

REVIEWER'S REPORT

Manuscript No.: IJAR-58624

Title: Impacts of Climate Variability on Electricity Consumption in the City of Maradi, Niger

Recommendation:

Accept

Rating	Excel.	Good	Fair	Poor
Originality	Yes			
Techn. Quality		Yes		
Clarity	Yes			
Significance		Yes		

Reviewer Name: Dr. Ashish Yadav

Detailed Reviewer's Report

Reviewer's Comment for Publication.

Acceptance Comments are mentioned below suitable for the paper titled "Impacts of Climate Variability on Electricity Consumption in the City of Maradi, Niger "

Reviewer Comments: Accept

Reviewer Comments –

Introduction

The introduction clearly establishes the importance of climate variability and its implications for electricity demand in the Sahel region. It effectively highlights the vulnerability of Maradi to rising temperatures, irregular rainfall, and rapid urbanization while identifying the existing research gap. The study objectives are clearly stated and align well with the overall research problem. this section, the authors included a broader discussion of climate–energy interactions in comparable African cities and emphasize the novelty of focusing on Maradi.

Literature Review

The literature review presents relevant studies on the relationship between climatic variables and electricity consumption. It adequately demonstrates that temperature is commonly the dominant driver of electricity demand while noting the inconsistent effects of precipitation and humidity reported in previous studies. In this research, the review benefits, as incorporated current publications and expanding the discussion on electricity demand forecasting under SSP climate scenarios. This research shows a comparison with studies from other developing countries would further strengthen the theoretical foundation.

Solution Approach

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The methodological framework is appropriate and scientifically sound. The use of meteorological observations, electricity consumption records, Pearson correlation, multiple linear regression, and future scenario projections provides a comprehensive analytical approach. The selected SSP2-4.5 and SSP5-8.5 scenarios are suitable for evaluating future demand under climate change. This research paper includes a clearer explanation of data preprocessing, regression assumptions, and model validation procedures to enhance the reproducibility of the research.

Results and Discussion

The results are presented clearly and supported by appropriate statistical evidence. The strong positive relationship between temperature and electricity consumption is convincingly demonstrated, while the limited influence of precipitation and humidity is discussed logically. The projection of future electricity demand under different climate scenarios provides valuable practical insights for infrastructure planning.

Conclusion

The conclusion effectively summarizes the main findings and reinforces the significance of temperature as the primary climatic driver of electricity consumption in Maradi. It appropriately highlights the need for integrating climate considerations into long-term energy planning and infrastructure development. The recommendations are practical and relevant for policymakers and utility providers. In conclusion, the authors acknowledged the study's limitations and suggest future research directions, such as incorporating socioeconomic variables, renewable energy integration, and advanced machine learning forecasting methods.