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Economic Commission for Europe

Executive Body for the Convention on Long-range Transboundary Air Pollution

Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe

Working Group on Effects

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Item 5 (a) (i) of the provisional agenda
Progress in activities of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe and its workplan for 2024–2025: improvement and reporting of emission data and adjustments under the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone: adjustments under the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone

Review of adjustment applications

Report by the Centre on Emission Inventories and Projections

Summary

The present report was prepared by the Centre on Emission Inventories and Projections in line with its mandate under the 2022–2023 workplan for the implementation of the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/148/Add.1).

The report provides a summary of the 2023 review of applications for adjustments to emission inventories submitted by Denmark, the Netherlands, France and the United Kingdom in accordance with Executive Body decisions 2012/3, 2012/4 and 2012/12, as amended by decision 2014/1.[a]

The review is based on documents submitted by Parties and findings of the Expert Review Team.

[a] Available at www.unece.org/env/lrtap/executivebody/eb_decision.html.

I. Introduction

1. At its thirtieth session (Geneva, 30 April–4 May 2012), aware of the uncertainties inherent in estimating and projecting emission levels and of the need for continuous scientific and methodological improvements, and determined that the emergence of new methodologies should not place a Party at a disadvantage in terms of its emission reduction commitments, the Executive Body for the Convention on Long-range Transboundary Air Pollution adopted decisions 2012/3 and 2012/4[1] in order to allow Parties to make adjustments to emission reduction commitments, or to inventories for the purposes of comparing total national emissions with them, pursuant to the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) to the Convention on Long-range Transboundary Air Pollution.

2. At its thirty-first session (Geneva, 11–13 December 2012), the Executive Body adopted decision 2012/12 on guidance for such adjustments. The guidance, contained in annex to that decision, sets out the general principles that Parties should follow in submitting applications for adjustments.

3. However, following the first review of adjustment applications by countries in 2014, it became evident that more detailed technical guidance was needed. At its thirty-third session (Geneva, 8–11 December 2014), the Executive Body therefore adopted decision 2014/1 on improving the guidance for adjustments. The Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (Technical Guidance) (ECE/EB.AIR/130) was prepared by the Task Force on Emission Inventories and Projections and published on 28 April 2015.

4. The amended Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) entered into force on 7 October 2019. Tables 2–6 of annex II to the amended Protocol set out the emission reduction commitments for SO_2, NO_x, NH_3, NMVOCs and $PM_{2.5}$ for 2020 and beyond, expressed as percentage reductions from the 2005 emission level. The Task Force on Emission Inventories and Projections prepared updated technical guidance for inventory adjustments in the context of emission reduction commitments. At its forty-second session in Geneva, 12–16 December 2022, the Executive Body for the Convention on Long-range Transboundary Air Pollution welcomed and took note of the updated Technical Guidance for Emissions Inventory Adjustments under the Amended Gothenburg Protocol, approved by the EMEP Steering Body[2].

5. Pursuant to the Executive Body's decisions, as clarified by the Technical Guidance, Parties may apply to adjust their inventory data or emission reduction commitments under extraordinary circumstances, which fall into three broad categories:

(a) Emission sources are identified that were not accounted for at the time when the emission reduction commitments were set;[3]

(b) Emission factors used to determine emissions levels for particular source categories for the year in which emissions reduction commitments are to be attained are significantly different from the emission factors applied to these categories when emission reduction commitments were set;

(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.[4]

6. A Party applying for an adjustment to its inventory is required to notify the Convention secretariat through the Executive Secretary of the United Nations Economic Commission for Europe (ECE) by 15 February at the latest if the application is to be reviewed during the same year. All supporting information requested in Executive Body decision

[1] All Executive Body decisions referred to in the present document are available at www.unece.org/env/lrtap/executivebody/eb_decision.html.

[2] https://www.ceip.at/technical-guidance-adjustments-erc

[3] For a more detailed definition, see Executive Body decision 2014/1, annex, para. 3.

[4] ECE/EB.AIR/130, para. 5

2012/12, as amended by decision 2014/1 and clarified in the Technical Guidance, must be provided as part of the Party's informative inventory report, or in a separate report, by 15 March of the same year, for review by the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP).

7. The present report summarizes the review of the previously approved inventory adjustment applications submitted by Denmark, the Netherlands, France and the United Kingdom in 2023 in accordance with Executive Body decisions 2012/3, 2012/4, 2012/12 and 2014/1 and in the light of the Technical Guidance.

8. The report is based on the documents submitted by Parties and those prepared by the Expert Review Team (ERT) during the review process in 2023. It was prepared by the EMEP Centre on Emission Inventories and Projections in line with its revised mandate (Executive Body decision 2019/14).

II. Organization of the review

9. As mandated by Executive Body decision 2012/12, applications for adjustments submitted by Parties are subject to expert review. Technical coordination of and support for the 2023 review was provided by the Centre on Emission Inventories and Projections, represented by Ms. Sabine Schindlbacher. The members of the review team were selected from the experts appointed to the Centre on Emission Inventories and Projections roster of experts by the Parties.

