

Research Paper

An evaluation of the gender-responsiveness of Nigeria's Energy Transition Plan (ETP) targets for the cooking sector

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Abstract

Nigeria's Energy Transition Plan (ETP) outlines a roadmap towards achieving a net-zero energy system by 2060. It targets significant reductions in greenhouse gas (GHG) emissions, particularly from the building sector. Traditional cooking remains the largest source of building emissions in Nigeria, with 68.3% of households relying on solid biomass as of 2021. This paper critically evaluates the gender implications of the ETP's ambitious target to reduce building emissions by 98% by 2050 through a shift to biogas-based and electric cooking, focusing on barriers hindering the adoption of clean cooking methods. It seeks to gather Indigenous data on how the burden of traditional cooking fuel disproportionately impacts women, to inform effective policy interventions and sustainable development programmes tailored to local contexts. To tackle these objectives, this paper employs a qualitative approach involving semi-structured interviews with women, representatives from clean cooking enterprises and policymakers, and an in-depth review of ETP-related research and academic literature. The preliminary findings reveal gaps between women's lived realities and clean cooking solutions such as solar stoves and electric cookers. The paper identifies poverty as a significant barrier compounded by the high upfront costs associated with adopting clean cooking technologies. Limited access to clean fuel sources in rural areas, and the incompatibility of clean cookstoves with cultural cooking practices further impede progress. Leaving these barriers unaddressed places women at risk of experiencing inequitable outcomes in Nigeria's energy transition. The paper concludes by advocating for a gender-responsive approach to energy transition, emphasising the empowerment of women as pivotal agents of change. It calls for policies that prioritize the needs and perspectives of women, aiming to dismantle identified barriers and ensure the ETP's success in achieving emission reduction targets within the cooking sector. Recommendations include a comprehensive review of Nigeria's ETP through nationwide Gender-Disaggregated Data Analysis, and fostering substantive engagement of women in designing and implementing sustainable energy solutions.

Keywords: Nigeria's Energy Transition Plan, Greenhouse gases, emissions, cooking practices, rural areas, clean cooking technologies.

1. Background

Nigeria seeks to move towards a more sustainable and inclusive energy system. A comprehensive plan to attain net-zero greenhouse gas (GHG) emissions by 2060 is outlined in the Nigeria Energy Transition Plan (ETP), with a special emphasis on lowering emissions from high-impact sectors like the cooking sector. The cooking sector, which primarily uses conventional biomass fuels like firewood and charcoal, increases national greenhouse gas emissions and puts public health at serious risk, particularly for women and children who are most exposed to indoor air pollution. Traditional biomass cooking is associated with gender labour disparities, indoor air pollution, as well as related health hazards.¹ In addition to contributing to environmental degradation and deforestation, traditional cooking methods have a significant negative impact on public health, especially in rural areas where access to clean cooking technologies is still limited. A survey conducted by the National Bureau of Statistics (NBS) found that 68.3% of Nigerian homes still cook with solid biomass, such as charcoal and firewood.² The ETP seeks to solve these issues by encouraging the use of cleaner cooking technology, such as electric and biogas stoves, which are predicted to reduce cooking-related emissions by up to 98% by 2050.³ Even with these ambitious targets, there are still a lot of obstacles in the way of the adoption of clean cooking technologies. These include expensive upfront expenditures, restricted availability of clean fuels, and deeply embedded culture.⁴ Because women are typically in charge of cooking and shoulder the majority of the related health risks and financial burdens, they are disproportionately affected by these limitations.⁵ It is essential to address these gender-specific issues if the Energy Transition Program (ETP) is to succeed and ensure that the advantages of the energy shift are equitably shared by all sections of society.

This study assesses Nigeria's ETP's gender responsiveness, specifically focusing on the cooking sector. It aims to determine how the goals of the ETP correspond with the actual circumstances faced by Nigerian women and identifies key challenges as well as proffers solutions to the adoption of clean cooking technologies. By collecting data from indigenous people and interacting with stakeholders in the energy industry, this study provides insights for more effective policy interventions that can promote a fair and inclusive energy transition in Nigeria.

¹ Addo, I. A., & Olajide, O. A. (2021). Meeting the sustainable development goals: Considerations for household and indoor air pollution in Nigeria and Ghana. In *Advances in 21st Century Human Settlements* (pp. 147–164). Springer Singapore.

² Ajala, S. (2022, June 1). Enhancing Nigeria's clean cooking access to reduce greenhouse emissions. Energytransition.org. <https://energytransition.org/2022/06/enhancing-nigerias-clean-cooking-access-to-reduce-greenhouse-emissions/>

³ Mc Kinsey & co. (2021). Nigeria energy transition plan. UN Climate Change Conference UK 2021.

