UNITED NATIONS

Distr.
GENERAL

CEIP/S3.RR/2022/
28/09/2022

ENGLISH ONLY

Report for the Stage 3 *ad-hoc* review of emission inventories submitted under the UNECE LRTAP Convention:

STAGE 3 REVIEW REPORT

ICELAND

CONTENT

INTRODUCTION

The mandate and overall objectives for the emission inventory review process under the LRTAP Convention is given by the UNECE document '*Updated methods and procedures for the technical reviews of air pollutant emission inventories reported under the Convention*'[1] – hereafter referred to as the 'Review guidelines 2018'.

1. Paragraph 7 (c) of the 'Review guidelines 2018' defines that stage 3 reviews may be annual centralized reviews or ad hoc reviews. Paragraph 18 of the 'Review guidelines 2018' further specifies that such ad hoc reviews could, for instance, focus on specific source sectors, specific pollutants such as heavy metals or persistent organic pollutants, gridded and projections data, or on other areas as requested by the Implementation Committee and that where appropriate, ad hoc reviews could be conducted in line with the present Methods and Procedures for the In-depth (Stage 3) review.

2. At its seventh joint session in September 2021 the Steering Body and the Working Group on Effects approved the plan to perform (in 2022) an in-depth review of $PM_{2.5}$ emissions from residential heating and road transport, with a special focus on the topic of '*condensable particulate matter*' and a follow-up review of the implementation of recommendations given as part of the review carried out in 2021. The Parties reviewed in 2021 are Kazakhstan, Liechtenstein, Monaco and Montenegro.

3. Particulate matter can exist as solid or liquid matter (the "filterable" portion) or as gases (the "condensable" portion). Condensable particulate matter is vapour phase at stack conditions, but condenses and/or reacts upon cooling and dilution upon discharge into ambient air to form solid or liquid PM. All condensable PM is assumed to be in the $PM_{2.5}$ size fraction[2]. The inclusion of the condensable component of $PM_{2.5}$ emissions can have a big impact on the emission estimate for certain sources[3].

4. This ad-hoc review, has assessed $PM_{2.5}$ emission estimates with a special focus on the topic of '*condensables*' for the years 2000 to 2020.

5. This report covers the results of the stage 3 centralised review (ad hoc review) 2022 of the UNECE LRTAP Convention of Iceland coordinated by the EMEP emission centre CEIP acting as review secretariat. The review took place between April and June 2022 and was performed as desk review with an in person meeting between 30 of May 2022 and 3 June 2022. The following team of nominated experts from the roster of experts performed the review.

---

[1] Decision 2018/1 adopted by EB: *Updated methods and procedures for the technical review of air pollutant emission Inventories reported under the Convention*. ECE/EB.AIR/142/Add.1
https://unece.org/fileadmin/DAM/env/documents/2018/Air/EB/ECE_EB.AIR_142_Add.1-1902937E.pdf

[2] Condensable Particulate Matter Definition | Law Insider

[3] For more technical details please refer to the EMEP/EEA Guidebook (https://www.eea.europa.eu/publications/emep-eea-guidebook-2019) or the report 'How should condensables be included in PM emission inventories reported to EMEP/CLRTAP?' https://emep.int/publ/reports/2020/emep_mscw_technical_report_4_2020.pdf

1A3b Road Transport: Gudrun Stranner, Katrina Young, Magdalena Zimakowska-Laskowska, Martina Toceva and Rebecca Rose

1A4bi Residential: stationary: Aleksandra Nestorovska-Krsteska, André Amaro, Benjamin Cuniasse, Canan Esin Köksal, Damian Zasina, Laureta Dibra, Marion Pinterits, Sam Gorji and Wolfgang Schieder

6. Kristina Saarinen, Jeroen Kuenen and Ben Richmond were the lead reviewers. The review was coordinated by Sabine Schindlbacher (EMEP Centre on Emission Inventories and Projections - CEIP).

7. The review was performed on the basis of CLRTAP emission data officially reported by Iceland, due by 15 February 2022 for emission inventories. The Informative Inventory Reports (IIR), reported due 15 March 2022 under the CLRTAP, informed the review.

8. The emission inventory of Iceland was received on 14 February 2022 and thus by the deadline of 15 February. The Informative Inventory Report was received on 8 March 2022 and thus by the deadline of 15 March.

RECOMMENDATIONS FOR IMPROVEMENTS TO THE PARTY

1.A.4.b.i Residential: stationary

9. Iceland uses a Tier 1 methodology for calculating PM emissions from '1A4bi – Residential: stationary'. However, '1A4bi – Residential: stationary' is not a key category in Iceland.

