

Review comments  
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Paper  
**acp-2016-727**

**Global emissions of fluorinated greenhouse gases 2005-2050 with abatement potentials and costs,**

by

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1. The paper describes the various F-gas emission issues, via the referencing of literature sources, in an exhaustive way. In so far, it is good to note that the GAINS results support emissions for the years 2005 or 2010 as published in other sources (section 1). The assumption for the growth in emissions between 2005 and 2050 is something different and specific for this investigation reported. However, currently, the (future) F-gas consumption and emissions variables are changing rapidly due to technology changes and due to ongoing implementation of national and international regulations. It implies that many references to numbers or orders of magnitude dated 2005, 2007, 2009 etc. may support certain numbers calculated or used in this investigation, however, if they are used with later references (or numbers based on later assumptions) they must be adding to the uncertainties level.  
A comment in the beginning, in section 1, underlining this, would be desirable.
2. On the same issue, it is not until page 7 that the paper mentions the adoption of the Kigali Amendment. The Kigali agreed measures may not have much of an impact on certain existing regulations in some larger developed countries or regions, they will have substantial influence where it concerns the global consumption and emissions of F-gases (in particular from developing countries) after 2020-2025. Rather than mentioning this in a paragraph on page 7, this issue should be part of section 1. Furthermore, the article mentions that the (future) Kigali induced changes will be subject of a further (future) analysis. It would be helpful if the authors could give an indication in how far the results in the present paper (GAINS investigation) remain valid and in which way they are expected to change via the introduction of “Kigali induced changes” in the model calculations, that will form the basis of the future analysis of abatement potentials and costs.
3. On page 8, lines 24-25, it mentions that HFC-23 emissions are expected to remain at the current level. Is this consistent with the considerations of the Chinese approach to mitigate HFC-23 emissions as reported in lines 12-23 on this same page ?

4. On page 12, line 17, it says, “under the MP, HCFCs in emissive use should be virtually phased out by 2030, but still allowing for refills of the existing stock until 2040”. One would need to consider that the MP allows for a remaining 2.5% of the HCFC baseline between 2030-2040, but that is not necessarily a refill of the existing stock (servicing), although it is true that the allowed consumption should be used for servicing.
5. On page 12, line 18-19 it is mentioned that the HFC-23 emissions are expected to grow significantly in China. Is this consistent with what is mentioned on page 8 ? (as far as I have seen information for the period after 2013, there is a continuous decrease in China for HFC-23 emissions from HCFC-22 production, including feedstock).
6. Page 16, line 24, change to “fluorinated”.