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# **Review of the 2017 Adjustment Application by Spain during the 2018 Review Round**

Expert Review Team Report for the EMEP Steering Body

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### Expert Review Team

<b>Role</b>	<b>Sectors</b>	<b>Name</b>	<b>Country</b>
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Primary expert reviewer	Agriculture (3B, 3D)	J Webb	UK
Secondary expert reviewer	Agriculture (3B, 3D)	Hakam al Hanbali	Sweden
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) and 2014/1 (ECE/EB.Air/130).

2. The application was first reviewed in 2017 and the ERT recommended that the EMEP Steering Body assign this adjustment application an open status in order to allow Spain to prepare additional information to support their application. The application was further reviewed by two independent sectoral experts during May and June 2018. The findings were discussed at the meeting held from 18-21 June 2018 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 as amended by decision 2014/1, annex, para 3)	Manure Management (3B) and Agricultural Soils (3D): <i>significant changes in methodologies</i>
Pollutant for which adjustment is applied for	NH <sub>3</sub>
Year(s) for which inventory adjustment is applied	2010 - 2015
Date of notification of adjustment to the Secretariat	15.02.2017*
Date of submission of supporting documentation	14.03.2017*

\*No further supporting information was supplied in 2018 for this adjustment. However information provided by Spain during the 2017 review was available, as were formal communications from Spain regarding their interpretation of the Decisions relating to adjustments.

3. The Expert Review Team reviewed and evaluated the documents submitted by Spain.

4. **NH<sub>3</sub> emissions from Manure Management (3B, 3Da2a, 3Da3):** In 2017 the ERT had reviewed the information provided and concluded that for a full assessment a detailed analysis is needed considering the impact of changing AD (e.g. increased N excretion, changes in AWMS) to resulting IEF. Consequently no decision could be made. The 2017 ERT recommended that Spain provides a detailed analysis which transparently demonstrates changes in methodologies caused by an improved understanding of the science for the quantification of the adjustment, and also that changes in activity data are excluded from this quantification. The ERT recommended that the EMEP Steering Body **postponed** a decision on acceptance/rejection of the adjustments submitted for NH<sub>3</sub> emissions from sector *Manure Management (3B)* as well as *Animal manure applied to soils (3Da2a)* and *Urine and dung deposited by grazing animals (3Da3)* to allow Spain to prepare additional information to support their application. For more details see “table Adjustments 2017 /Spain/ Review report” at [http://www.ceip.at/adjustments\\_gp/adj\\_country\\_data/](http://www.ceip.at/adjustments_gp/adj_country_data/)

5. In its application for an adjustment Spain indicated that its national totals of NH<sub>3</sub> emissions would be below their ceilings in accordance with the Gothenburg Protocol for the years 2011, 2012 and 2013, if the proposed NH<sub>3</sub> adjustments are accepted. However, the ERT noted that despite proposed adjustment, NH<sub>3</sub> emissions ceilings are still exceeded for the years 2010, 2014 and 2015.

6. The reviewers in 2018 concluded that this adjustment application did not meet the requirements laid out in Decision 2012/12 and, in particular, the reviewers noted that the application by Spain did not follow the methods for quantifying an adjustment presented in Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130). The reviewers therefore recommend that the EMEP Steering Body **reject** this adjustment application

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# 1 Introduction and Context

7. 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.

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

9. As mandated by Decision 2012/12 as amended by the Decision 2014/1 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 are 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.

10. 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.

