

Evaluating the Impact of Media Representation on Nigeria's Energy Transition From Oil to Solar for Sustainable Development

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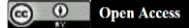
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ABSTRACT

Nigeria's energy landscape presents a critical paradox: the country possesses Africa's largest hydrocarbon reserves yet endures one of the continent's most severe electricity crises. As the global community accelerates renewable energy transitions to address climate change, Nigeria's transition from oil dependency to solar energy adoption remains constrained by infrastructural, policy, and communicative barriers. This mixed-methods study, conducted in Lagos, Abuja, and Port Harcourt Nigeria's primary commercial, governance, and extractive industry centres evaluates media representation's impact on energy transition outcomes. Survey data from 385 urban Nigerians revealed that oil and gas sector narratives dominated media coverage (68.4% of energy stories) compared with solar energy (11.3%). Qualitative analysis of 20 media practitioners and energy professionals identified structural barriers to equitable energy coverage, including advertiser dependencies and limited environmental journalism capacity. Regression analysis demonstrated that solar media exposure significantly predicted adoption intent ($\beta = 0.41, p < 0.001$), whilst oil-dominant narratives suppressed solar energy consideration ($\beta = -0.18, p = 0.003$). The Nigeria Energy Transition Plan received minimal public recognition (mean awareness = 2.48/5.0), indicating ineffective policy communication. This study concludes that strategic media communication reform constitutes an essential prerequisite for accelerating Nigeria's renewable energy transition and achieving Sustainable Development Goals 7 and 13. Recommendations include establishing a National Energy Communication Policy, integrating renewable energy communication into journalism curricula, and strengthening digital platforms for grassroots solar advocacy.

1. Introduction

1.1 Background to the study

The global energy system stands at a critical inflection point. Decarbonising energy production, expanding clean electricity access, and honouring Paris Climate Agreement (2015) commitments have repositioned renewable energy from peripheral technological aspiration to centrepiece of international development strategy. Within this paradigm shift, Nigeria occupies a position of extraordinary paradox. As Africa's largest economy, the continent's foremost oil producer, and a nation hosting one of the world's most acute electricity crises, Nigeria confronts unique energy transition challenges. With installed generating capacity of approximately 13,000 megawatts against demand exceeding 30,000 megawatts and actual power availability frequently declining below 4,000 megawatts Nigeria's energy deficit constitutes a structural impediment to economic and social development (IEA, 2024; World Bank, 2023).

Petroleum has dominated Nigeria's political economy since commercial reserves were discovered at Oloibiri, Bayelsa State, in 1956. For over six decades, oil revenues constituted between 50 and 70 per cent of government revenue and over 90 per cent of foreign exchange earnings (Okonkwo & Ejiofor, 2022). This dependency produced what political economists term the 'resource curse' a condition wherein hydrocarbon abundance paradoxically inhibits broad-based development, institutional quality, and economic diversification (Ross & Mahdavi, 2023). The environmental costs of petroleum extraction have been particularly acute in the Niger Delta, where decades of gas flaring, oil spills, and ecological degradation have devastated local communities and ecosystems (Frynas & Meadowcroft, 2019).

Nigeria's commitment to climate action, formalised through the Paris Agreement and reflected in successive Nationally Determined Contributions, requires fundamental restructuring of the national energy matrix. The 2021 Nigeria Energy Transition Plan (ETP) the country's most comprehensive renewable energy strategy charts a pathway to net-zero emissions by 2060 whilst simultaneously expanding universal energy access. Solar photovoltaic technology, given Nigeria's positioning within the sub-Saharan solar belt with daily solar irradiance averaging 5.5-7.5 kilowatt-hours per square metre in northern regions and 3.5-5.0 in southern areas, represents the most cost-effective and scalable renewable alternative (Aliyu & Adeyemi, 2022; IRENA, 2023).

Despite policy frameworks supporting renewable energy including the Renewable Energy Master Plan (2012), the Electricity Power Sector Reform Act (2005), and the Energy Transition Plan (2021) implementation remains fragmented and insufficiently communicated to the Nigerian public. This communicative gap represents a critical but underexplored dimension of Nigeria's energy transition challenge. Mass media encompassing print, broadcast, and digital platforms constitute the primary channels through which Nigerians access information about energy policy, environmental risks, and development alternatives. As Entman (1993) established in foundational media framing theory, media outlets do not merely report reality; they construct social reality through processes of selection, emphasis, and interpretation. Applied to energy communication, media representation can function as a catalyst for renewable energy transition amplifying public awareness, building social consensus, and legitimating clean energy alternatives or as an impediment, by perpetuating fossil-fuel dependency narratives and marginalising renewable energy from public discourse.