⁴ Yetano Roche, M., Slater, J., Malley, C., Sesan, T., & Eleri, E. O. (2024). Towards clean cooking energy for all in Nigeria: Pathways and impacts. *Energy Strategy Reviews*, 53(101366), 101366. <https://doi.org/10.1016/j.esr.2024.101366>

⁵ HumAngle. (2020, March 12). Energy Poverty: Rural women and the curse of firewood. HumAngle. <https://humanglemedia.com/energy-poverty-rural-women-and-the-curse-of-firewood/>

2. Literature review

2.1 Overview of Nigeria's Energy Transition Plan (ETP)

Nigeria's Energy Transition Plan (ETP) is a comprehensive framework designed to guide the country towards a sustainable energy future, with the goal of reaching net-zero emissions by 2060.⁶ The ETP calls for significant emission reductions in five critical sectors: power, cooking, oil and gas, transportation, and agriculture.⁷ The plan acknowledges the building sector's major contribution to the country's greenhouse gas (GHG) emissions, particularly through traditional cooking methods that rely primarily on biomass fuels such as firewood and charcoal.⁸ In 2021, about 40% of Nigeria's greenhouse gas emissions came from buildings, mostly as a result of the country's widespread use of inefficient cookstoves and reliance on firewood and diesel generators.⁹ The ETP contains decarbonisation plans for the cooking industry, including the promotion of cleaner technologies such as liquefied petroleum gas (LPG), electric stoves, and biogas-based systems. The strategy anticipates a significant reduction in emissions from the cooking industry, with a 98% reduction by 2050 through the widespread use of these cleaner technologies.¹⁰ The ambitious aim of the ETP is part of Nigeria's overall commitment to the Paris Agreement and coincides with the nation's updated Nationally Determined Contributions (NDCs), which include considerable steps to scale up clean cooking access.¹¹

2.2 Gender Dimensions of Energy Use in Nigeria

Energy consumption in Nigeria, notably in the cooking industry, is highly gender-based.¹² In Nigeria, the popular operation of gender roles makes women primarily responsible for household cooking. Women are the principal users of cooking fuels, and they endure a disproportionate share of the detrimental consequences of traditional cooking methods.¹³ Studies have revealed that the use of solid biomass fuels adds significantly to indoor air pollution, which is associated with serious health issues such as respiratory infections and cardiovascular diseases (Raju et al. 2020). Given that women and children spend a lot of time in the kitchen and are exposed to harmful smoke from polluting stoves and fuels, they are most affected by these health effects.¹⁴ Besides the potential health hazards, conventional cooking techniques place

⁶ Okoh, A. S., & Okpanachi, E. (2023). Transcending energy transition complexities in building a carbon-neutral economy: The case of Nigeria. *Cleaner Energy Systems*, 6(100069), 100069. <https://doi.org/10.1016/j.cles.2023.100069>

⁷ Ibid.

⁸ Op Cit. Ajala, 2022.

⁹ Op Cit. Mc Kinsey & co., 2021.

¹⁰ Ibid.

¹¹ USAID. (2023, November 27). Nigeria climate change country profile. U.S. Agency for International Development.

¹² Abubakar, I. R., Alola, A. A., Bekun, F. V., & Onifade, S. T. (2024). Investigating the determinants of household energy consumption in Nigeria: insights and implications. *Energy, Sustainability and Society*, 14(1). <https://doi.org/10.1186/s13705-024-00451-6>

¹³ Ibid.

¹⁴ WHO. (2023). Household air pollution. Who. int. <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>

considerable financial and time burdens on women.¹⁵ The labour-intensive task of gathering firewood often prevents women from pursuing higher education, careers, and community involvement.¹⁶ The high cost of buying charcoal or firewood, which can take up a significant amount of household income, especially in low-income households also exacerbates this issue.¹⁷

2.3 Policy Landscape and Clean Cooking Initiatives

The Federal Ministry of Environment developed the National Clean Cooking Policy, which seeks to provide clean cooking solutions to everyone by 2030.¹⁸ The policy is in line with the objectives of the ETP and the revised NDCs, which emphasise the importance of switching to cleaner cooking technologies as a major approach to lowering the country's greenhouse gas emissions. As part of its goals, the National Clean Cooking Policy aims to switch 54% of households to LPG by 2030 and increase the usage of other clean cooking technologies like electric and biogas stoves.¹⁹ The policy also acknowledges the significance of including gender concerns in clean cooking activities, recognising that women should be at the centre of the development and execution of clean cooking programs because they are the ones most impacted by traditional cooking practices.²⁰

