

Atmos. Chem. Phys. Discuss., editor comment EC1
<https://doi.org/10.5194/acp-2022-91-EC1>, 2022
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Comment on acp-2022-91

Farahnaz Khosrawi (Editor)

Editor comment on "Climate consequences of hydrogen emissions" by Ilissa B. Ocko and Steven P. Hamburg, Atmos. Chem. Phys. Discuss.,
<https://doi.org/10.5194/acp-2022-91-EC1>, 2022

I am grateful to the two referees and to Steven Kloos for the time and effort they spend in reviewing the manuscript by *Ocko and Hamburg* and for giving valuable feedback. While the review by referee 1 is very positive, referee 2 raised some serious concerns on this study. However, statements like "I think the figure is wrong" as done in the review by referee 2 are not really helpful and not sustainable. Further, referee 2 states "To me, this paper is a bit misleading, and it looks more like an opinion piece about their metric being much better than GWP100". This statement is not justified at all since the authors have provided arguments defending why they do not use GWP100 underpinned with additional references. Even, if the authors reference themselves, this is still better than giving no references at all. At least these references are papers published in reliable scientific journals and thus are not just an opinion of the authors.

A relief was the community comment by Steven Kloos since in his comment at least some specific criticism on the method/the way the calculations are given. However, also here references are missing and how should one now differentiate between serious, justified criticism or just an opinion from the community, i.e. community members who fully support an hydrogen economy without accepting the consequences these have on the climate?

Nevertheless, I agree with the two referees and Steven Kloos that there is room for improvement. Additionally to the comments and suggestions given by them, I would like to encourage the authors to revise and defend their study accordingly. Further, I think a lot of the criticism arose because the manuscript itself could have been a bit more concise. I would suggest moving Sections 2 and 3 behind the result section into a new "*discussion*" section. Further, I would suggest to shorten the paper a bit and not to focus too much on the discussion of the problem with the hydrogen leakage itself. Currently, it feels like you are a bit lost in detail. I would also appreciate if you could clearly state in the method section what has been done in your study and which data has been used (add a few sentence and not just write as in the study by xx and then giving the reference). In addition, it would be quite helpful if you could describe in more detail what is shown in the figures.