Re: Pycroft, J., L. Vergano, C. Hope, D. Paci, J. C. Ciscar, "A Tale of Tails: Uncertainty and the social cost of carbon dioxide"

RESPONSE TO REFEREE #1

We would firstly like to thank this reviewer for his/her useful comments.

The proposal for altering the hybrid pdfs is an interesting one. As the main focus is on the tails (beyond the $85^{\text{th}} / 90^{\text{th}}$ percentile), we agree with the reviewer that fitting identical pdfs up until this point would focus attention more precisely on the tails, and (one suspects) draw a more stark distinction between them. This line of thinking was a reason for choosing to keep the PAGE09 standard values up until the 50th percentile for each of the pdfs.

Extending the PAGE09 version up until the $85^{\text{th}} / 90^{\text{th}}$ percentile has the problem that the standard triangle pdf would fall to zero, then "jump" to something positive, for the tails to then slope downwards. This would be a rather awkward pdf.

Therefore, should another functional form be chosen between the 50^{th} and $85^{\text{th}} / 90^{\text{th}}$ percentile? This would involve splicing three pdfs together: one up to the 50^{th} percentile, another between the 50^{th} and $85^{\text{th}} / 90^{\text{th}}$, and then the tail. It could be done, though which functional form should be chosen for the middle section?

Generally, we feel that the functional forms used in the paper are appropriate and the sources are clear: for the lower 50 percentiles we use PAGE09 standard and for the upper 50 percentiles we use those proposed in Weitzman (2010). Nevertheless, the idea of this reviewer is an interesting one, which we will consider further in future work.

Otherwise, we are happy to address the more minor points raised in the report and will adjust the final submission accordingly.