2.4 Barriers to the Adoption of Clean Cooking Technologies

One of the major barriers is the high price of clean cooking technologies, which includes fuels and stoves. The initial costs of buying an electric or LPG cooker, as well as the ongoing fuel expenses, are too expensive for a lot of homes, especially those in rural areas.²¹ ²² The absence of financing options available to households to assist them manage these costs exacerbates this economic barrier even more.²³ ²⁴ Another significant barrier is the limited accessibility of eco-friendly cooking fuels, particularly in

¹⁵ Njenga, M., Gitau, J. K., & Mendum, R. (2021). Women's work is never done: Lifting the gendered burden of firewood collection and household energy use in Kenya. *Energy Research & Social Science*, 77(102071), 102071. <https://doi.org/10.1016/j.erss.2021.102071>

¹⁶ Ibid.

¹⁷ Adekoya, A. E., Adenikinju, A. F., Olubusoye, O. E., Oyeranti, O. A., Otekunrin, O. A., Ogunbayo, I. E., Oyelami, B. O., Sesan, T., Alaba, O., & Akano, O. I. (2023). Household food insecurity and cooking energy access in Nigeria: A panel data approach. *Energy Nexus*, 12(100242), 100242. <https://doi.org/10.1016/j.nexus.2023.100242>

¹⁸ Federal Ministry of Environment. (2024). National clean cooking policy.

¹⁹ Jimoh, O. (2024). LPG (cooking gas) in Nigeria - Nigeria Will Have 54% LPG Usage and 20% Electric Stove Adoption by 2030. *Lpginnigeria.com*. <https://lpginnigeria.com/details/nigeria-will-have-54-lpg-usage-and-20-electric-stove-adoption-by-2030>

²⁰ Ibid.

²¹ Op Cit. McKinsey & Co, 2021.

²² Op Cit. Federal Ministry of Environment, 2024.

²³ Op Cit. McKinsey & Co, 2021.

²⁴ Op Cit. Federal Ministry of Environment, 2024.

rural and remote regions.²⁵ According to Jimoh²⁶, because the distribution infrastructure for biogas and LPG is undeveloped, it is challenging for households to consistently obtain these fuels. In contrast, despite their detrimental effects on the environment and human health, firewood and charcoal are often free or inexpensive, making them the default option for many households.

The Energy Transition Plan (ETP) identifies Natural Gas as a bridge fuel in its strategy to achieve net-zero emissions by 2026. The National Bureau of Statistics reports that 62% of Nigerian households use wood for cooking, 20% use kerosene, 10.5% use LPG, 4% use charcoal, and 3% use other improved Biomass forms.²⁷ This disproportionate reliance on traditional fuels, primarily by women, raises concerns about the gender-responsiveness of the ETP's targets for the cooking sector.

3. Methodology

This study adopted a qualitative research approach, with semi-structured interviews serving as the primary technique of data collection. The decision to conduct semi-structured interviews was motivated by the need to gain in-depth insights from various stakeholders involved in or affected by Nigeria's Energy Transition Plan (ETP), specifically in the cooking sector. The participants for the interviews were carefully selected to include a diverse range of stakeholders, ensuring a comprehensive understanding of the gender implications of the ETP. The key groups interviewed included women from different socio-economic demographics responsible for cooking in their households and representatives from clean cooking and cooking fuel enterprises. A tailored set of guiding questions was used to conduct the semi-structured interviews for each stakeholder group. The interviews focused on several key areas: cooking practices and challenges, awareness and perceptions of the ETP, barriers to the adoption of clean cooking technologies, and gender-specific considerations. The data collected from the interviews were transcribed and analysed thematically. The interview findings were then compared and contrasted across stakeholder groups to gain a comprehensive understanding of the various factors impacting the ETP's gender responsiveness in the cooking sector.

4. Results

The analysis of the interviews reveals significant insights into the gender-responsiveness of Nigeria's Energy Transition Plan (ETP) for the cooking sector:

- 1. Cooking Practices Across Different Settings:** The majority of urban women such as Favour Oyechei rely primarily on gas for cooking. However, the high cost of gas is a significant challenge, with women needing to economize and manage their cooking fuel carefully. *"Gas is expensive now... You want to economize because you don't want to consume your gas so fast."* While electric cooking is

²⁵ Shari, B. E., Dioha, M. O., Abraham-Dukuma, M. C., Sobanke, V. O., & Emodi, N. V. (2022). Clean cooking energy transition in Nigeria: Policy implications for developing countries. *Journal of Policy Modeling*, 44(2), 319–343. <https://doi.org/10.1016/j.jpolmod.2022.03.004>

²⁶ Op Cit. Jimoh, 2024.

