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# **Review of the 2022 Adjustment Application**

## **Denmark**

Expert Review Team Report

<b>Report title</b>	Review of the 2022 Adjustment Application by Denmark
<b>Country</b>	Denmark
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## Expert Review Team

<b>Role</b>	<b>Sectors</b>	<b>Name</b>	<b>Country</b>
Adjustment lead reviewer	All	Kristina Saarinen	Finland
Primary expert reviewer	Agriculture 3B, 3D	Tim van der Zee	The Netherlands
Secondary expert reviewer	Agriculture 3B, 3D	Andjelka Radosavljevic	Serbia
Basic checks (Step 1 and 2)	N/A	Sabine Schindlbacher	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 Denmark. 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) and additional Guidance provided in "Inventory adjustments in the context of emission reduction commitments (ERCs)"<sup>1</sup>.
2. The application was reviewed by two independent sectoral experts during May and June 2022. The findings were discussed during the review week from 30 May to 03 June 2022. 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)	New emission source
Pollutant for which adjustment is applied for	NMVOG
Sector/Pollutant for which adjustment is applied for	3B1a
Year(s) for which inventory adjustment is applied	2005, 2020
Date of notification of adjustment to the Secretariat	15-02-2022
Date of submission of supporting documentation	15-03-2022

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

**NMVOG emissions from Manure Management of dairy cattle (NFR 3B1a) and Agricultural soils (NFR 3D):** As specified in the "Technical Guidance for Emissions Inventory Adjustments under the Amended Gothenburg Protocol: Inventory adjustments in the context of Emission Reduction Commitments" (TFEIP 2022) the reference version of the EMEP/EEA Guidebook for adjustment applications under the amended Gothenburg Protocol is EMEP/EEA 2009 version (EMEP/EEA 2009). Since no default emission factors were available for NMVOG emissions from animal husbandry and manure management in the EMEP/EEA 2009 Guidebook the ERT finds that this source was not known at the time when the emission reduction commitments were set and thus constitutes a valid case for an adjustment. The ERT finds that the emissions have been calculated in line with the EMEP/EEA 2019 Guidebook. Hence, the ERT is of the view that the application for the adjustment meets the criteria as outlined in Decision 2012/13. The ERT therefore recommends that the EMEP Steering Body **ACCEPT** this adjustment application from Denmark.

<sup>1</sup> Available at: <https://www.ceip.at/gothenburg-protocol/adjustments>

## Content

<b>Executive summary .....</b>	<b>3</b>
<b>1 Introduction and context .....</b>	<b>5</b>
<b>Figure 1: Flow diagram/decision tree for the review of adjustment applications .....</b>	<b>6</b>
<b>2 Review of submitted new adjustments .....</b>	<b>7</b>
2.1 Assessment of formal criteria.....	7
2.2 Assessment of consistency with the requirements of decision 2012/3.....	7
2.3 Assessment of the quantification of the impact of the revision .....	8
<b>3 Conclusions and recommendations.....</b>	<b>9</b>
<b>4 Information provided by the party .....</b>	<b>10</b>
<b>References .....</b>	<b>11</b>