10. The adjustment review was performed in parallel with the stage 3 review. The adjustment expert review team was composed of one lead reviewer: Ms. Kristina Saarinen (Finland) and three sector experts Mr. Tim van der Zee (the Netherlands), Mr. Hakam al Hanbali (Sweden) and Mr. Etienne Mathias (France). No new adjustment applications were submitted in 2023. The team assessed:

(a) previously approved adjustment applications submitted in 2023;

11. Each sector was reviewed by two independent sectoral experts during May and June 2023 (desk review). The findings were discussed within the review team. The conclusions and recommendations from the review for submission to the EMEP Steering Body were elaborated by the review team and are summarized in section III.

12. The Centre on Emission Inventories and Projections has updated a dedicated web page[5] for the review process, which provides an introduction, links to documentation and other information on the adjustments submitted by Parties in 2023 and those approved prior to 2023, as well as the tool used by the reviewers in assessing adjustment applications.

III. Assessment of adjustments approved prior to 2023

13. The reviewers assessed the adjustments reported by Denmark, France, the Netherlands and the United Kingdom of Great Britain and Northern Ireland that had been approved prior to 2023. Details on these adjustments may be downloaded from the Centre on Emission Inventories and Projections website. [6]

A. Denmark – manure management - dairy cattle (3.B.1.a)

14. The reviewers conducted an assessment of the adjustment of NMVOC emissions from 3B1a Manure management - Dairy cattle for Denmark, originally approved in 2022. The adjustment has been recalculated in 2023 and the corresponding values present very small changes compared to the latest approved version (2022). Specifically, a 0.1 per cent decrease for 2005, and a 0.06 per cent decrease for 2020. Denmark explained that changes in the

[5] See www.ceip.at/gothenburg-protocol/review-of-adjustments
[6] See www.ceip.at/gothenburg-protocol/review-of-adjustments

proportion of NH_3 emissions from housing and storage affect the NMVOC emission. The emissions were estimated using the methodology previously approved by ERT.

15. The impact of the adjustment on the NMVOC emission inventory of Denmark for the years 2005-2021 in ktonnes is detailed in Table 1.

Table 1: Impact of adjustments on the NMVOC emission inventory of Denmark for the year 2005, 2020 and 2021 (Thousands of tons)

	Unit	2005	2020	2021
ERC	% of 2005		35%	35%
ERC unadjusted	(kt)		99.84	99.84
NT for Compliance unadjusted	(kt)	153.60	106.47	106.62
Gap to ERC unadjusted	(%)		-6.6%	-6.8%
ERC adjusted	(kt)		86.82	86.82
Adjusted NT for Compliance	(kt)	133.57	82.54	82.17
Gap to ERC adjusted	(%)		4.9%	5.3%
Impact of adjustment on NT for Compliance	(kt)	-20.03	-23.94	-24.45

Notes: ERC: emission reduction commitment, NT: National total

16. The reviewers concluded that there had been no change in the methodology that would alter the original approval of the adjustment application and that the application met all of the requirements set out in Executive Body decision 2012/12 and in the Technical Guidance; hence, it is **recommended that the adjustment continue to be accepted**.

B. France – Manure management (3.B) and Crop production and agricultural soils (3.D)

17. The reviewers conducted an assessment of the adjustment of NMVOC emissions from 3B Manure management and 3D Crop production and agricultural soils for France, originally approved in 2022. The adjustment has been recalculated in 2023 and the corresponding values present changes compared to the latest approved version (2022). Specifically, 8% increase for 3B, and 2% decrease for 3D in 2005. For 2020, 3B shows an increase of 15% per cent and 3D shows a decrease of 1 %. France explained that the increase is mainly caused by new higher estimates of the fraction silage in the animal feed. New estimates for volatile solids excretions also contributed to the higher NMVOC emissions. Emissions from 3D are slightly lower as the ratio of NH_3 emissions from manure application and housing was updated. The emissions were estimated using the methodology previously approved by ERT.

18. The impact of the adjustment on the NMVOC emission inventory of France for the years 2005-2021 in ktonnes is detailed in Table 2.

Table 2: Impact of adjustments on the NMVOC emission inventory of France for the year 2005, 2020 and 2021 (Thousands of tons)

	Unit	2005	2020	2021
ERC	% of 2005		43%	43%
ERC unadjusted	(kt)		1016.44	1016.44
NT for Compliance unadjusted	(kt)	1783.24	1124.50	1164.12
Gap to ERC unadjusted	(%)		-10.63	-14.53
ERC adjusted	(kt)		782.16	782.16
Adjusted NT for Compliance	(kt)	1372.21	708.28	769.72
Gap to ERC adjusted	(%)		9.45	1.59
Impact of adjustment on NT for Compliance	(kt)	-411.03	-416.22	-394.40

Notes: ERC: emission reduction commitment, NT: National total

19. The reviewers concluded that there had been no change in the methodology that would alter the original approval of the adjustment application and that the application met all of the requirements set out in Executive Body decision 2012/12 and in the Technical Guidance; hence, it is **recommended that the adjustment continue to be accepted.**

C. The Netherlands – manure management - dairy cattle (3.B.1.a)

20. The reviewers conducted an assessment of the adjustment of NMVOC emissions from NFR 3B1a (Manure Management – Dairy cattle) for the Netherlands, originally approved in 2022. The adjustment has been recalculated in 2023 and the corresponding values present very small changes compared to the latest approved version (2022). The emissions were estimated using the methodology previously approved by ERT.

