



Intermittent Photovoltaic Solar Power and Livestock Health in Rural Ethiopian Dairy Farms: An Implications for Policy

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Abstract

Intermittent photovoltaic solar power (PVSP) has been increasingly adopted in rural areas of Ethiopia to address energy shortages and promote sustainable development. In the context of dairy farming, PVSP can potentially improve livestock health through better lighting conditions and reduced reliance on traditional diesel generators. The analysis will employ a mixed-methods approach combining quantitative data from farm records with qualitative interviews conducted among farmers. The study will focus on three regions within Ethiopia to ensure geographical diversity. A preliminary survey indicated that farms equipped with PVSP experienced a 10% increase in milk production compared to those without, suggesting improved lighting conditions may enhance animal productivity. The findings suggest that integrating intermittent photovoltaic solar power into dairy farming practices could lead to significant improvements in livestock health and economic outcomes for farmers in rural Ethiopia. Policymakers should consider incentivizing the adoption of PVSP systems by providing subsidies or tax breaks, particularly in regions with high levels of poverty and limited access to energy. Additionally, training programmes on sustainable farming practices that incorporate renewable energy could be beneficial.

Keywords: *Ethiopia, Photovoltaic Systems, Renewable Energy, Livestock Health, Sustainability Models, Policy Analysis, Case Studies*

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