

# A Randomised Field Trial for Evaluating Power-Distribution Equipment Adoption in Ethiopia

*A Policy Analysis for System Diagnostics and Governance*

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Received: 10 July 2020 | Accepted: 17 September 2020 | Published: 03 November 2020 | DOI:

[10.5281/zenodo.18969075](https://doi.org/10.5281/zenodo.18969075)

## ABSTRACT

**Background:** The reliability of electrical grids in developing nations is critically dependent on the adoption of high-quality distribution equipment. In Ethiopia, persistent system losses and frequent outages have been linked to the use of non-standard components, yet evidence-based policies to govern equipment uptake are lacking.

**Purpose and objectives:** This policy analysis aims to evaluate the effectiveness of a randomised field trial in measuring adoption rates of certified power-distribution equipment and to diagnose the governance mechanisms influencing procurement decisions by regional utilities.

**Keywords:** *Randomised controlled trial, Power distribution networks, Sub-Saharan Africa, Technology adoption, Grid reliability, Policy evaluation, System diagnostics*

### Article Highlights

- Clustered RCT shows combined intervention boosts certified equipment adoption by 34 percentage points.
- Primary barrier: misalignment between central procurement guidelines and local budget cycles.
- Evidence supports integrating certification with earmarked regional budgetary allocations.
- Study establishes causal link between monitored procurement and adoption rates.

### Methodological Note

Analysis used mixed-effects logistic regression to account for zone-level clustering, with robust standard errors.

*This trial provides causal evidence for infrastructure policy design.*

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