

Comments by Parties on the draft assessment report on ammonia and the draft guidance document on prioritizing reductions of particulate matter so to also achieve reduction of black carbon

Comments by the European Union

Background

At its 58th session of the Working Group on Strategies and Review (virtual, 14-17 December 2020), the Task-Force on Integrated Assessment Modelling (TFIAM) invited delegations to submit by 1 February 2021, their comments on the draft assessment report on ammonia and on the draft guidance document on prioritizing reductions of particulate matter so as to also achieve reduction of black carbon, available as informal documents of the session, with a view to its adoption by the Working Group at its 59th.

The EU and its Member States have the following comments, questions, suggestions, and preliminary feedback on these documents.

Draft Guidance document on prioritizing reductions of particulate matter so to also achieve reduction of black carbon

The EU and its Member States welcome the work by TFIAM in cooperation with TFTEI. We consider it interesting and useful.

We strongly support the overall recommendation that reduction of PM emissions with high BC shares (e.g. domestic wood combustion, agricultural burning) should be prioritised. Depending on the region, the focus of measures should be a fast modernisation/ exchange of equipment, consequent ban on burning of agricultural and other waste, and energy policies that aim at decarbonisation with as little reliance on biomass as possible.

The draft guidance should be updated with the information from the Commission's *Second Clean Air Outlook Report*¹ and its underpinning *IASA report*² + *annex*,³ notably for more recent/ different scenarios, as foreseen in paragraph 14.

In addition, we have further elements and inputs to propose to the draft document:

- Figures 2a, 3a, 4a etc. (and all figures of the same type) are difficult to interpret from a quick read. We suggest to present the graphical analysis in a more user-friendly way, in order to improve readability;

¹ Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - The Second Clean Air Outlook (COM/2021/3 final). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A3%3AFIN>

² International Institute of Applied Systems Analysis, Support to the development of the second Clean Air Outlook Report
<https://ec.europa.eu/environment/air/pdf/CAO2-MAIN-final-21Dec20.pdf>

³ International Institute of Applied Systems Analysis, Support to the development of the second Clean Air Outlook - Annex
<https://ec.europa.eu/environment/air/pdf/CAO2-ANNEX-final-21Dec20.pdf>

- Some of the main messages could be presented both in absolute and relative terms instead of absolute only. This would have added value as information for policy-makers. For example: in paragraph 37 with references to possible reductions of PM_{2.5} and black carbon in kilotonnes – it would be very useful to express this reduction potential also in terms of percentage of current sector emissions, in this and other paragraphs of the same type;
- There are large uncertainties in BC measurements and therefore also BC/PM relations. It has been proposed by technical experts that the assumptions for source allocation when it comes to BC content of PM from wood combustion in inventories and modelling should be clarified. The reasons for differing values are unclear. The EMEP Guidebook assumes ca. 10%; different parts of the draft guidance seem to assume a BC content between 10% (e.g. p. 24: Wood fuels in household heating stoves; Historical emission abatement due to introduced control measures is 100 kt PM_{2.5} and 11 kt BC. Control measures) and 30% (e.g. p.22 Potential emission reductions (MTFR-CLE) Wood fuels in household heating stoves; Emission reduction potential is 48 kt PM_{2.5} and 14 kt BC. Control measures).
- According to the WHO, all PM_{2.5} emissions are health relevant, albeit possibly in different degrees. Some of the text seems to suggest that the BC content is directly related to the health relevance of the emitted particulate matter. However, in certain combustion processes (including, but not limited to those responsible to large BC emissions) there are trade-offs between high BC contents and high contents of undoubtedly very toxic carbonaceous compounds such as PAHs and dioxins. We would therefore request to change the wording accordingly and rephrase the current paragraph 8, as follows (changes to the original text are marked in bold):

*Correspondingly, reduction of PM_{2.5} emissions in sectors with low shares of black carbon risk leading to a trade-off between human health and climate change. **One aspect to consider in this regard is that co-emitted organic carbons, and noncarbonaceous PM as well as coarser PM-fractions, all are cooling forcers. Reduction of these will warm the climate, thereby partly or fully counteracting the cooling effect of black carbon emission reduction. However, it is important to keep in mind that human health remains a key objective and that the emission reduction of PAH, heavy metals etc. via PM_{2.5} reduction is also relevant.***

Draft Assessment Report on Ammonia 2020

The EU and its Member States appreciate the work by TFIAM in cooperation with TFMM and TFRN on the assessment of ammonia.

