



Economic Microgrid Integration and Off-Grid Communities in Kenya: A Mixed Methods Evaluation

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Abstract

Microgrids are renewable energy solutions for off-grid communities in developing countries, offering sustainable power supply and economic benefits. A mixed methods approach combining quantitative surveys with qualitative interviews to assess community perceptions and financial outcomes. Microgrids increased electricity access by 85% among surveyed households, leading to significant reductions in kerosene use (40%) and cooking fuel costs (25%). The mixed methods evaluation revealed substantial economic benefits from microgrid integration for off-grid Kenyan communities. Microgrids should be promoted as a viable alternative energy solution, with further research needed to refine implementation strategies.

Keywords: Kenya, Microgrids, Renewable Energy, Sustainability, Community Development, Mixed Methods, Case Study

ABSTRACT-ONLY PUBLICATION

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

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