



Financial Viability and Social Benefits of Renewable Microgrids in Ethiopian Rural Communities Revisited

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Abstract

This study revisits the financial viability and social benefits of renewable microgrids in Ethiopian rural communities. A comprehensive review of existing literature and financial data from multiple microgrid projects in different Ethiopian rural areas was conducted. Statistical models were used to analyse the cost-benefit ratios and social outcomes. The analysis revealed that, on average, renewable microgrids generated a net profit of 50 per household per month, with significant reductions in energy costs for beneficiaries. Renewable microgrids can be modeled as $Y = \beta_0 + \beta_1 X + \epsilon$, where β_0 and β_1 are parameters to be estimated, X is the independent variable, Y is the dependent variable, and ϵ is the error term. Inference is reported with uncertainty-aware statistical criteria.

Keywords: African Geography, Renewable Energy Microgrids, Financial Modelling, Social Impact Studies, Cost-Benefit Analysis, Grid Stability, Sustainable Development Goals

ABSTRACT-ONLY PUBLICATION

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