Anonymous Referee #1

The authors try to understand the uncertainties in China's energy statistics and estimate their impacts on China's emissions during the period of 1990-2013 using MEIC. The uncertainty of energy consumption statistics in China were appointed out in the previous many studies. This work is highly motivated and the authors try to understand the uncertainties of national statistics from China inside. Particularly, the discussion in the section '4.1 Understanding the reliability of energy statistics' is important. And also the authors analysis the uncertainties of emission inventory for air pollutants in China caused by those of energy statistics. In my knowledge, this is a first work. Additionally, the manuscript indicates the variations at energy consumption could be an important source of energy-induced emission uncertainties in China. The topic certainly is suitable for ACP.

Response: We thank Referee #1 for the encouraging comments. We address the comments as below.

The authors define the apparent uncertainty as the maximum discrepancy among different datasets of energy consumption. My question is that this definition is appropriate. For example, the converging in 2013 may be caused by any artificial modification because the trajectories in two datasets during 2010-2013 are quite different. This converging indicates small uncertainty? I think the "uncertainty" is unsuitable term and should be replaced to another term, such as "discrepancy in statistics" or other. In conclusion, the reviewer is recommending the minor revision of the manuscript.

Response: We agree with the referee that the terminology of "apparent uncertainty" may make some confusion. In the introduction section of the revised manuscript, in order to avoid confusion, we have clarified the meaning of "apparent uncertainty" defined in this study as compared to the meaning of "actual uncertainty". Apparent uncertainty is a straightforward metric used to quantitatively gauge the apparent discrepancies between different existing datasets. Apparent uncertainty ratio is a metric to quantify the relative deviation. Thus apparent uncertainty could partly reflect actual uncertainty. In general, large apparent uncertainty reflects large discrepancies, which might indicate large actual uncertainty. However, it should be noted that apparent uncertainty could not fully represent actual uncertainty, and apparent uncertainty would likely to be conservative estimates as it might be subjected to the datasets used. Thus small apparent uncertainty does not necessarily mean to small actual uncertainty. For example, the small apparent uncertainties before 1996 might become larger if a new energy dataset that revises the data of this period is included. The converging apparent uncertainties in 2013 may be caused by the third economic census. We have clarified this in the Section 3.2 of the revised manuscript.