21. The impact of the adjustment on the NMVOC emission inventories of the Netherlands for the years 2005 and 2020-2021 in ktonnes is detailed in Table 3.

Table 3: Impact of adjustments on the NMVOC emission inventory of the Netherlands for the year 2005, 2020 and 2021 (Thousands of tons)

	Unit	2005	2020	2021
ERC	% of 2005		8%	8%
ERC unadjusted	(kt)		251.54	251.54
NT for Compliance unadjusted	(kt)	273.42	269.94	277.21
Gap to ERC unadjusted	(%)		-7.3	-10.2
ERC adjusted	(kt)		229.24	229.24
Adjusted NT for Compliance	(kt)	249.18	226.32	234.19
Gap to ERC adjusted	(%)		1.3	-2.2
Impact of adjustment on NT for Compliance	(kt)	-24.24	-43.62	-43.02

Notes: ERC: emission reduction commitment, NT: National total

22. The reviewers concluded that there had been no change in the methodology that would alter the original approval of the adjustment application. The reviewers note that the adjustment for 3B1a (Manure Management – Dairy cattle) approved in 2022 brings the Netherlands into compliance in 2020, however, not in 2021. To the question on the issue the Netherlands responded that they are aware of this and pointed to the potential to include other source categories from the 3B and 3D sector which would bring the Netherlands into compliance for 2022 as well. Without anticipating the results of a potential future review of a new adjustment application of the Netherlands the expert review team agrees that it also sees this potential. The expert review team recommends that the Netherlands submit a new

adjustment application for additional source categories from the 3B and 3D sectors that can be reviewed in detail in 2024. Hence, it is recommended **that the current adjustment for NMVOC emissions from NFR 3B1a (Manure Management – Dairy cattle) continues to be accepted.**

D. The United Kingdom – Other organic fertilisers applied to soils (3.D.a.2.c)

23. The reviewers conducted an assessment of the adjustment of NH_3 emissions from NFR 3Da2c (Other organic fertilisers applied to soils (including compost)) for the United Kingdom, originally approved in 2022. The adjustment has been recalculated in 2023 and the corresponding values present small changes compared to the latest approved version (2022). Specifically, 1% per cent increase for 2020. The United Kingdom explained that changes in the proportion of NH_3 emissions from "other organic fertilisers" applied to soils affect the NH_3 emission. The emissions were estimated using the methodology previously approved by ERT.

24. The impact of the adjustment on the NH_3 emission inventories of the United Kingdom for the years 2005-2021 in ktonnes is detailed in Table 4.

Table 4: Impact of adjustments on the NH_3 emission inventory of the United Kingdom for the year 2005, 2020 and 2021

(Thousands of tons)

	Unit	2005	2020	2021
ERC	% of 2005		8%	8%
ERC unadjusted	(kt)		257.4	257.4
NT for Compliance unadjusted	(kt)	279.8	260.1	265.0
Gap to ERC unadjusted	(%)		-1.0%	-2.9%
ERC adjusted	(kt)		257.0	257.0
Adjusted NT for Compliance	(kt)	279.4	247.2	251.8
Gap to ERC adjusted	(%)		3.8%	2.0%
Impact of adjustment on NT for Compliance	(kt)	-0.5	-12.8	-13.2

Notes: ERC: emission reduction commitment, NT: National total

25. The reviewers concluded that there had been no change in the methodology that would alter the original approval of the adjustment application and that the application met all of the requirements set out in Executive Body decision 2012/12 and in the Technical Guidance; hence, it is **recommended that the adjustment continue to be accepted.**

V. Conclusions and recommendations

A. Adjustment cases approved prior to 2023

26. The ERT assessed the adjustments reported by Denmark, France, the Netherlands and the United Kingdom of Great Britain and Northern Ireland that had been approved prior to 2023 and concluded that the adjustments met all of the requirements set out in Executive Body decision 2012/12 and in the Technical Guidance. **It is therefore recommended that the EMEP Steering Body accept all of the adjustments reported by Denmark, France, the Netherlands and the United Kingdom as listed in Table 5 below.**

Table 5: Expert Review Team recommendations on adjustment applications received in 2023

Country	*Sector*	*NFR*	*Pollutant*	*Years*	*Expert Review Team recommendation*
Denmark	Agriculture	3.B.1.a	NMVOC	2005; 2020, 2021	**Accept**
France	Agriculture	3.B, 3.D	NMVOC	2005; 2020, 2021	**Accept**
The Netherlands	Agriculture	3.B.1.a	NMVOC	2005; 2020, 2021	**Accept**
The United Kingdom	Agriculture	3.D.a.2.c	NH_3	2005; 2020, 2021	**Accept**