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REVIEWER'S REPORT

Manuscript No.: IJAR-55186

Title: Sizing protocol of solar power plant based on knowledge of the solar irradiation database and the panels parameters

Recommendation:

Accept as it is .....

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance		✓		

Reviewer Name: Mr. Bilal Mir

Reviewer's Comment for Publication.

Abstract

Renewable energy, particularly solar PV, is key for sustainable electricity. Accurate sizing of PV systems is crucial to ensure efficiency and economic viability. This study presents a protocol for sizing a solar power plant using solar irradiation data, PV panel characteristics, and numerical simulation (SAM). Results show deviations <5% between theoretical and experimental data, ensuring reliable design and performance assessment.

1. Introduction

Solar energy is abundant in Togo, offering potential for both stand-alone and grid-connected PV systems. Accurate sizing avoids underperformance and financial loss.

2. Methodology

- Site characterization: Lomé, Togo, average irradiance 4.59 kWh/m²/day.
- PV panel validation: Ecoline LX 260P, measured efficiency ~17.6%.

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- **Energy assessment:** Daily load 26.61 kWh/day.
- **Sizing:** 30 PV panels required, measurement error ~4.45%.
- **Simulation:** SAM used to optimize system and estimate LCOE.

3. Results & Discussion

- Protocol ensures accurate sizing using measured solar data and validated panels.
- Suitable for both new installations and assessment of existing PV plants.
- SAM simulation allows component optimization and economic evaluation.

4. Conclusion

- Accurate PV sizing integrates solar data, panel performance, and energy demand.
- Experimental validation ensures reliable predictions.
- The protocol provides a robust framework for design, simulation, and economic analysis.

References

1. Sagna K., Borozé T., *Solar Irradiance in Togo*, 2023.
2. ARSE, *Rapport d'activités 2023*.
3. Murcia Leon et al., *Hybrid PV Optimization*, 2024.
4. Agajie T. et al., *Hybrid PV-Biogas Systems*, 2023.