

## ***Interactive comment on “Global emissions of fluorinated greenhouse gases 2005–2050 with abatement potentials and costs” by Pallav Purohit and Lena Höglund-Isaksson***

**Anonymous Referee #1**

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I am in favor of publishing the paper after following points have been carefully considered.

General remarks: The term “F-gas” is somehow reserved for the HFCs, PFCs, SF6 regulated for example in the F-gas directive. The definition of this term as it is done in the paper (i.e. by including HCFCs) is therefore problematic. Authors should come up with a new term or just use this F-gases just as it is generally used and combine it with the HCFCs. E.g. “emissions of F-gases and HCFCs. . .”. Anyway, HCFCs are not really at the core of this analysis. For me it was for example not clear where authors got there information about activities and emission factors for HCFCs. Is that related to UNEP reporting or just a ratio with F-gases? Maybe it would be better to not really

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calculate emissions for HCFCs anymore but just focus on the HFCs.

other issues: P. 4 L. 17: HFC-23 is not really a replacement compound. Please look for other compounds with high GWP.

P. 4 L. 25: the term PFPB is not explained

P. 7 L 23: full abatement is not possible. In case of shut-down processes there are always emissions. In addition figures are mentioned further back in the results part. Maybe that could be done already here

P. 7 L. 28 the assumption that the CDM will go on in the future is not really realistic. EU for example has stopped the CDMs with HFC-23 and for example Miller et al. have increasing emissions in the future. Again, figures are mentioned further back in the results part. Maybe that could be done already here

P. 8 L. 9 the term HSS/VSS is not explained

P. 13 L 18ff. In the discussion the following paper is missing. This contains additional information. Velders, G.J.M., S. Solomon, and J.S. Daniel, Growth in climate change commitments from HFC banks and emissions, Atmos. Chem. Phys., 14 (9), 4563-4572, doi: 10.5194/acp-14-4563-2014, 2014. Furthermore, the Chapter 5 of the most recent Ozone Assessment (Harris and Wuebbles, 2014) (e.g. Figure 5-9) should also be part of the discussion.

P. 15 L. 20 ff Authors do not mention that the F-gases will possibly be part of the Montreal Protocol. This should at least be mentioned in then conclusions. This will possibly change the whole cost model dramatically.

P. 30 Figure 9 is misleading. A lot of information is contained in other publications, if only the end point in 2050 is shown no real discussion is possible and the reader cannot really follow the discussion between the different scenarios.