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Renewable Energy Microgrids and Economic Growth in Senegal: An Analysis of Local Impacts on Poverty Reduction Initiatives

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Abstract

Renewable energy microgrids are increasingly being implemented in developing countries to address energy poverty and support economic growth. A mixed-methods approach combining quantitative data from surveys and interviews with qualitative insights from case studies to evaluate the socio-economic benefits of these projects. Microgrid installations have led to a significant increase (30%) in electricity access, particularly benefiting rural communities where traditional grid connections are scarce. This has positively impacted local businesses by reducing energy costs and increasing productivity. Renewable energy microgrids offer a viable strategy for enhancing economic growth and poverty alleviation in Senegal's underdeveloped regions. Government policies should prioritise funding renewable energy projects, particularly in underserved areas, to maximise their socio-economic benefits.

Keywords: *African geography, renewable energy, microgrids, economic development, poverty reduction, mixed methods, sustainability initiatives*