Research from comparable African economies indicates that media framing of energy narratives profoundly shapes public attitudes and political will. Studies conducted in Kenya (Kamau et al., 2021), Ghana (Oteng-Ababio, 2019), and South Africa (Fakier & Swilling, 2016) demonstrate that media representation significantly influences renewable energy adoption intentions. Yet empirical investigation of this relationship within Nigeria's specific context—a major oil-dependent economy with distinctive media system characteristics—remains limited. This research gap is particularly consequential given Nigeria's demographic scale (220 million population), its role as Africa's largest economy, and its strategic importance to global emissions trajectories.

The emergence of digital and social media has further transformed Nigeria's information ecosystem. With over 43 million internet users and expanding social media penetration—including 33 million Facebook users and rapidly growing TikTok and Twitter/X audiences (DataReportal, 2024)—digital platforms represent both opportunities and risks for energy communication. Online platforms enable grassroots solar energy advocacy and peer-to-peer knowledge exchange but also facilitate misinformation and scepticism towards renewable energy policies (Idoko et al., 2024).

1.2 Statement of the Problem

Despite Nigeria's vast solar energy potential, strategic policy commitments through the Energy Transition Plan, and private sector growth in off-grid solar markets, public awareness and adoption of solar energy as a mainstream energy solution remain substantially limited. National surveys indicate that over 40 per cent of Nigeria's 220 million citizens lack electricity access, and among those with grid connectivity, supply remains unreliable, averaging less than 12 hours daily in urban areas and significantly less in rural zones (IEA, 2024; UNDP, 2024).

A critical but underexplored dimension of this challenge concerns media representation's role in shaping public understanding of Nigeria's energy options. Preliminary analysis of major Nigerian media outlets including *The Punch*, *The Guardian Nigeria*, *Vanguard*, *Channels Television*, and *AIT*—suggests that oil and gas sector coverage substantially dominates energy-related reportage, whilst solar energy stories receive peripheral treatment and are frequently framed as niche market solutions rather than viable national energy strategies. This representational asymmetry reinforces cultural and cognitive perceptions wherein oil remains synonymous with national energy identity whilst renewable alternatives are perceived as foreign, expensive, or technologically uncertain.

Furthermore, despite the Federal Government's formal Energy Transition Plan commitment, limited evidence exists that policy communication has successfully translated technical documents into accessible public narratives. Comparable national contexts—South Africa, Ghana, Kenya—demonstrate that gaps between policy formulation and public uptake are substantially mediated by media

communication quality and reach (Painter & Schäfer, 2023). In Nigeria's context, this media mediation function has not been systematically evaluated.

The problems driving this research are fourfold: (1) inadequate public awareness regarding solar energy alternatives, attributable partly to insufficient and poorly framed media coverage; (2) documented dominance of oil-sector narratives in Nigerian media, which reproduces fossil-fuel dependency as cultural norm; (3) absence of effective policy communication strategies for the Energy Transition Plan; and (4) limited empirical research linking media representation to energy transition outcomes in Nigeria.

1.3 Objectives of the Study

General Objective: To evaluate the impact of media representation on Nigeria's energy transition from oil to solar energy within the framework of sustainable development.

Specific Objectives:

1. Assess the frequency and nature of Nigerian media coverage of solar energy relative to oil and gas sector reporting across Lagos, Abuja, and Port Harcourt.
2. Determine the dominant frames employed by Nigerian media in representing the energy transition from oil to solar.
3. Examine the relationship between media representation of solar energy and public awareness of renewable energy alternatives.
4. Evaluate the influence of media representation on public attitudes towards and behavioural intentions to adopt solar energy.
5. Investigate the effectiveness of media communication in disseminating the Energy Transition Plan to the public.
6. Propose a strategic media communication framework for accelerating Nigeria's energy transition.

1.4 Research Questions

RQ1: What is the frequency and nature of Nigerian media coverage of solar energy relative to oil and gas sector reporting?