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

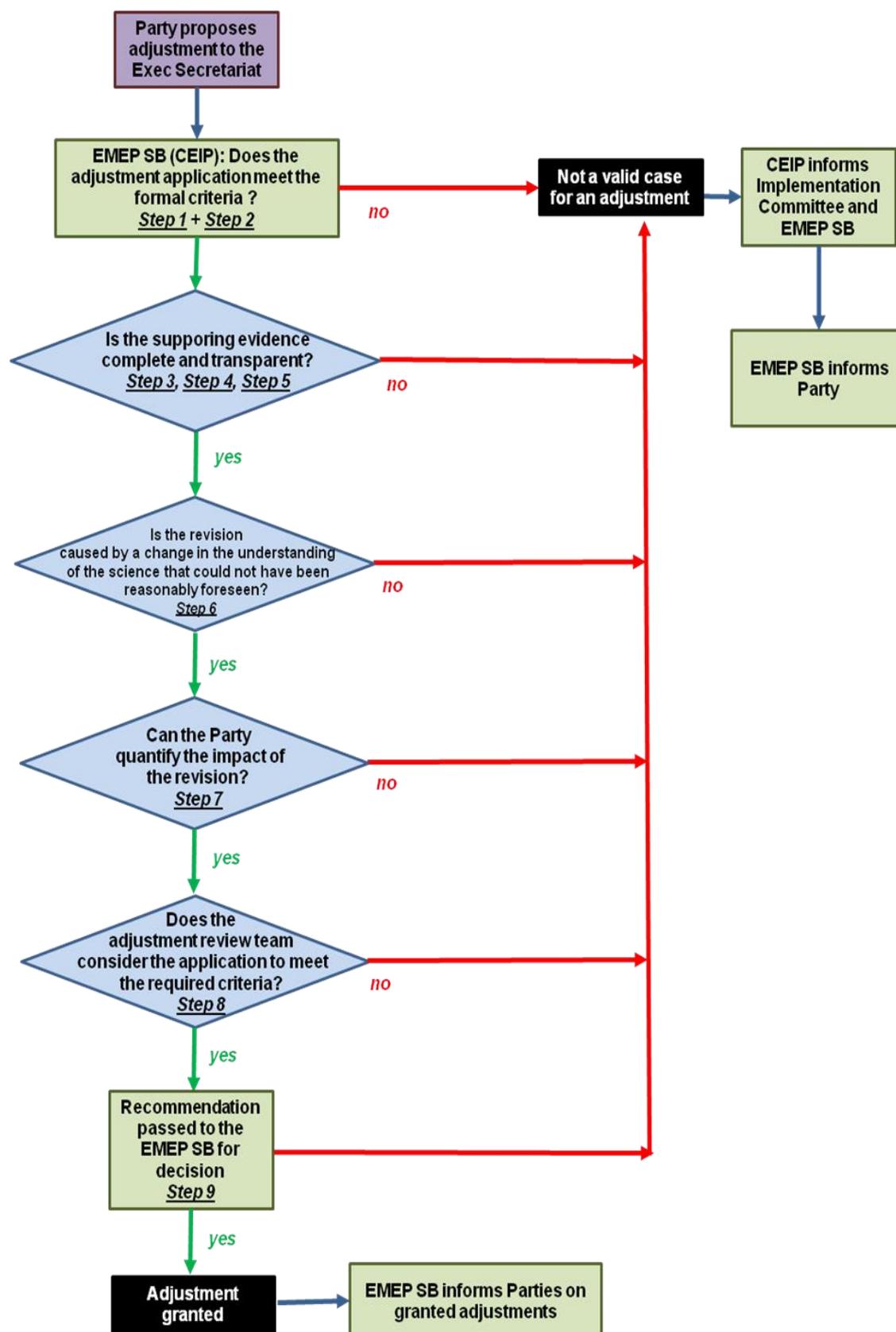
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<sup>1</sup> Throughout this report the term "emission reduction commitments" is used. However, the term "emission ceilings" is equally applicable.

<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 EB decision 2012/3 and the further guidance in EB decision 2012/12 as amended by EB decision 2014/1 and Technical guidance document ECE/AB.Air/130

<sup>3</sup> [http://www.ceip.at/fileadmin/inhalte/emep/pdf/2018/0\\_Roster\\_2018.pdf](http://www.ceip.at/fileadmin/inhalte/emep/pdf/2018/0_Roster_2018.pdf)

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



## 2 Review of Submitted Adjustments

### 2.1 Assessment of Formal Criteria

12. Spain notified the Convention Secretariat through the Executive Secretary of its intention to apply for an adjustment on 16/02/2017, and thus after the legal deadline of 15 February 2017. Supporting information requested by Decision 2012/12 amended by Decision 2014/1 was provided both as separate documents and as part of the Informative Inventory Report by 14 resp. 17 March (IIR) 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. Shortly after the review, communications were also received from Spain on their interpretation of the Decisions relating to adjustments, which were carefully considered by the review team. Spain did not provide additional information in 2018. Section 4 of this report lists the documentation provided by the Party and assessed by the review team.

13. Spain submitted in 2017 an application for emissions adjustments to **NH<sub>3</sub>** for 2010-2015 for the following sectors:

- a) Manure management (3B) and
- b) Agricultural soils (3Da2a, 3Da3).

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

15. Spain did provide 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.

16. Spain did not include information on when it will meet its emission ceiling for **NH<sub>3</sub>** based on emission projections without the adjustment in the supporting documentation.

### 2.2 Manure Management (3B) and Agricultural Soils (3D), **NH<sub>3</sub>**

17. In its 2017 submission, Spain improved its methodologies for calculation of **NH<sub>3</sub>** emissions from the *manure management (3B) and agricultural soils (3D)* sectors, specifically for source categories *animal manure applied to soils (3Da2a) and urine and dung deposited by grazing animals (3Da3)*. This improvement is based on the 2016 Guidebook, which provides new emission factors for animal husbandry, manure management and agricultural soils. Spain did not provide additional information in 2018.

