Review of: "Technical and Financial Viability of a 1 MW CSP Power Plant with Organic Rankine Module: Case Study for a Northeastern Brazilian City"

Noman Khan

Potential competing interests: No potential competing interests to declare.

Dear authors,

Thank you for conducting this interesting study on the technical and financial viability of a 1 MW concentrating solar power (CSP) plant with an organic Rankine cycle (ORC) module in Fortaleza, Brazil. This is an important contribution given the need for renewable energy solutions in Brazil.

Overall, this is a well-written paper describing a thorough techno-economic analysis. The model appears sound and the results are insightful. I have a few comments and suggestions that I hope you will find constructive.

Major comments:

1. The introduction provides good context and motivation for the study. I suggest adding a statement clearly defining the novel contribution of this work compared to previous analyses of CSP-ORC systems.

2. In the model description, please add more details on key model assumptions like solar field placement, land acquisition costs, financing terms, etc. These can significantly impact the LCOE.

3. For the economic analysis, consider doing sensitivity studies on the LCOE based on ranges or uncertainties in the cost assumptions. This would strengthen the conclusions on optimum configuration.

4. The LCOE results appear high compared to cited benchmarks. It would be useful to further discuss the factors driving this difference and potential areas for cost reduction.

5. The seasonal generation profile is interesting. I recommend examining grid demand profiles for Fortaleza to analyze how well supply matches demand. This has implications for the value of the CSP plant.

Minor comments:

1. In Figure 1, use consistent font sizes, legend format, and axis labeling between the two plots.

2. Proofread the manuscript to fix minor typos, grammar issues, and inconsistent formatting.

3. Choose either US$ or $ consistently for cost figures.

4. Consider combining some results figures into a single figure for conciseness.

5. Add axes labels to Figures 6 and 7.