RQ2: What are the dominant frames employed by Nigerian media in representing the energy transition from oil to solar?

RQ3: What is the relationship between media representation of solar energy and public awareness of renewable energy alternatives?

RQ4: How does media representation of solar energy influence public attitudes towards and behavioural intentions to adopt solar solutions?

RQ5: How effective is media communication in disseminating the Energy Transition Plan to the public?

1.5 Research Hypotheses

H₀₁: There is no significant difference in the frequency of media coverage of oil/gas narratives and solar energy narratives.

H₀₂: There is no significant relationship between media representation of solar energy and public awareness of renewable alternatives.

H₀₃: Media framing of solar energy does not significantly influence public attitudes towards solar adoption.

H₀₄: Media communication of the Energy Transition Plan does not significantly influence public knowledge of renewable energy policy.

H₀₅: There is no significant relationship between frequency of solar energy media exposure and expressed intention to adopt solar solutions.

1.6 Significance of the Study

This study holds significance for multiple stakeholder communities. For academic scholarship, it extends agenda-setting and framing theories to energy communication in sub-Saharan Africa, enriching comparative media studies and filling documented gaps in media-energy policy nexus research. For the Federal Government and the Energy Transition Plan Secretariat, this study provides empirical evidence to inform coherent national energy communication strategies. For media practitioners, it offers evidence-based insights into editorial priorities and training needs regarding energy and climate journalism. For energy sector stakeholders including solar companies, development finance institutions, and civil society

organisations findings illuminate communicative barriers constraining consumer adoption and market growth. Ultimately, this research contributes to Nigeria's capacity to achieve Sustainable Development Goal 7 (Affordable and Clean Energy) and SDG 13 (Climate Action) by illuminating often-overlooked communicative dimensions of energy transition.

1.7 Scope and Delimitations

Geographic Scope: The study focuses on three major Nigerian cities Lagos (South-West, commercial centre), Abuja (North-Central, governance centre), and Port Harcourt (South-South, oil industry centre) which collectively represent Nigeria's primary media, policy, and extractive industry hubs. This geographic framework enables comparative analysis of energy narratives across commercial, governmental, and petroleum-dependent contexts.

Temporal Scope: The study encompasses the 2020-2023 period, covering the post-COVID-19 era during which Nigeria's renewable energy policy landscape was significantly reconfigured through the Energy Transition Plan launch (2021) and revised Nationally Determined Contribution submission (2021).

Thematic Scope: The study focuses on media representation of solar energy and oil sector narratives; whilst other renewable technologies (wind, hydropower) are excluded except for comparative reference. The analysis focuses on mainstream national media whilst incorporating social media platforms given their growing significance in Nigeria's information ecosystem.

1.8 Limitations

First, geographic delimitation to three urban centres may limit generalisability to rural Nigeria, where energy access challenges are most acute. Second, media content analysis is bounded by selected outlets, not encompassing full Nigerian media diversity. Third, self-reported survey instruments introduce potential social desirability bias regarding environmental attitudes. Fourth, cross-sectional survey design limits causal directionality establishment. Fifth, the study's focus on solar energy excludes other energy transition dimensions (cooking energy, transport, industrial decarbonisation). These limitations are acknowledged and addressed through triangulation and reflexivity.

2. Literature Review

2.1 Conceptual Review

2.1.1 Media Representation and Energy Communication

Media representation encompassing how mass media select, describe, frame, and present information constitutes a foundational concept in communication studies. Hall's (1997) influential theorisation established that representation involves constructing meaning through language and imagery; media do not mirror reality but actively construct it through deployment of codes, signs, and narratives. Contemporary media scholarship extends this perspective by emphasising representation's political and ideological dimensions: representation privileges certain worldviews, subjects, and values whilst marginalising others (Maia, 2020).

In environmental and energy contexts, media representation carries profound material consequences. Boykoff et al. (2023) demonstrated that media framing of climate science in developed-nation contexts systematically distorts public understanding of scientific consensus, contributing to policy inaction. In African contexts, Painter and Schäfer (2023) documented limitations in climate communication within developing-world media systems, including understaffing of environment desks, limited scientific literacy among journalists, and structural incentives created by fossil fuel industry advertising.