10. Activity data are obtained from adjustments to the official statistics from National Energy Authority (NEA). The ERT notes that the activity data is described transparently in the Informative Inventory Report. The data for 2020 accounts for activities in gas/diesel oil and LPG consumption. The data provided by the NEA indicates no solid fuel use for category 1A4bi. The Party was asked if this would be considered as a gap in the dataset. Iceland responded by confirming that the wood use for residential combustion is indeed negligible.

11. Iceland uses the EMEP/EEA Guidebook 2019 for the compilation of its emissions from this category.

12. For the emission factors it is unclear if they include the condensable component of $PM_{2.5}$ emissions (Table 1).

Table 1: Inclusion of condensables per fuel type

Fuel Type	Includes the condensable component of $PM_{2.5}$ emissions
Gas/diesel oil	Unclear
LPG	Unclear

13. The ERT notes that the time series is consistent.

14. The $PM_{2.5}$ emissions from small combustion are spatially distributed by using the population density from National Land Survey of Iceland as proxy data.

15. Iceland lists no planned improvements for future submissions in their 2022.

1.A.3.b.i-iv Road transport exhaust emissions

16. Icelands PM transport sector emissions are calculated using the transport model COPERT version 5.5.1. All emission factors in COPERT are based on the Tier 3 methodology in the 2019 EMEP/EEA Guidebook. The IIR provides details of the main features of the model. The IIR describes the calculation of transport emissions transparently.

17. Activity data are taken from official statistics for vehicle stock numbers (Icelandic Transport Authority) for years 2017-2020 and total fuel sales from the NEA.

Where country specific data was not available, data from Emisia, the developers of COPERT, were used.

18. The $PM_{2.5}$ emissions from road transport exhaust do include the condensable component of $PM_{2.5}$ emissions.

19. The ERT notes that the method is documented transparently in the IIR.

20. The time series is consistent.

21. Iceland lists the following planned improvements for future submissions in their 2022 IIR

- To work with the Icelandic Transport Authority to obtain national data on vehicle fleet and mileage data for years 1990-2016

The ERT commends Iceland for their improvement plans and recommends implementing them as soon as possible.

22. In addition the ERT recommends implementing the following:

- In response to a question raised during the review, Iceland confirmed that the condensable component of PM emissions is included. The ERT recommends Iceland to include this statement in future submissions of the IIR.

- In response to a question raised during the review, Iceland explained that vehicle fleet data is speciated by the Transportation Authority of Iceland into the COPERT vehicle classes based on vehicle registration information, including class and weight. The ERT recommends Iceland to include summary information of these allocations in future submissions of the IIR.

The ERT encourages implementing the following:

- The ERT encourages Iceland to follow the recommended structure of the IIR detailed in Annex II of the 2014 Guidelines for Estimating and Reporting Emission Data, which includes an appendix with a table summarising the use of PM emission factors that include/exclude the condensable component, where available.

REVISED ESTIMATES AND TECHNICAL CORRECTIONS CONSIDERED AND/OR CALCULATED BY ERT

23. In the Appendix of the 'EMEP/UNECE Review Guidelines 2018[4]' it is stated that if the ERT considers that when emissions are significantly under- or overestimated, then during the review, the Party is invited to submit "Revised Estimates" that address the issue raised. Should the Party decline to do this, or should it not be possible to agree on the quantification of the Revised Estimates, then the ERT may calculate a "Technical Correction" in the absence of an updated emission estimate being provided by the Party itself. The threshold for significance for a technical correction for the in-depth review in 2022 was set at 2% of the national total, i.e. findings identified which result in an over- or under-estimate of emissions of more than 2% of the national total can result in a Technical Correction. The methods for calculating the Technical Corrections are set up in the "Review Guidelines 2018" and use the EMEP/EEA Emission "Inventory Guidebook" as a reference for methods and emission factors.

24. Iceland did not provide any revised estimates and the ERT did not calculate technical corrections for Iceland.

[4] https://www.ceip.at/fileadmin/inhalte/ceip/3_review/advance_version_ece_eb.air_142_add.1.pdf

LIST OF MATERIALS PROVIDED TO ERT

1. Iceland IIR 2022
2. ISL_NFR_1990_2020_values_submitted.xlsx

LIST OF ADDITIONAL MATERIALS PROVIDED BY THE COUNTRY DURING THE REVIEW

3. Responses to questions raised by the ERT during this review