## Review Form 1.7

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| Journal Name: | **Journal of Energy Research and Reviews** |
| Manuscript Number: | **Ms_JENRR_111039** |
| Title of the Manuscript: | **Technical and Enviro-Economic Analyses of a 780 Wp PV System** |
| Type of the Article | **Original Research Article** |

## Review Form 1.7

**PART 1: Review Comments**

| | **Reviewer's comment** | **Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
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| **Compulsory** REVISION comments<br><br>1. **Is the manuscript important for scientific community?**<br>(Please write few sentences on this manuscript)<br><br>2. **Is the title of the article suitable?**<br>(If not please suggest an alternative title)<br><br>3. **Is the abstract of the article comprehensive?**<br><br>4. **Are subsections and structure of the manuscript appropriate?**<br><br>5. **Do you think the manuscript is scientifically correct?**<br><br>6. **Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.**<br><br>**(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)** | 1. **Yes. This study assesses the technical, economic and environmental performance of a 0.78 kWp solar PV system installed in Western Kenya. It also attempts to compare performance to that of diesel generator employed as a backup generation facility. The paper could be helpful for consumers and policy makers in the choice of renewable based or fossil based back generation systems**<br><br>2. **Yes**<br><br>3. **Needs improvement**<br><br>4. **Needs improvement**<br><br>5. **Yes, but needs improvement**<br><br>6. **Yes, References are sufficient**<br><br>**From the reviewer's perspective,the quality of this manuscript needs considerable improvement. The following comments/suggestions could be helpful.**<br>1. Ensure that all variables and acronyms are defined. For instance, what does "POA" stand for?<br>2. According to the authors, input data were measured at the site (see the abstract, under methodology section). What types of input data were measured at the site (e.g., weather data, load data), and how were they measured? Additionally, the authors referenced the Meteonorm databases. Please clarify the measurement methods as discussed in the paper.<br>3. Elaborate on the load demand under consideration. For example, provide details on the load profile, types of loads, and duration of usage, etc.<br>4. In the abstract, the authors state, "The performance of the studied PV system in all the investigated indicators is comparable to or better than other energy sources, such as grid power, and can significantly mitigate CO2 emissions." From a reviewer's perspective, the authors should reconsider this statement, as some performance indicators may not apply to other energy systems like the grid.<br>5. The authors should explicitly state the type of PV system under investigation. For instance, is it grid-tied, off-grid, or hybrid?<br>6. Please ensure that references are correctly cited.<br><br>For example:<br><br>"The impact of variations in PV module parameters, temperature, the height of solar PV plates from the ground, weather conditions, different geographical locations, and the diffusion of light on the generation of electrical power has been investigated by Ibrahim and Anani, (2017; Ike, (2017) "<br><br>7. Improve the presentation of figures and tables. Some items are illegible, some table columns lack titles, and several figures have duplicate titles.<br><br>8. Maintain consistency throughout the paper for better comprehension. | |

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| | For e.g. ($\eta_{array}$) is called conversion efficiency ($\eta_{array}$), in introductory part of 2.3, but it is also called Array efficiency in the Table 2<br>.<br><br>Also<br><br>In section 2.3, LCE is defined as the levelized cost of energy (LCE) and the amount of CO2 mitigated. However, in section 3.5, LCE represents the CO2 emissions associated with the PV system, covering its entire life cycle from production to disposal, including transportation.<br><br>9. What prompted the modification of the schematic diagram for the existing PV backup system in Figure 2? Wouldn't this modification potentially affect performance, thereby not accurately reflecting the existing system in Western Kenya?<br>10. In the modified schematic for the backup system, both a backup generator and batteries are present( Figure 2), yet the converter is DC to AC. Please clarify this configuration.<br>11. Including a table that summarizes the study's results compared to those from related studies could enhance the paper.<br>12. Proofread the paper for grammar, typos, and other errors. For example:<br><br>“The values of PR varied from 57.5.9% in December to 76.4% in April, with an average annual value of 73.6%.”<br>13. Use standardized symbols and terms. Where non-standard symbols are used, ensure they are well-explained for readers. For instance, what does “User Fixed: E needs “ as depicted in Figure 2 mean?<br>14. In the methodology, clearly indicate the criteria for comparing the PV system with the grid and diesel as used in the paper. This transparency will aid in replicating the study's results and provide technical justification for the conclusions. | |
| **Minor** REVISION comments<br><br>**1. Is language/English quality of the article suitable for scholarly communications?** | Needs improvement | |
| **Optional/General** comments | | |

**PART 2:**

| | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
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| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* | |

**Reviewer Details:**

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|---|---|
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