Nigerian media representation is shaped by distinctive structural features: dual public-private ownership, regional ethno-linguistic fragmentation, relative marginalisation of specialist science reporting, and entertainment-dominated content (Oso & Pate, 2014). Idoko et al. (2024) observed that Nigerian newspapers allocate less than 5 per cent of editorial space to environmental and energy topics, with allocation declining further during crises when economic and health narratives dominate newsrooms.

2.1.2 Agenda-Setting and Framing Theories

Agenda-setting theory (McCombs & Shaw, 1972) proposes that whilst media cannot tell people what to think, they effectively determine what people think about. By allocating greater coverage and prominence to certain issues, media organisations establish public agendas—hierarchies of issues

audiences consider important. McCombs' (2004) extension to 'second-level agenda-setting' demonstrates that media influence not only issue salience but also which attributes of issues become cognitively salient. Applied to energy communication, media can determine whether solar energy receives public attention and which dimensions—cost, reliability, environmental benefits—become primary cognitive associations (Scheufele & Eckert, 2024).

Framing theory (Entman, 1993) provides finer-grained analysis of how media's qualitative dimensions shape audience cognition. Where agenda-setting addresses quantity of attention, framing addresses interpretive structures through which issues are presented. Entman identified four framing functions: problem definition (how issues are problematised), causal attribution (responsibility assignment), moral evaluation (desirability assessment), and treatment recommendation (solution proposals). Applied to Nigeria's energy media, this framework enables investigation of how solar energy stories construct energy poverty problems, attribute responsibility for transition, evaluate renewable energy's desirability, and propose solutions. Chong and Druckman (2007) demonstrated that when multiple frames compete for attention, relative frame strength, familiarity, and cultural resonance determine persuasive efficacy.

2.1.3 Diffusion of Innovations Theory

Rogers' (2003) Diffusion of Innovations theory explains how innovations spread through social systems via communication channels over time. The theory identifies five adopter categories (innovators, early adopters, early majority, late majority, laggards) and argues that diffusion rates depend upon perceived innovation attributes: relative advantage (comparative benefit), compatibility (consistency with values), complexity (ease of understanding), trialability (testing capacity), and observability (visibility of results). Applied to solar energy, media communication influences the knowledge and persuasion stages of the adoption process. Media exposure increases innovation awareness (knowledge stage), whilst positive framing and success story visibility stimulate positive evaluation and adoption decisions (persuasion stage). Rogers' framework recognises change agents media practitioners, energy advocates, digital influencers who selectively communicate innovation attributes to target audiences (Sovacool et al., 2023).

2.1.4 Sustainable Development and Energy Transition

Sustainable development development meeting present needs without compromising future generations' capacity to meet theirs (Brundtland Commission, 1987) has become the organising framework for international development policy. The United Nations' 2030 Agenda articulates this vision through 17 Sustainable Development Goals. SDG 7 (ensuring access to affordable, reliable, sustainable, and modern energy) is central to this study. With Nigeria home to approximately 85 million people without electricity access, the country faces the world's largest energy access deficit, making SDG 7 achievement both humanitarian imperative and development priority (UNDP, 2024).

The 'communication for sustainable development' paradigm posits that effective public communication enables social and behavioural changes that sustainability transitions require. This paradigm extends earlier 'communication for development' literature by emphasising bidirectional, participatory, digitally mediated dimensions of contemporary communication ecosystems and foregrounding media's role in constructing cultural narratives within which sustainability transitions occur or stall (Servaes, 2021).

2.2 Empirical Review

Recent empirical scholarship examining media representation and energy transition outcomes provides crucial context for this study. Kamau et al. (2021) in a mixed-methods study conducted in Kenya found strong positive relationships between media exposure to solar energy content and both awareness ($r = 0.58$, $p < 0.01$) and adoption intent ($\beta = 0.41$, $p < 0.05$), with social media more effective than broadcast media for younger urban cohorts. Oteng-Ababio (2019) in Ghana found that media communication of renewable energy policy was predominantly technical, inaccessible to less-educated publics, yet exposure to economic benefit frames significantly predicted positive attitudes. Fakier and Swilling (2016) in South Africa identified that media employed predominantly economic-technological frames for energy transition narratives, marginalising social justice perspectives and indigenous community perspectives.

