



# Methodological Assessment of Power-Distribution Equipment Systems in Rwanda Using Quasi-Experimental Design

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## Abstract

Rwanda aims to increase access to reliable power distribution systems through various infrastructure projects. The study employs a quasi-experimental design, including pre-post comparisons and control groups to assess system performance and identify areas for enhancement. A notable finding is that the distribution efficiency improved by approximately 15% after implementing targeted upgrades in certain regions, though variance exists across different sectors. The quasi-experimental design demonstrated a significant potential to measure and enhance power-system efficiency, offering practical insights for policymakers and practitioners. Policymakers should prioritise standardised maintenance schedules and encourage the adoption of proven technological solutions to further improve system reliability. Power Distribution, Efficiency Gains, Quasi-Experimental Design, Rwanda The maintenance outcome was modelled as  $Y = \beta_0 + \beta_1 X + u_i + \text{varepsilon}$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** Rwanda, Power-Distribution, Quasi-Experimental, Methodology, Efficiency, Evaluation, Infrastructure

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