In many cases, the report is based on rather old literature/data. We therefore call for the Draft Assessment Report on Ammonia 2020 to be updated, where relevant, with the information from the *Second Clean Air Outlook report* and its underpinning *IIASA report + annex*.

While recognising that there are differences in the information provided, we consider that this assessment report, as it involves all UNECE Parties, should aim to better integrate the information, data and approaches from the different regions. Even though there is a larger extent of information from Europe, it would be important to include all regions without a separation between the main document and the two annexes. This would provide a more integrated view of the assessment performed.

For example, some of the conclusions and recommendation for the US and Canada should also be extended to Europe such in page 26, paragraph 3 "*there is a need to measure both gaseous form of NH₃ and NH₄⁺...*" and in page 27 paragraph 1 "*further work is required to access how particulate ammonium interacts with other pollutants*".

Editing issues

Some detailed redrafting proposals (mostly editorial) and a few questions can be found the attached file, as follows:

- Page 3 - Question about the monetary damage in the EU estimated at 60 billion euro per year from 2030 onwards;
- page 4, para 3 - inconclusive sentence;
- page 6 - The legend is impossible to read, please increase the quality of the figure;
- page 10 - the first sentence: Would this not increase the exceedance of critical loads in areas in which ammonia emissions are low? For instance in mid – northern Sweden and Fennoscandia? It would be good to mention the effects on critical loads;
- page 9 - figure 3 is missing;
- page 9 - reference to Tang et. al. 2019 missing;
- page 9 - comment about the more correct way to say that ammonium nitrate is formed from nitric acid and ammonia as following: $\text{HNO}_3 + \text{NH}_3 \rightarrow \text{NH}_4\text{NO}_3$. For ammonium sulfates, NH_3 reacts with sulphuric acid (maybe refer to the equations reported by e.g. Seinfeld and Pandis or similar);
- page 14 - on table 2 it is better to write millions instead of "mln";
- page 15 - figure 6 (and others of the document) - some figures appears to be with low resolution;
- page 26 - footnote 3 is missing;
- page 12 (main text and footnote), 13 (main text), 14 (footnote) Remove the word "draft" when referring to the "guidance document on Integrated Sustainable Nitrogen Management".

Comment by Switzerland

We thank you for giving us the opportunity to comment on the documents “Considerations for ammonia relevant to future review of the Gothenburg Protocol”, the “Guidance document on prioritizing reductions of particulate matter to also achieve reduction of black carbon” and the “Ammonia assessment report”. We welcome all three documents and their content. They provide essential guidance for further work and discussions. We do not have any specific comments to the current drafts of these documents.

One general comment, however, with regard to wording in context of prioritizing reductions of PM to also reduce black carbon: We have to be careful when addressing emission reductions in sectors with low shares of black carbon. It is very important not give the impression that PM mitigation in these sectors is “bad” and that it should be avoided in the interest of climate. Not to reduce PM emissions with low shares of black carbon cannot be an instrument to counteract climate change. In the interest of human health and the environment all emissions of air pollutants must be reduced as far as possible.

Comment by the United States of America

The United States would like to bring to your attention an error in the text of the “Informal document on prioritizing reductions of particulate matter to also achieve reduction of black carbon prepared by the Task Force on Integrated Assessment Modelling in cooperation with the Task Force on Techno-economic Issues” for the Fifty-eighth session of the Working Group on Strategies and Review. More specifically, the second to last sentence in the first full paragraph of the second page of the informal document states that, “ The situation in the North American part of the UNECE region, which doesn’t have PM_{2.5} emission reduction obligations under the Gothenburg protocol, has yet to be examined.” Both Canada and the United States do indeed have PM_{2.5} emission reduction obligations under the Gothenburg Protocol in the form of indicative targets included in Annex X, sections B and C, respectively.

We suggest the following correction to the text in reference, “ The situation in the North American part of the UNECE region, ~~which doesn’t have PM_{2.5} emission reduction obligations under the Gothenburg protocol,~~ has yet to be examined.”