



# Power-Distribution Equipment Systems Adoption Rates in Kenya: A Randomized Field Trial

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## Abstract

Power-distribution equipment systems are critical for reliable power supply in Kenya's industrial sectors. Despite their importance, adoption rates have been slow due to various factors including cost and technical complexity. A random sample of 100 industrial facilities was selected, with half receiving the intervention (power-distribution equipment systems) and the other half serving as controls. Data on system performance, cost-effectiveness, and user satisfaction were collected over six months. The randomized field trial revealed a significant adoption rate increase from 30% to 65% among facilities that received the intervention compared to controls ( $p < 0.01$ ). This study provides empirical evidence on the impact of power-distribution equipment systems in industrial settings, highlighting their potential as an effective solution for improving reliability and reducing costs. Industrial policymakers should consider mandating or incentivizing the adoption of these systems to enhance national energy security and efficiency. The maintenance outcome was modelled as  $Y_i = \beta_0 + \beta_1 X_i + u_i + \varepsilon_i$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** Kenya, Geographic Information Systems (GIS), Randomized Controlled Trials (RCT), Energy Infrastructure, Supply Chain Management, Technological Adoption Models, Renewable Energy Integration

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