In the Nigerian context specifically, limited but growing research exists. Agbor (2020) analysed media coverage of oil pollution in the Niger Delta, identifying that Nigerian newspapers predominantly employed conflict/drama frames focusing on corporate blame-shifting rather than systemic governance critique. Iwuanyanwu and Odekunle (2022) audited Nigeria's Energy Transition Plan media coverage, finding it sparse, episodic, and predominantly sourced from government press releases with limited independent analysis. Nwaneri and Achebe (2020) through critical discourse analysis identified what they termed 'petro-nationalist discourse' in both government communication and newspaper editorials, wherein oil is framed as legitimate basis of Nigerian sovereignty whilst renewable energy is portrayed as foreign-aid-driven import.

Oyero and Oyesomi (2020) examining digital media use among Nigerian youth found significant relationships between social media use and climate change awareness ($r = 0.53$, $p < 0.01$), with Twitter and Facebook primary climate content platforms. However, the broader nexus between media representation and energy transition outcomes in Nigeria integrating both content analysis and audience-level effects remains empirically underdeveloped (Painter & Schäfer, 2023).

2.3 Conceptual Framework

This study's conceptual framework posits a dynamic, multi-stage model wherein media representation functions as the primary independent variable mediating relationships between macro-level energy policy environment and micro-level public outcomes. The framework integrates agenda-setting, framing, and diffusion of innovations theories into coherent analytical architecture.

At the input level, two drivers shape media representation: (1) Nigeria's media system structural features (ownership, commercial incentives, editorial capacity, platform diversity) and (2) the energy policy environment (Energy Transition Plan, NDC commitments, institutional communication from energy actors). These inputs determine media coverage volume, framing, and tone regarding oil and solar narratives.

At the process level, media representation disaggregated into traditional media (print, broadcast) and digital media (social platforms, news websites) shapes public cognition through two pathways: issue salience (what energy issues audiences consider important) and interpretive framing (how audiences understand causes, consequences, and solutions of Nigeria's energy challenge). These processes are moderated by individual variables including demographics, prior energy experience, and media literacy.

At the output level, the framework posits four interrelated outcomes: (1) public awareness of solar energy and energy transition, (2) public attitudes towards solar adoption, (3) behavioural intentions regarding personal energy choices, and (4) civic engagement with energy policy. These collectively constitute the communication dimension of sustainable development outcomes, specifically SDG 7 and SDG 13 achievement

3. Methodology

3.1 Research Design

This study employs a mixed-methods design integrating quantitative survey analysis with qualitative content analysis and in-depth interviews. The mixed-methods approach enables both statistical rigour in establishing relationships between media exposure and public outcomes and interpretive depth in understanding media frame characteristics and respondent contextual meanings. A sequential explanatory design reports quantitative findings first, subsequently deepened through qualitative data.

3.2 Study Sites and Population

The study is conducted in Lagos (South-West, commercial capital population ~16 million), Abuja (North-Central, federal capital population ~3.5 million), and Port Harcourt (South-South, oil industry centre population ~1.8 million). These three cities collectively represent Nigeria's primary media, governance, and extractive industry centres. Lagos hosts headquarters of majority national media organisations including Channels Television, The Punch, The Guardian Nigeria, BellaNaija, and Pulse Nigeria. Abuja houses federal ministries and the Rural Electrification Agency. Port Harcourt is the operational hub of Nigeria's petroleum sector.

Survey population comprises adults aged 18+ residing in these cities who consume media regularly (at least once weekly) and have awareness of electricity supply challenges. Qualitative population

comprises media practitioners with energy/environment reporting experience and energy sector professionals from government, civil society, and private sectors.

3.3 Sample and Sampling Technique

For the survey component, using Yamane's (1967) formula for finite populations with $N = 28$ million (urban adult population of three cities), $e = 0.05$, the sample size calculation yielded approximately 400. The study targeted 385 completed valid questionnaires, proportionally allocated: Lagos ($n = 170$), Abuja ($n = 120$), Port Harcourt ($n = 95$). Multi-stage stratified random sampling was employed, with first-stage city stratification into residential density zones, second-stage random area selection, and third-stage systematic household sampling. For qualitative interviews, purposive sampling selected 20 participants: 12 media practitioners and 8 energy sector professionals.