## 1 Introduction and context

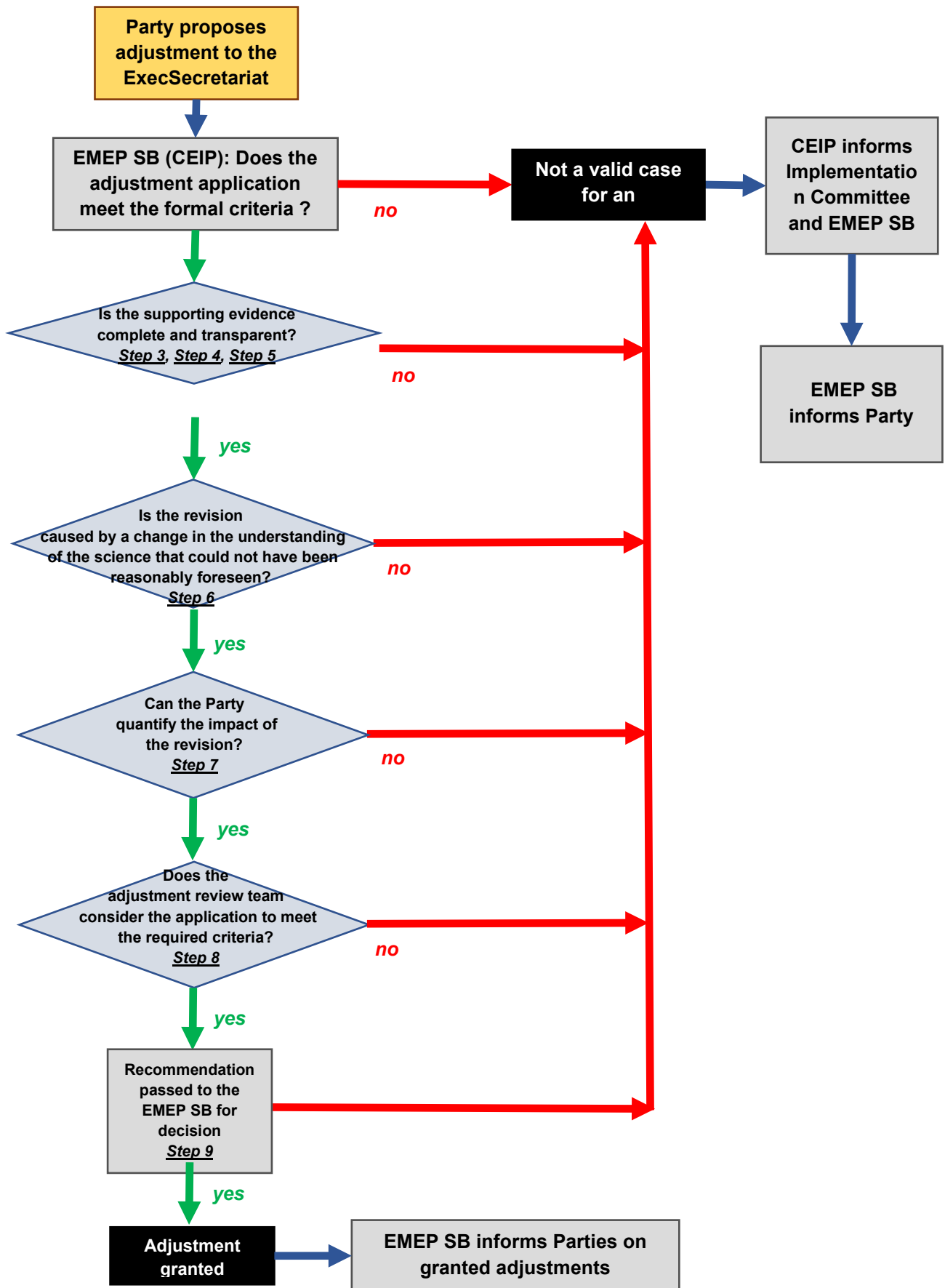
4. Parties may apply to adjust their inventory data or emission reduction commitments if they are (or expect to be) in non-compliance with their emission reduction targets. However, in making an adjustment application, they must demonstrate that extraordinary circumstances have given rise to revisions 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.
5. 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.
6. As mandated by Decision 2012/12 and 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 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.
7. 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.
8. 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>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> [https://www.ceip.at/fileadmin/inhalte/ceip/3\\_review/0\\_roster\\_2022.pdf](https://www.ceip.at/fileadmin/inhalte/ceip/3_review/0_roster_2022.pdf)

Figure 1: Flow diagram/decision tree for the review of adjustment applications



## 2 Review of submitted new adjustments

### 2.1 Assessment of formal criteria

9. Denmark notified the secretariat through the ECE Executive Secretary of its intention to apply for a new adjustment within the legal deadline on 15 February 2022. All supporting information requested by decision 2012/12 was provided as part of the Informative Inventory Report before the legal deadline of 15 March of the same year that it is being submitted for review by the EMEP Steering Body (decision 2012/12, annex, para. 1).

10. Denmark submitted an application for emissions adjustments to NMVOC for 2005 and 2020 for the following sector:

(a) Manure management dairy cattle, 3B1a.

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

12. Denmark 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 into compliance with its emission reduction commitments for the year 2020 for NMVOC.

13. Denmark included information on when it will meet its emission ceiling for NMVOC in the supporting documentation.

14. Denmark indicated that it will not meet the set ceilings for NMVOC without the adjustment before 2040 in the supporting documentation.

### 2.2 Assessment of consistency with the requirements of decision 2012/3

15. The adjustment has been justified with the explanation that the source was unknown when the emission reduction commitments were set.

In case of a new emission source, the following information shall be provided:

- evidence that the new emission source category is acknowledged in scientific literature and/or the EMEP/ EEA Guidebook;
- evidence that this source category was not included in the relevant historic national emission inventory at the time when the emission reduction commitment was set;
- evidence that emissions from a new source category contribute to a Member State being unable to meet its emission reduction commitments, supported by a detailed description of the methodology, data and emission factors used to arrive at that conclusion.
- The ERT concludes that the supporting evidence provided complies with the criteria presented in decision 2012/3, and that the circumstances on which the adjustment is based relate to a change in the understanding of the science relating to this source
- The ERT reviewed the documentation that was provided to support the application (see annex).
- The ERT is of the view that the application by Denmark meets in general the criteria for the supporting documentation required by the Directive as listed above.

### 2.3 Assessment of the quantification of the impact of the revision

16. 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 NMVOC adjustment application of Denmark in the Manure management of dairy cattle sector as provided by Denmark in Annex IIa.

17. The ERT reviewed the quantification of the emissions adjustments provided by the country. The ERT concluded that the information provided was accurate and error free, and is consistent with the most up-to-date available EMEP/EEA Emissions Inventory Guidebook and scientific literature.

