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

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Potential competing interests: No potential competing interests to declare.

Strengths of the article:

- The article provides a simulation study of a 1 MWe parabolic trough concentrating solar power (CSP) plant using an Organic Rankine Cycle (ORC) to convert thermal power into electricity .
- The study considers different configurations and evaluates the technical and financial viability of the CSP plant, providing specific results such as net annual energy generation, total efficiency, and levelized cost of electricity (LCOE).
- The article highlights the importance of CSP technology in providing flexibility to the power system and compensating for the variability of wind and solar power generation in Brazil's northeastern region.
- The study utilizes local sunlight data and presents results that are expected to approximate the reality of the region, which has not been previously studied for this type of undertaking.
- The article also discusses the utilization of a commercially available ORC module for power conversion, allowing for a small capacity power plant with high flexibility and low maintenance costs.

Overall, the article provides valuable insights into the technical and economic feasibility of a CSP power plant with an ORC power block in Brazil's northeastern region.

Weaknesses of the article and suggestions for improvement:

- The article lacks detailed information on the methodology used for the simulation study, such as the specific software or models employed. Providing more information on the simulation process would enhance the transparency and reproducibility of the study.
- The article does not discuss the limitations or assumptions made in the simulation study. Including a section on the limitations and assumptions would provide a more comprehensive understanding of the study's findings and their applicability to real-world scenarios.
- The article does not provide a comparison with other renewable energy technologies or conventional power generation methods. Including a comparative analysis would help assess the competitiveness and advantages of the CSP plant in relation to other options.
- The article does not discuss the environmental impact or sustainability aspects of the CSP plant. Considering the

growing importance of sustainable energy solutions, including an analysis of the environmental benefits and potential carbon emissions reduction would strengthen the study.

To improve the article, the authors should consider providing more details on the methodology, discussing the limitations and assumptions, conducting a comparative analysis, and addressing the environmental impact of the CSP plant. These improvements would enhance the credibility and applicability of the study's findings.