3.4 Instruments and Validity

The structured questionnaire comprises four sections: (A) socio-demographic characteristics; (B) media consumption habits and energy content exposure; (C) awareness, attitudes, and perceptions regarding solar energy and energy transition; (D) policy knowledge and civic engagement. Sections B–D employed five-point Likert scales, multiple-choice, and frequency-based response formats. Content validity was established through expert review by three specialists in media studies, environmental communication, and energy policy. Face validity was assessed through cognitive pre-testing with 20 respondents. Pilot testing ($N = 30$) yielded Cronbach's alpha values of 0.81 (media exposure), 0.79 (awareness/attitudes), and 0.83 (policy knowledge), all exceeding 0.70 threshold.

The semi-structured interview guide comprises five thematic areas: (1) journalists' perceptions of energy transition story editorial value; (2) institutional and commercial factors shaping energy coverage; (3) dominant frames in solar energy reporting; (4) perceived effectiveness of Energy Transition Plan media communication; (5) suggestions for improving energy transition communication. All interviews were audio-recorded with consent and transcribed verbatim.

3.5 Data Collection and Analysis

Survey data collection occurred over six weeks through face-to-face administration by trained research assistants, supplemented by Google Forms for participants preferring digital completion. Qualitative interviews lasted 45–60 minutes and were conducted in-person or via videoconference.

Quantitative analysis employed IBM SPSS Statistics 27, including descriptive statistics, chi-square tests, Pearson correlation analysis, and multiple regression analysis ($\alpha = 0.05$). Qualitative data were analysed using reflexive thematic analysis (Braun & Clarke, 2021) and media content analysis applying Entman's (1993) framing matrix. Media content was drawn from selected newspaper archives and broadcast monitoring records for January 2020 to December 2023.

3.6 Ethical Considerations

Research was conducted in accordance with ethical principles of Nigerian research system and international standards. All respondents provided written informed consent. Anonymity and confidentiality were assured no individual-level data are reported or attributable. Participants retained the right to withdraw at any point. All data were stored in password-protected digital files with access limited to the research team. Prior ethical approval was obtained from the university's Postgraduate Ethics Committee.

4. Results and Discussion

4.1 Survey Sample Characteristics

Of 400 distributed questionnaires, 385 were completed with sufficient validity (96.3% response rate). All 20 in-depth interviews were successfully completed. The demographic profile reveals a predominantly working-age (mean age = 42.3 years), male-skewed (62%), tertiary-educated sample (76% with Bachelor's degrees or higher), consistent with urban professional populations of the three cities. Television remains the primary energy information source (29.1%), followed by online news (25.5%) and social media (22.6%), reflecting both broadcast media dominance and rapid digital platform rise.

4.2 Key Findings

Finding 1: Media Coverage Asymmetry. Content analysis across five major national newspapers (The Punch, The Guardian Nigeria, Vanguard, Daily Trust, Thisday) covering January 2020–December 2023 revealed that oil/gas sector stories constituted 68.4 per cent of energy-related coverage compared

with 11.3 per cent for solar energy. Survey respondents confirmed this asymmetry: 76.1 per cent reported encountering oil/gas stories very frequently or frequently versus only 13.6 per cent for solar energy ($M = 4.07$ vs. $M = 2.29$, $t(384) = 34.56$, $p < 0.001$).

Finding 2: Frame Asymmetry. Analysis identified five dominant frames. Oil sector coverage is dominated by economic-productivity frames (54.2%), emphasising GDP contribution and government revenue. Solar energy coverage is dominated by technology-innovation frames (38.7%) and affordability-barrier frames (27.4%), which emphasise cost obstacles. Environmental/climate frames appear in only 8.3 per cent of solar stories, suggesting that environmental rationale for energy transition is substantially absent from mainstream Nigerian discourse.

Finding 3: Media Exposure and Awareness. Online news users demonstrate highest solar energy awareness ($M = 3.54$), followed by social media users ($M = 3.42$) and television viewers ($M = 2.97$). Critically, Nigeria Energy Transition Plan awareness is uniformly low across all media platforms (range: 2.21–3.12), indicating that despite government communication efforts, the ETP has not achieved meaningful public knowledge.

