



# Solar Energy Infrastructure Development in Cameroonian Mountain Villages: A Yearly Sustainability and Community Impact Assessment

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**Published:** 10 February 2007 | **Received:** 18 October 2006 | **Accepted:** 15 January 2007

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**DOI:** [10.5281/zenodo.18849312](https://doi.org/10.5281/zenodo.18849312)

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## Abstract

Solar energy has been identified as a sustainable solution for off-grid communities in mountainous regions of Cameroon. A mixed-methods approach combining quantitative surveys with qualitative interviews to assess energy usage patterns and perceptions within the communities. Over 70% of households reported increased access to electricity, improving daily activities such as lighting homes and powering small appliances. The solar power infrastructure has successfully enhanced household energy security in these mountainous villages. Continue monitoring community feedback and adjust the distribution strategy based on user needs. Solar Energy, Infrastructure Development, Community Impact, Sustainability Assessment The maintenance outcome was modelled as  $Y = \beta_0 + \beta_1 X + u_i + \varepsilon_i$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *Geographic, Sub-Saharan, Renewable Energy, Sustainable Development, Rural Electrification, Hybrid Systems, Participatory Evaluation*

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