18. 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 the methodologies used in the original air emission inventory of Spain used for determining **NH<sub>3</sub>** emissions from manure management and agricultural soils were not based on the latest available guidance at the time when **NH<sub>3</sub>** emissions ceilings were set.

19. In its Informative Inventory Report for 2017, chapter 11 (Adjustments), Spain provided detailed documentation of the methodologies used at the time when emission ceilings were set. Emission calculations were based on the CORINAIR Inventory-Default Emissions Factors Handbook of

January 1992<sup>4</sup>. However, the methods for quantifying an adjustment are presented in the Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130). This explains that for quantifying an adjustment, the original methodology is taken from the 1999 Guidebook, so that the quantification of the adjustment represents the change in the scientific understanding (irrespective of the methodologies that were used by the country at that time).

20. 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 NH<sub>3</sub> adjustment applications of Spain in the Agriculture sector.

**Table 2: Spain's NH<sub>3</sub> Adjustment Application for Manure Management (3B) and Agricultural Soils (3Da2a, 3Da3) (kt), 2010-2015**

Reference number	Pollutant	NFR14	unit	2010	2011	2012	2013	2014	2015
Spain/2017/3B	NH <sub>3</sub>	3B Manure management*	kt	-37.6	-42.7	-40.0	-38.6	-37.6	-43.0
Spain/2017/3Da2a and 3Da3	NH <sub>3</sub>	3Da2a Animal manure applied to soils and 3Da3 Urine and dung deposited by grazing animals	kt	-45.2	-40.6	-40.8	-48.1	-57.9	-51.8
	<b>NH<sub>3</sub></b>	<b>TOTAL</b>	<b>kt</b>	<b>-82.8</b>	<b>-83.3</b>	<b>-80.7</b>	<b>-86.7</b>	<b>-95.5</b>	<b>-94.9</b>

\* In the original inventory, NH<sub>3</sub> emissions from NFR categories Animal manure applied to soils (3Da2a) and Urine and dung deposited by grazing animals (3Da3) were considered under NFR category Manure management (3B); in the 2017 submission it is reported separately.

21. Spain indicated in its application for an adjustment that its national totals of NH<sub>3</sub> emissions would be below their ceilings in accordance with the Gothenburg Protocol for the years 2011, 2012 and 2013, if the proposed adjustments are accepted. The ERT noted that despite the proposed adjustment, NH<sub>3</sub> emissions ceilings are still exceeded for the years 2010, 2014 and 2015.

22. In the following section 2.2.1 detailed explanations and the conclusions of the ERT regarding the **NH<sub>3</sub> adjustment application** are provided separately for:

- a. emissions from Manure Management (3B) and
- b. also considering emissions reported under category Animal manure applied to soils (3Da2a) and Urine and dung deposited by grazing animals (3Da3).

In its Informative Inventory Report for 2018, chapter 11 (Adjustments), Spain did not consider these adjustments for NH<sub>3</sub> requested in 2017 due to their current review status (open) at the time the IIR was submitted. The information below is therefore a summary of that provided in 2017.

4 Commission of the European Community, ed. (Paris, Centre Interprofessional Technique d'Études de la Pollution Atmosphérique, 1992).

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

23. For  $\text{NH}_3$  calculations within source category **3B**, Spain used global-total emission factors per animal category including emissions from stable, application and meadow. Thus, the adjustment application provided for *manure management* also considers emissions reported in the 2017 submission under the categories *animal manure applied to soils (3Da2a)* and *urine and dung deposited by grazing animals (3Da3)*. The chosen approach for  $\text{NH}_3$  estimation corresponds to a tier 1 methodology. However, for key categories, best practice requires higher tier methods to be used.

24. The reviewers noted that Spain quantified the adjustment by comparing the current estimates with the emissions inventory estimates made in 1999. This represents a comparison between the current IEFs resulting from the use of the Tier 2 methodology in inventory submission 2017 with the default Tier 1 EF based on the 1992 CORINAIR Guidebook. Furthermore, since Spain's original emission estimates were based on the 1992 CORINAIR Guidebook, those estimates did not represent the most up to date scientific information available from the 1999 (or 1996) version of the Guidebook when the ceilings were set.

25. The reviewers note that improving from a Tier 1 to a Tier 2 methodology is not considered to be an "extraordinary" circumstance (EB Decision 2012/3, para 6), and the impact arising from this is therefore not to be included in the quantification of an adjustment. The reviewers also noted that for Tier 2 methodologies, *N excretion* is considered to be activity data, and therefore the impacts of any changes to N excretion rates are also not to be included in the quantification of an adjustment.

26. With the Tier 1 approach, the emission factors do not consider increased productivity and changing farming practices. It is therefore not possible to separate the impacts of the changes in the scientific understanding from changes to e.g. nitrogen excretion values, changing farming practices and changes to livestock manure management systems which are not considered to be changes that can be included in an adjustment application or quantification. To undertake the calculations to quantify the adjustment, detailed analyses considering the impact of these effects are therefore necessary.

27. The reviewers undertook their assessment independently, but recognising that there had been similar considerations by a team undertaking reviews for the NECD in 2017, liaised with the NECD reviewers to ensure that their thinking and reasoning were consistent with the published guidance on assessing adjustment applications.

28. The reviewers undertook calculations, using the information provided by Spain, to determine an adjustment based on a comparison between the current methodology used by Spain and the methodology in the 1999 version of the EMEP/CORINAIR Inventory Guidebook. The result gave an adjustment that represented an upward revision of the emission estimates used for compliance purposes (i.e. making compliance more difficult).

29. Consequently, the reviewers concluded that this adjustment application did not meet the requirements laid out in decision 2012/12 and in particular, the reviewers noted that the application by Spain did not follow the methods for quantifying an adjustment presented in Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130). The reviewers therefore recommend that the EMEP Steering Body **reject** this adjustment application.

### 3 Conclusions and Recommendations

30. The ERT has undertaken a full and thorough assessment of the applications for adjustments of the NH<sub>3</sub> emissions inventory that was submitted by Spain for the following source sectors:

- a. Manure management (3B), NH<sub>3</sub>
- b. Agricultural Soils (3Da2a, 3Da3), NH<sub>3</sub>

31. The review of the submitted applications 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.

32. Table 3 below provides a summary of the adjustment applications received from Spain, and the subsequent recommendations made by the ERT to the EMEP Steering Body.

**Table 3: Recommendations from the ERT to the EMEP Steering Body**

Country	Sector	NFRs	Pollutant	Years	ERT Recommendation
Spain	Agriculture	3B	NH <sub>3</sub>	2010 - 2015	<i>Reject</i>
Spain	Agriculture	3Da2a, 3Da3	NH <sub>3</sub>	2010 - 2015	<i>Reject</i>

33. **Manure Management (3B), Animal manure applied to soils (3Da2a), Urine and dung deposited by grazing animals (3Da3); NH<sub>3</sub>:** The ERT concluded that the application regarding NH<sub>3</sub> from *Manure Management (3B), 3Da2a Animal manure applied to soils and 3Da3 Urine and dung deposited by grazing animals* did not meet the requirements laid out in decision 2012/12 and in particular, the reviewers noted that the application by Spain did not follow the methods for quantifying an adjustment presented in Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130). The reviewers therefore recommend that the EMEP Steering Body **reject** this adjustment application.

34. The adjustment applications from Spain have been assessed in a way that is fully consistent with review of adjustment applications from other Parties to the CLRTAP, by following relevant EMEP EB Decisions and published technical guidance.

## 4 Information Provided by the Party

35. Table 4 lists the information provided by Spain in its adjustment application in 2017. The information provided by the Party can be downloaded from the CEIP website<sup>5</sup>.

**Table 4: Information Provided by the Party**

Filename	Short description of content
SPAIN-2017-CLRTAP-Adjustment Application-1-Notification letter.pdf	The notification of a 2017 adjustment application
SPAIN-2017-CLRTAP-Adjustment Application-3.2-NH3-Agriculture.pdf	PDF file describing the proposed adjustment for NH <sub>3</sub> , including: <ul style="list-style-type: none"> <li>• Reasons for adjustment of emission inventory for NH<sub>3</sub> emissions</li> <li>• Compliance check</li> </ul>
SPAIN-2017-CLRTAP-Adjustment Application-2-Annex_II_to_ECE-EB.Air130-corrected.xlsx	MS Excel file with detailed data underlying the proposed adjustment applications for <ul style="list-style-type: none"> <li>• NH<sub>3</sub> from (a) 3.B and (b) 3Da1, 3Da2a, 3Da3</li> </ul>
SPAIN_2017-CLRTAP_-Inventory_Submission-2-IIR.pdf	IIR 2017, pdf-document; here especially: Chapter 11. Adjustments

<sup>5</sup> [http://www.ceip.at/adjustments\\_gp/](http://www.ceip.at/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 2016

<https://www.eea.europa.eu/publications/emep-eea-guidebook-2016>

EMEP/CORINAIR Air Pollutant Emission Inventory Guidebook 1999, 2<sup>nd</sup> edition

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

2014 Reporting Guidelines (ECE/EB.AIR/125) for Estimating and Reporting Emission Data under CLRTAP [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

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)