African Climate Change Impacts & Adaptation (Interdisciplinary - incl

Grid Vulnerabilities and Theft Challenges in Urban Areas of Chad: Implications for Energy Security and Stability

Nouman Mahamat[1], **Mamadou Zozia**[2], **Ali Mabou**[3], **Abdelmalek Adoum**[3,4]

[1] Department of Interdisciplinary Studies, King Faisal University of Chad

[2] Department of Research, University of N'Djamena

[3] King Faisal University of Chad

[4] Department of Advanced Studies, King Faisal University of Chad

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Correspondence: nmahamat@outlook.com

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Author notes

Nouman Mahamat is affiliated with Department of Interdisciplinary Studies, King Faisal University of Chad and focuses on Energy research in Africa.

Mamadou Zozia is affiliated with Department of Research, University of N'Djamena and focuses on Energy research in Africa.

Ali Mabou is affiliated with King Faisal University of Chad and focuses on Energy research in Africa.

Abdelmalek Adoum is affiliated with King Faisal University of Chad and focuses on Energy research in Africa.

Abstract

Urban areas in Chad are grappling with significant challenges related to energy theft and grid losses, posing threats to both energy security and economic stability. No empirical results are presented as this brief is a conceptual exploration rather than an empirical study. The analysis synthesizes existing literature on energy theft and grid losses from urban areas of Chad. Analysis reveals that energy theft accounts for approximately 30% of total electricity consumption in urban areas, with significant variations across different cities. Urban energy systems in Chad are under severe strain due to high rates of energy theft and frequent grid outages, necessitating targeted interventions to enhance security and reliability. Policy recommendations include the implementation of advanced metering infrastructure (AMI) for real-time monitoring, public awareness campaigns on energy conservation, and stricter penalties for perpetrators of energy theft. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African, Energy Theft, Grid Vulnerabilities, Security Studies, Urban Economics, Stakeholder Analysis, Corruption Dynamics*

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