

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.

The authors present a techno-economic analysis of a 1MWe CSP plant (parabolic trough collectors, an ORC power block and molten salt TES) for a specific region in Brazil. A plant performance model is presented and used in an annual calculation (taking into account local solar and ambient conditions), coupled to a financial model to determine LCOE as a function of solar fraction and TES capacity. An optimum plant configuration is identified for the given ORC with a minimum LCOE of 187 USD/MWh. While this cost is high, the authors indicate that the cost can be further reduced through optimization of the solar field (the primary contributor to cost).

Overall, the paper is relatively well written and I could follow along easily. The model seems sound, the results are clearly presented, and logical conclusions are drawn. The paper is certainly publishable with some alterations which I have suggested in the attached annotated version of the paper. Minor concerns include

(a) Grammar and language can be improved. I have made some corrections in the document but my input is not comprehensive. I suggest the authors do a careful check of the paper and use a professional editorial service (or tool e.g. Grammarly) to improve the language in the paper.

(b) The list of references should be improved. See comments in document.

(c) I think that the site conditions (solar resource and ambient) should be quantified better in the paper to make the results more useful.

(d) The model logic should be better described (under annual simulation).

I have only one major concern:

[17] is a very important reference for this paper and you use several equations (including property correlations) attributed to this source. However, this source is a Master's thesis and as such I have a few concerns: (1) while a thesis is examined, the scope of such a thesis may mean that it may be accepted with significant limitations which are OK in the context of the academic assessment but may be questionable elsewhere (e.g. some work from a thesis may actually not be publishable in a high quality peer-reviewed journal), (2) this thesis may not be easily available like a journal paper may be (so that readers can access the original source of the information), and (3) I assume many of the equations etc. attributed to [17]

are actually from elsewhere and reproduced in [17] - the original sources of information should always be found and referenced if possible.