Responds to the reviewer 3's comments

November, 2022

We would like to thank the Editor and reviewers for their efforts spent on the thorough review and their constructive comments that help us improve the quality of this paper. We have studied these comments carefully and tried our best to address the remaining concerns. The text has been carefully polished. The changes we have made are described in details in the remaining part of this letter.

Yours sincerely,

Fan Li, Dong Liu, Boyu Qin, Ke Sun, Dan Wang, Hanqing Liang, Cheng Zhang, Taikun Tao

Reviewer 3's Comments

This paper proposes a multi-objective energy scheduling algorithm. In general, the paper is interesting, even though several clarifications should be added.

All the following indicated aspects should be clarified and better explained in the manuscript.

Introduction

1. The authors should better highlight the innovative aspects of their work in the manuscript.

System model

2. All the used variable in all the formula and figures should report the unit.

3. The description of the proposed methodology could be improved. First, it could be better to insert at the beginning of Section 2 an outline about the system model and the methodology flow diagram; the use of UML could help authors describing the proposed system view in a more structured fashion.

4. As for the applicability of the proposed method, could the proposed multi-objective method take define the optimal strategy of battery utilization into account? The current trend of several recent scientific studies related to energy scheduling and management (e.g., https://doi.org/10.3390/en13174586, https://doi.org/10.1186/s41601-018-0076-2, documents that could be referenced in the text) relies on availability of degradation oriented mode of operation. The authors could analyse and discuss this point and, based on the discussion, they could worthily extent the scope/applicability of their proposed study.

Problem formulation and resolution

5. Optimization model: The authors should clearly characterize the overall problem (5) that they intend to solve. What type of decision variables (i.e. integer, real, etc) and how many? How many constraints (bounding, inequality, equality)?

6. Does the proposed formulation satisfy power flow constraints? In the formulation (1)-(4) no power flow equation are present. Several recent scientific studies on power grid, show that energy scheduling must consider power quality and power flow constraints. The Authors should comment this point.

a. P. Scarabaggio, R. Carli and M. Dotoli, "Noncooperative Equilibrium Seeking in Distributed Energy Systems Under AC Power Flow Nonlinear Constraints," in IEEE Transactions on Control of Network Systems, 2022, doi: 10.1109/TCNS.2022.3181527.

b. M. Yao, D. K. Molzahn, and J. L. Mathieu, “An optimal power-flow approach to improve power system voltage stability using demand response,” IEEE Trans. Control of Netw. Syst., vol. 6, no. 3, pp. 1015–1025, 2019.

(documents that could be cited in the text)

7. The diagram flow at page 7 should be better described.

Case study

8. Where the data come from?

9. The outcome of the proposed approach should be assessed and condensed into a suitable indicator(s) that synthetically summarizes the related overall correctness and accuracy.

Minor

10. Not clear why several parts of text are red-coloured.

11. Mainly the English is good and there are only a few typos. However the paper should be carefully rechecked.

Thank you very much for your recognition. We are sorry for these mistakes. We have checked the paper carefully. As the reviewer suggested, the abstract has been reworked and expanded. We also invited a native speaker to help us modify our manuscript. The literature review and reference part has been expanded and rewritten. We also tried our best to rework our abstract, introduction and conclusions. Thanks again for the reviewer's suggestions that help us improve the quality of this paper. The changes we have made are as follows.

1. The innovative aspects of our work in the manuscript have been highlighted.

2. The mistakes have been modified in the content.

3. The description of the proposed methodology have been modified.

4. The system model part has been expanded according to the reviewer's suggestion.

5. The content has been supplemented according to the reviewer's suggestion.

6. The proposed formulation satisfy power flow constraints. We studied the two articles as follows and found them very helpful.

a. P. Scarabaggio, R. Carli and M. Dotoli, "Noncooperative Equilibrium Seeking in Distributed Energy Systems Under AC Power Flow Nonlinear Constraints," in IEEE Transactions on Control of Network Systems, 2022, doi: 10.1109/TCNS.2022.3181527.

b. M. Yao, D. K. Molzahn, and J. L. Mathieu, "An optimal power-flow approach to improve power system voltage stability using demand response," IEEE Trans. Control of Netw. Syst., vol. 6, no. 3, pp. 1015–1025, 2019.

We added these two articles to the citation.

7. The diagram flow at page 7 have been described in Appendix A.

8. This paper only give method to analysis IPS optimal problem, the data is given by consumption.

9. The outcome of the proposed approach have been modified according to the suggestion.

10. The mistake have been modified.

11. The paper have been carefully rechecked.