check the implied emission factors;
- b) Activity data (vehicle-kilometres) broken down by the same format as shown in Tables 6 and 7 of the supporting document, to allow the ERT to validate the emission results;
- c) Whether Spain has considered (or quantified) the effect of changes in activity data when defining the contribution of the revised NO<sub>x</sub> EFs;
- d) For heavy duty vehicles, the supporting document states that *"In order to make a comparison we have estimated some implicit emission factors for the year 2011, making some adjustments to compare with COPERT III"* – the ERT requested further details of this calculation step and the rationale for applying to only year 2011;
- e) Confirmation on whether and when the reduction commitment is expected to be met based on emission projections without the adjustment;
- f) Quantification of the impact on emissions due to the development of the models (COPERT III to COPERT 4), and other changes (e.g. changes to activity data) which are relevant for exceeding the 2010 ceiling.

22. Spain provided clarifications on these issues on 09/07/2014 and additional information including COPERT III methodology report and activity data used for estimating the adjustment proposals. Spain confirmed that the effect of changes in activity data have not been considered or quantified when defining the contribution of the revised NO<sub>x</sub> EFs. Spain also clarified that the 2010 ceiling for NO<sub>x</sub> has been met without any adjustment for the year 2012, as reported in the 2014 submissions to the CLRTAP.

23. The ERT concluded that the additional information provided did resolve the transparency issues indicated above.

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<sup>4</sup> COPERT (Computer Programme to Calculate Emissions from Road Transport) methodology is part of the EMEP/EEA Emission Inventory Guidebook for the calculation of air pollutant emissions from road transport.



### 2.2.2 Assessment of the quantification of the impact of the revision

24. 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 provides an overview of the NO<sub>x</sub> adjustment applications of Spain in the Road Transport sector.

**Table 1: Spain's NO<sub>x</sub> Adjustment Applications for Road Transport**

Reference number	Pollutant	NFR09	unit	2010	2011	2012
ESP/2014/1a	NO <sub>x</sub>	1A3bi	kt	-45.6	-48.2	-47.9
ESP/2014/1b	NO <sub>x</sub>	1A3biii	kt	-81.4	-73.2	-63.4
	<b>NO<sub>x</sub></b>	<b>TOTAL OPEN</b>	<b>kt</b>	<b>-127.0</b>	<b>-121.4</b>	<b>-111.3</b>

25. Spain applied for an adjustment of NO<sub>x</sub> emissions from NFR 1.A.3.b.i and 1.A.3.b.iii (excluding buses) for the years 2010 to 2012, due to significant changes in NO<sub>x</sub> emission factors for these two sources. Spain provided a comparison of emission estimates for 2010 to 2012 using the original [COPERT III, 2001] and the updated emission factors [COPERT 4 v10.0] based on current activity. However, the Party did not provide enough information to allow the ERT to identify the impact on emissions caused by changes to emission factors alone. Other effects which may affect a Party's ability to meet their ceilings (e.g. because of the activity in the country has significantly increased) were not been considered or quantified in the adjustment proposal and supporting information.

26. Within the available resources and time constraints, the ERT 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.

## 3 Conclusions and Recommendations

27. 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 Spain for Road Transport Passenger Cars (1.A.3.b.i) and Heavy Duty Vehicles (1.A.3.b.iii).

28. 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.

29. Table 2 below provides a summary of the adjustment applications received from Spain, and the subsequent recommendations made by the ERT to the EMEP SB.

**Table 2: Recommendations from the ERT to the EMEP SB**

Country	Sector	NFRs	Pollutant	Years	ERT Recommendation
Spain	Transport	1A3bi, 1A3biii	NO <sub>x</sub>	2010-2012	Open status*

\*- 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.

30. **Road Transport Passenger Cars (1.A.3.b.i) and Heavy Duty Vehicles (1.A.3.b.iii), NO<sub>x</sub>:** Spain provided information to support their application for an adjustment. During the review, the ERT requested more detailed information from Spain – 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 any further 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.

31. According to 2014 submissions to the CLRTAP, Spain has met its NO<sub>x</sub> emission ceiling in the year 2012 without any adjustment.

## 4 Information Provided by the Party

32. 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>5</sup>.

**Table 3: Information provided by the Party (as part of the application process)**

Filename	Short description of content
ES_2014_Table_7.xls	Annex VII: Reporting of approved adjustments, by NFR, year and pollutant
Spanish re-estimation of NOX emissions (April 2014).doc	Supporting document for the adjustment proposal
Marco Keiner CLRTAP.pdf	Letter to Mr. Macro Kenier, Director of the Environment Division UNECE Secretariat

<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/)

33. The ERT found it necessary to ask the Party for minor points of clarification. The additional information provided by the Party are described in Table 6 below.

**Table 4: Additional information provided by the Party**

<b>Filename</b>	<b>Short description of content</b>
Copert methodology.pdf	COPERT III methodology report
Annex Road Transport distance travelled and fuel consumptionr.doc	ADDITIONAL INFORMATION TO DOCUMENT "SPANISH REESTIMATION OF NOX EMISSIONS (APRIL 2014)" - RUNNING FLEET IN HIGHWAY AND RURAL PATTERNS AND URBAN DISTANCES TRAVELLED

## 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)