**Comment 1:**

Introduction: A general awareness about the development of hydrocarbon resources can be presented to the readers at the beginning of the introduction:

a) Best Practices and Methods in Hydrocarbon Resource Estimation, Production and Emissions Forecasting, Uncertainty Evaluation, and Decision Making, SPE Res Eval & Eng 5 (02): 146–153;

b) Modeling of microflow during viscoelastic polymer flooding in heterogenous reservoirs of Daqing Oilfield(2022). J. Pet. Sci. Eng. 210, 110091.

**Response 1:**

Thank you for the suggestion and for the references. We have mad significant modifications in the introduction based on your advice.

**Comment 2:**

To make the review article be more forward-looking, please outline the authors' detailed views on the key challenges, existing research gaps and future research directions etc., including also potential future developments in research methodologies that are important to future development of the related field. This section brings critical benefits to the readership.

**Response 2:**

The last section intends to bring to the reader attention precisely such a view. Please let us know whether you consider that a specific aspect would benefit from more emphasis.

**Comment 3:**

Page 13 Line no. 546: “Error! Reference source not found”;…… please correct.

**Response 3:**

Sorry for that mistake. It should be ok now.

**Comment 4:**

Please do not use Table in the Conclusions, it is not customary.

**Response 4:**

Thank you for the comment. We have opened an exception in this paper, because the table intends to provide a straightforward set of recommendations based on what had been discussed before. We have renamed the section to “Conclusions and recommendations” to emphasize that the purpose of that section is beyond standard conclusions and also focus on recommendations.