



Solar Power's Economic Penetration into Off-Grid Healthcare Facilities in Nigerian Communities: A Mixed Methods Study

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Abstract

Solar power has emerged as a viable alternative energy source for off-grid healthcare facilities in Nigeria, driven by increasing electricity demand and the need to reduce reliance on fossil fuels. A mixed-methods approach combining econometric analysis with community interviews and focus group discussions was used to gather comprehensive data from selected healthcare facilities across different Nigerian states. Solar power penetration into off-grid healthcare facilities led to a significant reduction in electricity costs, averaging \$20 per month for each facility, contributing positively to the sustainability of these services. The study underscores the economic benefits of solar power installations and highlights the need for further policy support to ensure wider adoption in off-grid settings. Local governments should prioritise funding for solar power projects and conduct community education programmes to promote sustainable energy use among healthcare facilities. Solar Power, Off-Grid Healthcare Facilities, Nigeria, Economic Impact Study

Keywords: *Nigerian, Off-Grid, Sustainable Energy, Economic Development, Mixed Methods, Quantitative, Qualitative*

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