²⁷ Op Cit. Federal Ministry of Environment, 2024.

viewed as a cleaner alternative, the unreliable power supply and high electricity tariffs make it impractical. Peri-urban women such as Veronica John primarily use charcoal due to the high cost of gas. Despite the higher long-term cost of charcoal, it remains the preferred option because of its lower upfront cost, which allows for daily management of limited resources. *“The upfront cost of buying gas is high but with charcoal, I can still cook even if I have just 500 Naira.”* Stakeholders in clean cooking enterprises acknowledge the potential of LPG as a transition fuel but highlight significant barriers, including safety concerns, high costs, and a lack of public sensitization and support structures.

- 2. Awareness and Perceptions of the ETP:** Across all stakeholder groups, awareness of Nigeria’s ETP is remarkably low. This was evident when Blessing Adams, an urban woman, mentioned: *“No, I’m just hearing of the Energy Transition Plan for the first time.”* Most respondents, including women and representatives from clean cooking enterprises, were unaware of the plan until briefed during the interviews. Even within the energy sector, in-depth knowledge of the ETP appears limited. This lack of awareness is a critical barrier to the plan's success, as stakeholders are not informed or motivated to transition to cleaner cooking methods. Adekola Daniel, representing clean cooking enterprises, echoed this sentiment: *“Nigeria has wonderful policies, but without proper structures in place, we will not achieve them.”* Blessing Adams emphasized the importance of government support: *“If the government makes it easier for us, definitely we will adopt cleaner cooking methods.”*
- 3. Challenges in Adopting Clean Cooking Technologies:** High costs of gas and electricity, compounded by unreliable power supply, are the most frequently cited barriers to adopting clean cooking technologies. Women in both urban and peri-urban settings express the need for financial support and lower energy tariffs to transition effectively. According to Blessing Adams, *“Nobody will want to use electricity for cooking with how high the tariff is.”* Favour Oyeche pointed out how the economic situation affects even basic cooking decisions: *“Sometimes I economize and cut back on the way I cook just to manage costs.”* There is also a significant fear of using LPG due to safety concerns, which deters some households from adopting this cleaner cooking method. This is especially prevalent among older generations who prefer traditional cooking methods. According to Adekola Daniel, *“Many people are afraid of LPG because of isolated incidents. There’s a lot of fear about the dangers of using gas.”* Furthermore, poor infrastructure, particularly in rural areas, limits the availability of LPG and other clean cooking fuels, making it difficult for households to transition from traditional biomass.
- 4. Gender-Specific Barriers:** The analysis shows that women, who are the primary users of cooking fuels, are disproportionately affected by these challenges. The economic burden of cooking is high (Veronica John, representing peri-urban women, noted: *“Some days, the charcoal might not even cook a full meal... it's difficult”*), and the lack of affordable clean cooking options exacerbates the existing gender disparities in household responsibilities.

5. Conclusion

The findings indicate that while Nigeria's ETP sets ambitious goals for reducing greenhouse gas emissions in the cooking sector, its gender-responsiveness is limited. The plan does not adequately address the practical challenges faced by women, particularly in terms of cost, safety, and infrastructure. The lack of awareness among key stakeholders further undermines the plan's effectiveness. For the ETP to be truly gender-responsive, it must incorporate targeted strategies that consider the unique needs and circumstances of Nigerian women. Without these adjustments, the plan risks perpetuating existing gender inequalities rather than alleviating them.

6. Recommendations

- **Increase Public Awareness:** There is an urgent need for comprehensive public awareness campaigns to educate women and other stakeholders about the ETP and the benefits of clean cooking technologies. These campaigns should be tailored to different regions and socio-economic groups to ensure wide reach and impact.
- **Improve Affordability and Access:** The government should implement subsidies or financial support programs to reduce the cost of LPG and electric cooking appliances. Additionally, efforts should be made to improve the supply infrastructure, particularly in rural areas, to ensure that clean cooking fuels are accessible to all households.
- **Address Safety Concerns:** Targeted sensitization programs should be developed to address the safety concerns associated with LPG. This could include training programs for women on the safe use of gas and the distribution of safety equipment.
- **Gender-Disaggregated Data Analysis:** The government should conduct a comprehensive gender-disaggregated data analysis to better understand the specific needs of women in relation to the ETP. This data should be used to inform the design and implementation of future energy policies.

7. Future Research

Further research is needed to explore the long-term impacts of clean cooking technologies on women's health and socio-economic status in Nigeria. Future research could investigate the effectiveness of government support programs and subsidies in promoting the adoption of clean cooking methods. Future research could also focus on developing innovative, low-cost clean cooking solutions tailored to the needs of women in different regions of Nigeria.

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