**Table 1: Impact of the adjustment on the NMVOC emission inventory of Denmark for the year 2020 in kt**

	Unit	2005	2020
<b>ERC</b>	<b>% of 2005</b>		<b>-35%</b>
ERC unadjusted	(kt)		100
NT for Compliance unadjusted	(kt)	155	107
<b>Gap to ERC unadjusted</b>	<b>(%)</b>		<b>-6%</b>
ERC adjusted	(kt)		87
Adjusted NT for Compliance	(kt)	135	83
<b>Gap to ERC adjusted</b>	<b>(%)</b>		<b>6%</b>
Impact of adjustment on NT for Compliance	(kt)	-20	-24



### 3 Conclusions and recommendations

18. The ERT has undertaken a full and thorough assessment of the application for an adjustment of the NMVOC emissions inventory that was submitted by Denmark for the source sector listed in Table 2.

19. 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.

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

21. The ERT recommends the EMEP SB to accept new adjustment applications submitted by Denmark.

**Table 2: Recommendations from the ERT to the EMEP SB on new adjustments**

Country	Sector	NFRs	Pollutant	Years	ERT Recommendation
Denmark	Manure Management of dairy cattle	3B1a	NMVOC	2005, 2020	Accept

## 4 Information provided by the party

22. 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>4</sup>.

**Table 3: Information provided by the party**

Filename	Short description of content
AdjustmentApplication_2022_Denmark	<b>MS Excel file</b> with detailed data underlying the proposed adjustment applications for:  Manure Management of dairy cattle (3B1a)
Denmarks_Informative_Inventory_Report_2022	<b>IIR 2022, pdf-document</b> ; here especially: Chapter 12. Adjustments.
DK-2022-Feb15_Cover_letter_UNECE	<b>PDF document</b>

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<sup>4</sup> <https://www.ceip.at/gothenburg-protocol/review-of-adjustments>

## 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.

[https://www.ceip.at/fileadmin/inhalte/ceip/4\\_adjustments/decisions/ece\\_eb.air.111.add.1\\_eng\\_decision\\_3.pdf](https://www.ceip.at/fileadmin/inhalte/ceip/4_adjustments/decisions/ece_eb.air.111.add.1_eng_decision_3.pdf)

**Decision 2012/4**: Provisional Application of Amendment to the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone

[https://www.ceip.at/fileadmin/inhalte/ceip/4\\_adjustments/decisions/ece\\_eb.air.111.add.1\\_eng\\_decision\\_4.pdf](https://www.ceip.at/fileadmin/inhalte/ceip/4_adjustments/decisions/ece_eb.air.111.add.1_eng_decision_4.pdf)

**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.

[https://www.ceip.at/fileadmin/inhalte/ceip/4\\_adjustments/decisions/decision\\_2012\\_12.pdf](https://www.ceip.at/fileadmin/inhalte/ceip/4_adjustments/decisions/decision_2012_12.pdf)

**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.

[https://www.ceip.at/fileadmin/inhalte/ceip/4\\_adjustments/decisions/decision\\_2014\\_1.pdf](https://www.ceip.at/fileadmin/inhalte/ceip/4_adjustments/decisions/decision_2014_1.pdf)

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

[https://www.ceip.at/fileadmin/inhalte/ceip/4\\_adjustments/ece\\_eb.air.130.av.for.the.web.pdf](https://www.ceip.at/fileadmin/inhalte/ceip/4_adjustments/ece_eb.air.130.av.for.the.web.pdf)

**TFEIP 2022**: Technical Guidance for Emissions Inventory Adjustments under the Amended Gothenburg Protocol: Inventory adjustments in the context of ERCs

<https://www.ceip.at/gothenburg-protocol/adjustments>

Data submitted by Parties applying for an adjustment:

<https://www.ceip.at/gothenburg-protocol/review-of-adjustments>

[https://webdab01.umweltbundesamt.at/cgi-bin/adj\\_GP.pl](https://webdab01.umweltbundesamt.at/cgi-bin/adj_GP.pl)

**EMEP/EEA 2009**: EMEP/EEA Air Pollutant Emission Inventory Guidebook 2009

<https://www.eea.europa.eu/publications/emep-eea-emission-inventory-guidebook-2009>

**EMEP/EEA 2019**: Air Pollutant Emission Inventory Guidebook 2019

<https://www.eea.europa.eu/publications/emep-eea-guidebook-2019>

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

[https://www.ceip.at/fileadmin/inhalte/ceip/1\\_reporting\\_guidelines2014/ece.eb.air.125\\_advance\\_version\\_reporting\\_guidelines\\_2014.pdf](https://www.ceip.at/fileadmin/inhalte/ceip/1_reporting_guidelines2014/ece.eb.air.125_advance_version_reporting_guidelines_2014.pdf)

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)

**ECE/EB.AIR/114**: The 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the Convention on Longrange Transboundary Air Pollution, as amended on 4 May 2012

[https://unece.org/sites/default/files/2021-10/ECE.EB\\_.AIR\\_.114\\_ENG.pdf](https://unece.org/sites/default/files/2021-10/ECE.EB_.AIR_.114_ENG.pdf)