



Solar Microgrids in Senegalese Off-Grid Villages: Energy Access and Economic Effects

Séni Diouf¹

¹ Council for the Development of Social Science Research in Africa (CODESRIA), Dakar

Published: 10 May 2004 | **Received:** 05 December 2003 | **Accepted:** 25 March 2004

Correspondence: sdiouf@aol.com

DOI: [10.5281/zenodo.18796147](https://doi.org/10.5281/zenodo.18796147)

Author notes

Séni Diouf is affiliated with Council for the Development of Social Science Research in Africa (CODESRIA), Dakar and focuses on Computer Science research in Africa.

Abstract

Solar microgrids are increasingly being implemented in off-grid villages across Senegal to address energy access challenges. A mixed-methods approach combining surveys, interviews, and econometric analysis was employed to assess the effectiveness of solar microgrid projects. Solar microgrids provided an average of 80% more reliable electricity compared to pre-project levels in participating villages. The implementation of solar microgrids has led to significant increases in household income and educational attainment, particularly among women and youth. Further expansion of solar microgrid projects should prioritise community engagement and targeted interventions for sustainable energy access. Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sum}_{i \in I} \ell(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta\operatorname{rVert}^2$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, African, Solar, Panarchy, Econometrics, Villages, Tourism*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge