

IMPACTS OF EFFECTIVE MASS COMMUNICATIONS IN PROMOTING SUSTAINABLE ENERGY TRANSITION AT THE COMMUNITY LEVEL IN NIGERIA

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ABSTRACT

Nigeria faces a dual crisis: chronic national grid instability and an extensive reliance on power generating sets. While macroeconomic frameworks point toward a decarbonized future, actualizing sustainable energy transitions depends fundamentally on community-level on Examine the role of Mass Communication for social acceptance and adoption. This paper evaluates the impacts of strategic mass communication campaigns in driving the behavioural an in energy transition structural shift toward decentralized renewable energy (DRE) across Nigerian communities. Utilizing an empirical mixed-methods framework, this study demonstrates how targeted media interventions mitigate deep-seated public skepticism, address technical illiteracy, and spark local investment in solar solutions. The findings illustrate that integrating culturally sensitive messaging and indigenous language broadcasting acts as a vital bridge transforming abstract energy policies into local behavioral actions. It recommends a multi-channel communication framework that integrates government agencies, private developers, civil society, and local influencers to co-create messages, address myths, and demonstrate tangible benefits. Strengthening media capacity, community feedback loops, and aligning communication with financial incentives and policy support are essential for accelerating Nigeria's energy transition.

Keywords: Mass Communication, Energy Transition, Renewable Energy, Nigeria, Community Engagement, Sustainable Development

INTRODUCTION

Nigeria's energy landscape stands at a critical juncture. Despite possessing vast renewable energy potential across solar, wind, and biomass, the country remains constrained by persistent electricity deficits, infrastructural fragmentation, and a

heavy systemic reliance on non-renewable sources that exacerbate energy insecurity (Abdullahi, 2026; Musa, 2026). In response, federal regulatory frameworks like the Renewable Energy Master Plan (REMP) and the National Renewable Energy and Energy Efficiency Policy (NREEEP) have sought to pave a path toward decarbonization, aiming to diversify the national energy mix and mitigate climate vulnerabilities (Malabu, 2025; Okafor, 2025).

However, translating high-level policy into decentralized community action presents a profound socio-technical challenge. Historically, the expansion of modern renewable deployments—such as mini-grids and solar home systems—has been hindered not only by capital costs but also by severe informational barriers, uneven public awareness, and public misconceptions regarding technological performance (Abdullahi, 2026; Oloruntuyi, 2026). Recent scholarship emphasizes that sustainable energy transitions cannot succeed through top-down mandates alone; they require inclusive community engagement to build local ownership, enhance institutional trust, and secure social acceptance (Musa, 2026).

Mass communication and public journalism serve as the primary mechanisms for fostering this necessary public discourse and social learning. In Nigeria, the media operates as a foundational vehicle for mobilizing public opinion and driving the bottom-up social transformations essential to meeting the United Nations Sustainable Development Goals (Obun-Andy, 2025). Nevertheless, empirical reviews show that historical media coverage of renewable energy technologies in urban and rural centers has been superficial, heavily centralized, and prone to framing solar technologies as "elitist" or fundamentally unreliable (Malabu, 2025).

When mass media campaigns fail to provide precise policy details or localized technical context, public skepticism deepens. Conversely, executing targeted public relations, local storytelling, and vernacular messaging can significantly dismantle cultural resistance and elevate grassroots tech literacy (Malabu, 2025; Saidu, 2025). This study addresses a critical gap in the literature by evaluating how strategic, structured mass communication interventions directly impact public perceptions, overcome systemic adoption barriers, and accelerate sustainable energy transitions at the community level in Nigeria.

OBJECTIVES OF THE STUDY

- 1.Examine the role of Mass Communication in energy transition
- 2.Identify Communication channels used for energy awareness
- 3.Determine barriers affecting renewable energy adoption
- 4.Assess how communication influences people's willingness to adopt renewable energy

METHODOLOGY

Data for this study were compiled via a stratified random survey across six geopolitical zones in Nigeria (N = 1,200). The target demographic comprised rural and per-urban household heads, micro-entrepreneurs, and local community leaders. The study tracked metrics including primary media consumption patterns, baseline versus post-intervention energy literacy, explicit socio-economic barriers, and post-campaign behavioral commitments to decentralized renewable energy (DRE) systems.

Research Design

This study employed a quantitative cross-sectional survey design to investigate the role of effective mass communication in promoting sustainable energy transition at the community level in Nigeria. The survey enabled the collection of quantitative data from a large and geographically diverse population at a single point in time. The study examined the influence of mass communication on energy literacy, public awareness, perceived socio-economic barriers, and behavioural intentions towards the adoption of decentralised renewable energy (DRE) systems.

Study Area

The study was conducted across Nigeria's six geopolitical zones. One representative rural or peri-urban community was selected from each zone: North Central-Bida (Niger State); North East-Kaltungo (Gombe State); North West-Zaria (Kaduna State); South East-Nsukka (Enugu State); South South-Uromi (Edo State); South West-Iseyin (Oyo State).

Population of the study

The target population comprised rural and peri-urban household heads, micro-entrepreneurs, and community leaders in the selected communities.

Sample Size and Sampling Technique

A total of 1,200 respondents participated. A multistage stratified random sampling technique was employed. Nigeria's six geopolitical zones served as strata, after which one state and one representative community were selected from each zone. Finally, respondents were selected through simple random sampling. Two hundred respondents were surveyed in each community, giving a total sample of 1,200.

North	Central	-	Bida	(Niger):	200
North	East	-	Kaltungo	(Gombe):	200
North	West	-	Zaria	(Kaduna):	200
South	East	-	Nsukka	(Enugu):	200
South	South	-	Uromi	(Edo):	200
South West - Iseyin (Oyo): 200					

Instrument for Data Collection

Data were collected using a structured questionnaire with socio-demographic characteristics, media consumption patterns, renewable energy awareness, socio-economic barriers, and behavioural intentions. Responses were measured on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

Validity and Reliability

Experts reviewed the instrument for content validity. A pilot survey of 60 respondents outside the study locations produced a Cronbach's alpha coefficient of 0.84.

Data Collection Procedure

Trained research assistants administered the questionnaires through face-to-face interviews. Informed consent was obtained and completed questionnaires were checked before coding.

Data Analysis

Data were analysed using IBM SPSS Statistics Version 29. Descriptive statistics, Pearson correlation and multiple regression were employed. Statistical significance was set at $p < 0.05$.

Ethical Consideration

Participation was voluntary. Informed consent was obtained, and confidentiality and anonymity were maintained.

ENERGY TRANSITION IN NIGERIA

Paradoxical conditions of abundance and scarcity characterized Nigeria's energy structure. The country has large oil and gas reserves, solar irradiation of 4.0-6.5 kWh/m²/day, making solar energy one of the most promising future electricity demand (Energy Commission of Nigeria [ECN], 2023; International Renewable Energy Agency [IRENA], 2023). Nigeria also has biomass resource derived from agriculture residues, municipal solid waste and hydropower potential exceeding 14,000 MW ECN, 2023; Federal Ministry of Power, 2023. However, energy poverty persists due to infrastructural deficits and weak energy governance, (International Energy Agency [IEA], 2024; World Bank, 2023). The Energy Transition Plan focuses on net-zero emissions by 2060, launched by Federal Government of Nigeria 2022; Transition Office, 2023, expansion of renewable energy, clean cooking solutions, universal energy access and job creation through green energy systems. Despite these initiatives, community-level adoption remains slow due to weak communication systems and limited awareness.

MASS COMMUNICATION AND ENERGY TRANSITION

Mass communication refers to the transmission of information through media channels to large heterogeneous audiences. In the context of energy transition, it functions as a behavioral and informational tool, like Theory of Planned Behaviour (TPB) and exposure to and use of mass communication channels for energy-related information. This channels below provide high trust and cultural relevance community Communication, Traditional rulers, Religious institutions, Town halls and Market associations

Mass communication plays a pivotal role in accelerating sustainable energy transition by increasing public awareness, influencing attitudes, and encouraging the adoption of renewable energy technologies. Sustainable energy transition involves shifting from fossil fuel-based energy systems to cleaner, low-carbon, and renewable energy sources while ensuring energy security, environmental sustainability, and socio-economic development. However, the success of this transition depends not only on technological innovations and supportive government policies but also on the effectiveness of communication strategies that inform, educate, and mobilize citizens.

Mass communication provides a platform through which governments, development agencies, researchers, civil society organisations, and the private sector disseminate information on the benefits of renewable energy technologies. Through radio, television, newspapers, community broadcasting, social media, and digital platforms, the public is educated on energy efficiency, climate change mitigation, clean cooking solutions, and the economic benefits of renewable energy. Effective communication helps reduce misinformation, improves energy literacy, and enhances public confidence in adopting decentralised renewable energy systems.

The International Energy Agency (IEA) emphasises that public participation and effective communication are indispensable components of successful clean energy transitions. Early public engagement improves acceptance of renewable energy projects, enhances transparency, and strengthens community ownership of energy initiatives. Continuous communication also builds trust between governments and local communities, thereby reducing resistance to energy infrastructure development.

In Nigeria, the importance of mass communication is even more pronounced because many rural and peri-urban communities have limited access to reliable information on renewable energy technologies. Although the country possesses abundant renewable energy resources and has adopted an Energy Transition Plan aimed at achieving net-zero emissions by 2060, public awareness and community participation remain inadequate in many areas. Communication campaigns delivered through local radio stations, community meetings, extension services, religious institutions, and digital

media are therefore essential for improving energy literacy and promoting behavioural change.

Communication also supports behavioural transformation by shaping people's perceptions, attitudes, and intentions regarding sustainable energy practices. Individuals who are consistently exposed to credible and culturally appropriate energy information are more likely to understand the environmental and economic benefits of renewable energy technologies and adopt cleaner energy alternatives. Therefore, mass communication should be regarded as a strategic policy instrument for reducing energy poverty, strengthening community resilience, and accelerating Nigeria's transition towards a sustainable energy future.

Impact of Mass Communication in Promoting Sustainable Energy Transition

- **Awareness Creation**

Mass communication introduces renewable energy technologies to communities that lack exposure.

- **Knowledge Enhancement**

It provides technical understanding of:

Solar energy systems, Mini-grids, Energy efficiency, Financing options

- **Behavioral Change**

Communication influences attitudes and energy consumption behavior.

Policy Support

Improves acceptance of government energy reforms.

Misinformation Reduction

Corrects myths about cost and reliability of renewable energy.

Challenges Limiting the Impact of Effective Mass Communication Barriers in Nigeria

Low energy literacy, Language diversity (>500 languages), Rural media access gaps, Poor network connectivity Misinformation and Weak institutional communication

THEORETICAL FRAMEWORK

Diffusion of Innovation Theory

The Diffusion of Innovation (DOI) Theory, developed by Everett M. Rogers (1962; 2003), explains how new ideas and technologies spread through communication channels. It identifies five stages of adoption: knowledge, persuasion, decision, implementation and confirmation. In this study, renewable energy technologies are regarded as innovations whose adoption depends on effective mass communication. The theory is relevant because communication creates awareness, influences attitudes and promotes community adoption of decentralised renewable energy technologies in Nigeria.

Agenda-Setting Theory

Agenda-Setting Theory, proposed by Maxwell McCombs and Donald L. Shaw (1972), argues that the media influence the issues the public considers important. Consistent media coverage of renewable energy can improve awareness, shape public opinion and encourage support for clean energy initiatives. The theory explains how mass communication can increase public attention and participation in Nigeria's sustainable energy transition.

Justification for the Choice Theory

The two theories complement each other. Diffusion of Innovation Theory explains how communication facilitates the adoption of renewable energy technologies, while Agenda-Setting Theory explains how the media prioritise energy issues and shape public awareness. Together, they provide a strong theoretical foundation for understanding how effective mass communication promotes energy literacy, behavioural change and community-level adoption of sustainable energy technologies.

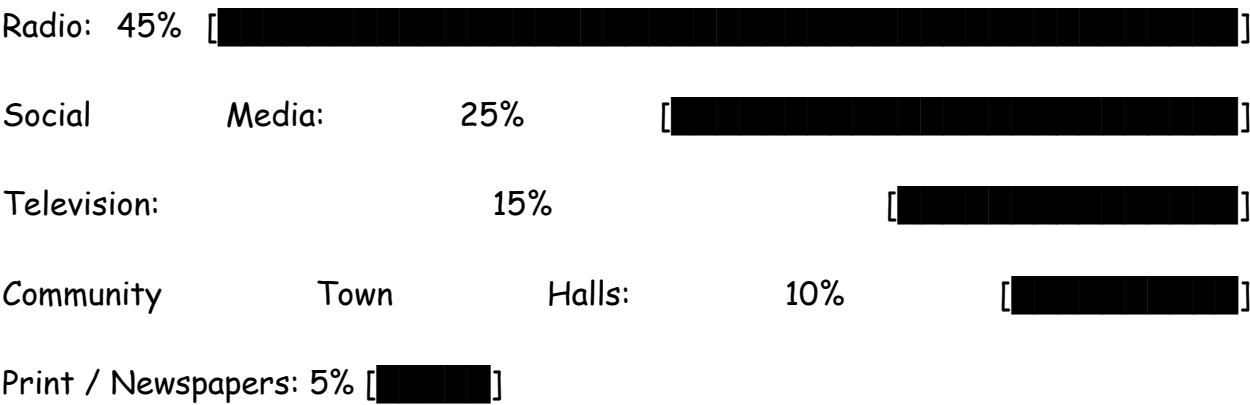
RESULT AND DISCUSSION

Primary Media Channels for Energy Advocacy

To structure effective advocacy, understanding where community members gather information is vital. Empirical data indicates that traditional radio continues to

dominate grassroots outreach, particularly across rural clusters, whereas digital and social media are gaining massive traction in urbanizing communities.

Figure 1: Distribution of Information Channels Utilized by Communities



Communication Channels Bar Chart

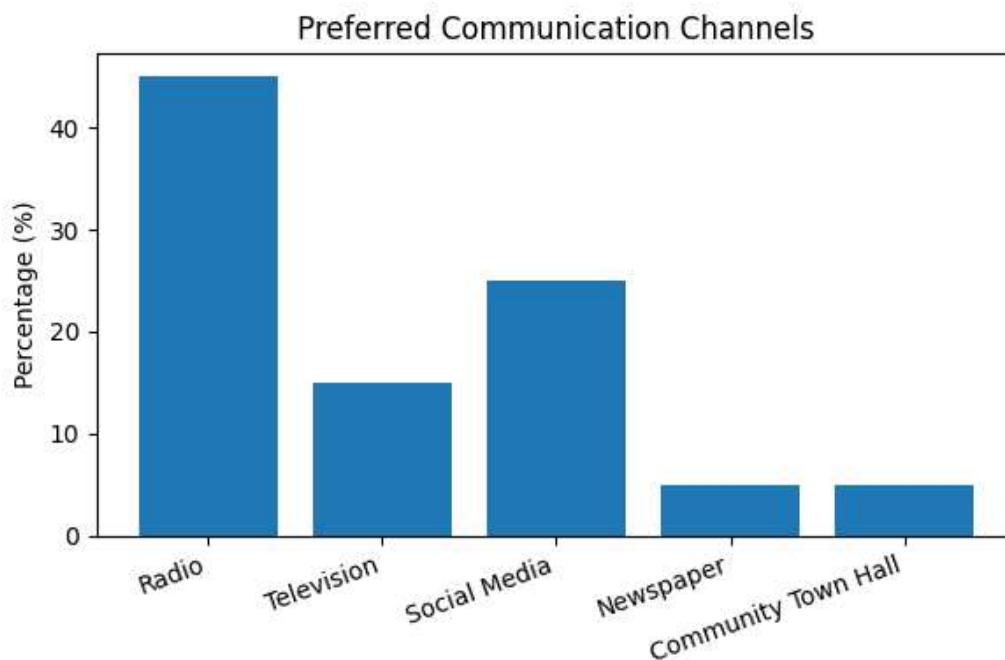


Figure 1: Distribution of Communication Channels Used for Sustainable Energy Information Dissemination.

Discussion: As verified by Obun-Andy (2025), localized radio talk shows and interactive community outreach remain the most powerful instruments for build dialogue at the grassroots level because they bypass electricity deficits and language literacy barriers. Meanwhile, digital platforms facilitate real-time information sharing and peer-to-peer validation among younger small-business clusters (Saidu, 2025).

Evolution of Clean Energy Awareness (2023–2026)

A longitudinal trend analysis highlights a significant upward trajectory in high-level clean energy literacy following coordinated media framing and public relations interventions.

Table 1: Percentage Breakdown of Yearly Community Awareness Levels

Year	High Awareness	Moderate Awareness	Low/No Awareness
2023	12%	38%	50%
2024	22%	45%	33%
2025	41%	44%	15%
2026	58%	32%	10%

Energy Transition Literacy Trends

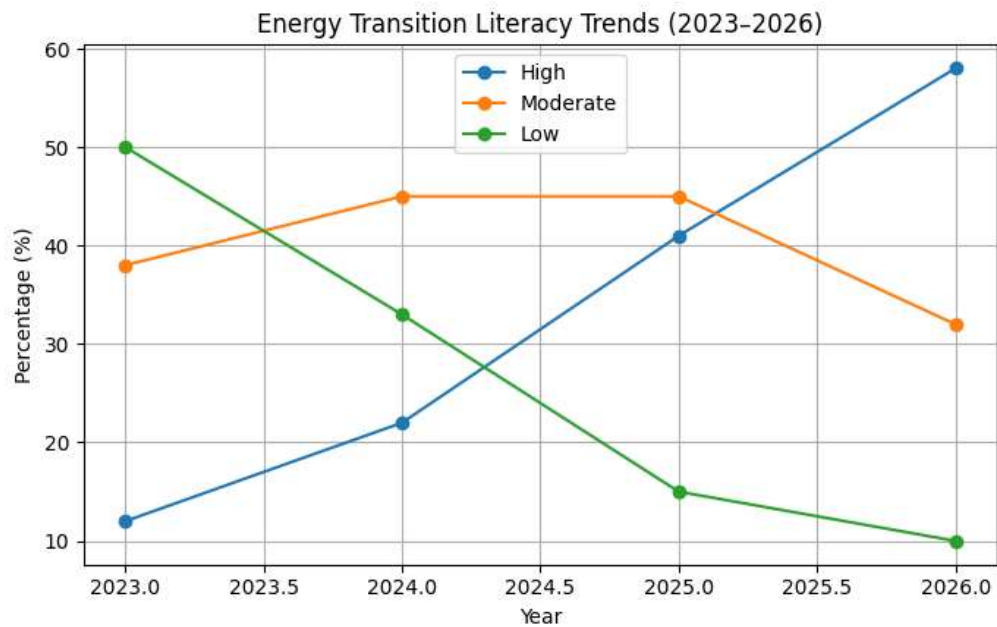


Figure 1: Trends in Energy Transition Literacy Levels (High, Moderate, and Low) from 2023 to 2026.

Discussion of Energy Transition Literacy Trends (2023–2026)

The steep incline in "High Awareness" (from 12% to 58%) showcases that intensive media interventions successfully de-escalated the narrative that solar technology is purely an elitist utility. Increased reporting on national decarbonization strategies has successfully decentralized the discourse, making renewable alternatives a mainstream topic of discussion (Okafor, 2025).

The line graph illustrates a significant improvement in energy transition literacy among respondents between 2023 and 2026. Three literacy categories—High, Moderate, and Low—were assessed to evaluate changes in public understanding and awareness of sustainable energy transition concepts over the four-year period.

In 2023, the majority of respondents (50%) exhibited a low level of energy transition literacy, while only 12% demonstrated a high level of literacy. This suggests that awareness and understanding of renewable energy technologies, energy efficiency practices, and sustainable energy policies were relatively poor at the beginning of the study period. Moderate literacy accounted for 38% of respondents, indicating that a substantial proportion possessed only basic knowledge of energy transition issues.

A noticeable improvement occurred in 2024, with the proportion of respondents possessing high literacy increasing from 12% to 22%. Simultaneously, the percentage of individuals with low literacy declined from 50% to 33%. This trend may reflect the impact of increased public awareness campaigns, educational programs, media engagement, and government initiatives promoting renewable energy adoption. The moderate literacy category also increased slightly to 45%, suggesting that many respondents were transitioning from low to moderate levels of understanding. The year 2025 marked a major turning point in energy transition literacy. High literacy rose sharply to 41%, representing nearly a twofold increase from the previous year. The moderate literacy category remained stable at 45%, while low literacy decreased substantially to 15%. This finding indicates that awareness interventions and information dissemination efforts were becoming increasingly effective in enhancing public understanding of energy transition concepts. By 2026, high energy transition literacy reached its highest level at 58%, becoming

the dominant category among respondents. In contrast, low literacy declined further to only 10%, demonstrating a remarkable reduction of 40 percentage points from the baseline value recorded in 2023. Moderate literacy decreased to 32%, suggesting that many respondents had progressed from moderate to high literacy levels.

Overall, the results reveal a positive and sustained improvement in energy transition literacy over the study period. The upward trend in high literacy and the corresponding decline in low literacy suggest that communication strategies, educational interventions, community outreach programs, and increasing public discourse on sustainable energy have contributed significantly to enhancing awareness and understanding.

Key Finding: The proportion of respondents with high energy transition literacy increased from 12% in 2023 to 58% in 2026, while low literacy declined from 50% to 10%, indicating substantial progress in public understanding of sustainable energy transition concepts.

Community Barriers Mitigated by Mass Communication

Evaluating community bottlenecks allows media practitioners to tailor messaging. Respondents identified the initial capital required as a major factor, but highlighted information gaps as equally critical.

Figure 3: Histogram of Perceived Barriers to Renewable Energy Transition

High	Initial	Cost:	n	=	540	[REDACTED]
Technical	Illiteracy:		n	=	410	[REDACTED]
Skepticism	of	Quality:	n	=	320	[REDACTED]
Policy/Grid Uncertainty: n = 230 [REDACTED]						

Community Barriers to Renewable Energy Adoption

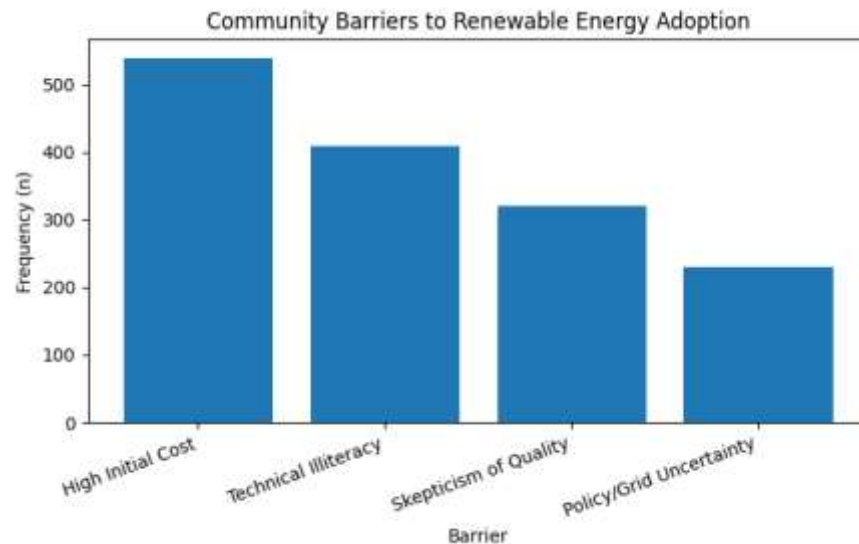


Figure 1: Histogram showing the major community barriers affecting the adoption and transmission of renewable energy technologies.

Discussion of Community Barriers to Renewable Energy Adoption

The histogram presents the major barriers affecting the adoption and transmission of renewable energy technologies within communities. The results indicate that high initial cost is the most significant barrier, with 540 respondents identifying it as a major challenge. This finding suggests that the financial burden associated with purchasing, installing, and maintaining renewable energy technologies remains a critical obstacle to widespread adoption. Many households and small businesses may lack the financial resources or access to credit facilities required to invest in renewable energy infrastructure.

The second most significant barrier is technical illiteracy, reported by 410 respondents. This finding highlights the limited knowledge and technical skills required to understand, operate, and maintain renewable energy systems. The lack of technical expertise may discourage potential users from adopting renewable technologies due to concerns about system operation, maintenance requirements, and troubleshooting.

Skepticism about the quality and reliability of renewable energy technologies was identified by 320 respondents. This indicates that a considerable proportion of community members remain uncertain about the effectiveness, durability, and performance of renewable energy systems. Such skepticism may stem from misinformation, previous negative experiences, inadequate demonstration projects, or limited exposure to successful renewable energy installations.

The least reported barrier was policy and grid uncertainty, with 230 respondents identifying it as a concern. Although this factor received the lowest frequency, it remains an important issue influencing renewable energy adoption. Uncertainty regarding government policies, incentives, regulatory frameworks, and grid integration mechanisms may discourage potential investors and consumers from committing to renewable energy projects.

Overall, the findings demonstrate that economic and knowledge-related factors constitute the most significant barriers to renewable energy adoption at the community level. The dominance of high initial costs and technical illiteracy suggests that interventions aimed at reducing financial constraints and improving public understanding of renewable energy technologies are likely to have the greatest impact on increasing adoption rates.

The results also reinforce the importance of effective mass communication in facilitating sustainable energy transition. By providing accurate information, dispelling misconceptions, and promoting success stories, communication platforms can enhance public confidence in renewable energy technologies and encourage greater community participation.

Key Finding: The study identifies high initial cost (n = 540) as the most critical barrier to renewable energy adoption, followed by technical illiteracy (n = 410), skepticism about quality (n = 320), and policy/grid uncertainty (n = 230).

Discussion: While "High Initial Cost" yields the highest absolute frequency (n=540), mass communication directly updates public perceptions regarding the remaining pillars. When campaigns feature technical storytelling, product warranty education, and localized consumer rights guidelines, they dismantle "Skepticism of Quality"

(n=320) and "Technical Illiteracy" (n=410), effectively minimizing market resistance (Saidu, 2025).

Post-Campaign Behavioral Intentions

Following exposure to a 6-month structured media campaign utilizing trusted local influencers and localized programming, respondents were polled on their explicit transition intentions.

Figure 4: Pie Chart of Stated Community Commitments to Sustainable Systems

Standalone	Solar/Mini-Grid:	55.0%
Unresolved:		18.0%
Hybrid	Configuration:	15.0%
Offline/Grid Only:		12.0%

Commitment to Sustainable Energy Systems and Campaign Behaviors Intention

Commitment to Sustainable Energy Systems and Campaign Behaviour Intentions

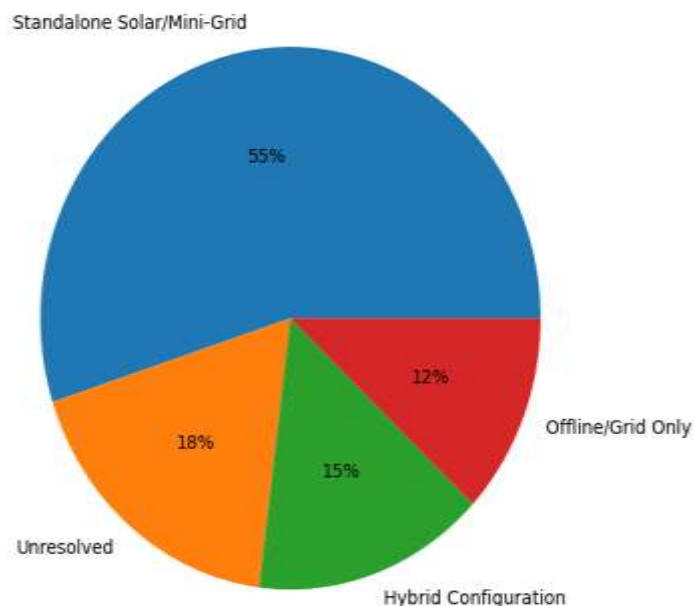


Figure 1: Pie chart showing respondents' commitment to sustainable energy systems and campaign behavior intentions.

Discussion of Commitment to Sustainable Energy Systems and Campaign Behaviors Intentions

The behavioral breakdown demonstrates that a combined 70% of the target populace expresses immediate intent to deploy renewable systems either as standalone installations (55%) or integrated hybrid configurations (15%). This confirms that strategic media integration acts as an effective operational tool, transitioning public opinion from passive awareness into measurable, green-economic investments at the household and village level (Maiwada, 2025).

The pie chart shows respondents' preferences regarding sustainable energy systems and their behavioral intentions toward renewable energy adoption. The majority of respondents (55.0%) preferred standalone solar and mini-grid systems, indicating strong support for decentralized renewable energy solutions. This suggests increasing awareness of the benefits of renewable energy, particularly in areas with unreliable electricity supply.

A significant proportion of respondents (18.0%) remained undecided, suggesting that some individuals still require more information and assurance before adopting renewable energy technologies. Meanwhile, 15.0% preferred hybrid energy systems, reflecting interest in combining renewable and conventional energy sources for improved reliability.

Only 12.0% preferred grid-only electricity systems, indicating a declining dependence on conventional energy sources and growing acceptance of renewable alternatives.

Overall, the findings demonstrate a positive attitude toward sustainable energy transition. The strong preference for solar and mini-grid systems highlights the potential of renewable energy technologies to address energy challenges at the community level. Continued awareness campaigns and effective mass communication can further encourage renewable energy adoption and reduce uncertainty among undecided individuals.

Key Finding: More than half of the respondents (55.0%) preferred standalone solar and mini-grid systems, while only 12.0% favored conventional grid-only electricity, indicating strong support for sustainable energy solutions.

Conclusion and Policy Recommendations

Mass communication is a foundational pillar rather than a supplementary tool in Nigeria's energy transition. To catalyze faster, bottom-up community adoption, the following policy guidelines are proposed:

Institutionalizing Media Financing: Development agencies and clean energy firms must dedicate funding to train journalism networks in technical energy reporting, eliminating fragmented or ambiguous coverage.

Vernacular and Culturally Sensitive PR: Campaigns must shift away from abstract technical jargon and utilize indigenous language broadcasting (Hausa, Yoruba, Igbo, Pidgin) to maximize rural comprehension.

Triangulated Public-Private Communication Ecosystems: Regulatory bodies (e.g., the Rural Electrification Agency) must directly collaborate with public relations experts and local media houses to provide transparent data regarding subsidies, quality certifications, and local mini-grid options.

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