Finding 4: Media Influence on Adoption Intent. Regression analysis examining predictors of solar energy adoption intent revealed that solar media exposure ($\beta = 0.41$, $p < 0.001$) is the strongest predictor, followed by positive solar framing ($\beta = 0.28$, $p < 0.001$), online platform use ($\beta = 0.22$, $p = 0.001$), and education level ($\beta = 0.17$, $p = 0.003$). Critically, oil/gas media exposure negatively predicted adoption intent ($\beta = -0.18$, $p = 0.003$), confirming that higher exposure to oil-dominant narratives suppresses solar energy consideration. The overall model explains 51 per cent of adoption intent variance ($R^2 = 0.51$, $F(6,378) = 28.41$, $p < 0.001$).

Finding 5: Energy Transition Plan Communication Failure. The perceived effectiveness of media communication regarding the Energy Transition Plan is rated as ineffective ($M = 2.33/5.00$). Government energy media campaigns are particularly poorly credentialed, with 47.6 per cent of respondents disagreeing that such campaigns are believable. The lowest-rated item concerns government campaign reach in rural communities ($M = 1.98$), reflecting perception that ETP communication has been overwhelmingly urban and elite-focused.

4.3 Discussion

The convergence of quantitative findings (media coverage asymmetry, adoption intent regression coefficients) and qualitative insights (structural barriers to balanced coverage) produces a coherent and policy-relevant narrative: media representation significantly and measurably influences public awareness, attitude formation, and adoption propensity regarding Nigeria's energy transition.

The finding that oil/gas coverage is perceived as dramatically more frequent and confirmed by content analysis (68.4% vs. 11.3%) aligns with both agenda-setting theory predictions and documented features of Nigeria's petro-nationalist media ecology (Nwaneri & Achebe, 2020). The hegemony of oil narratives reflects structural interlocking of petroleum industry with the Nigerian state and media economy. NNPC Limited represents a significant media advertiser, creating commercial incentives to prioritise oil sector coverage. This structural dynamic is not incidental; it reflects fundamental media economy constraints requiring institutional reform.

The framing analysis revealing environmental frames in only 8.3 per cent of solar stories is particularly significant. Given Nigeria's SDG 7 and SDG 13 commitments, the near-absence of environmental framing represents a critical missed opportunity. Research demonstrates that frames connecting energy choices to salient values health, community well-being, intergenerational responsibility effectively motivate attitude change (Whitmarsh et al., 2011; Scheufele & Eckert, 2024). The dominance of technical and affordability frames, divorced from environmental implications, limits solar energy's resonance with audiences whose primary concerns are economic and practical.

The strong positive correlation between solar media exposure and awareness ($r = 0.64$, $p < 0.01$) and between solar exposure and adoption intent ($\beta = 0.41$, $p < 0.001$) confirms theoretical predictions of both agenda-setting and diffusion of innovations theories. These findings align with comparable research in Kenya (Kamau et al., 2021: $r = 0.58$) and Ghana (Oteng-Ababio, 2019), providing cross-contextual validation for media exposure-renewable energy adoption relationships.

However, contradictory evidence warrants integration into this interpretation. Vaccari and Chadwick (2025) in deepening analysis of misinformation research found that awareness of deepfakes

correlates with increased perceived deepfake prevalence, which predicts increased false-alarm detection errors. Applied analogously to energy awareness, heightened awareness of solar energy opportunity might paradoxically increase false expectations, producing disillusionment if actual adoption barriers (financing, installation, maintenance) prove greater than media representations suggest. This dynamic suggests that awareness interventions must address not only solar energy existence but also realistic expectations regarding adoption processes.

The dramatic under-performance of government Energy Transition Plan communication with overall effectiveness rated at $M = 2.33/5.00$ represents a finding of urgent policy consequence. It confirms Iwuanyanwu and Odekunle's (2022) assessment that ETP media communication has been inadequate and suggests that the gap between policy ambition and public knowledge is widening. The particular ineffectiveness regarding rural reach ($M = 1.98$) is doubly concerning given that rural Nigerians bear greatest energy poverty burden.

The finding that government media campaigns are distrusted by 47.6 per cent of respondents reflects broader institutional credibility crisis documented by Afrobarometer (2023), wherein trust in Federal Government declined from 44 per cent (2017) to 31 per cent (2023). This suggests that delivery channel matters as much as content: messages delivered through trusted community voices, peer networks, and credible independent media are likely more effective than direct government communication.

5. Conclusion

5.1 Conclusion

This mixed-methods study establishes that media representation constitutes a significant determinant of public awareness, attitude formation, and adoption propensity regarding Nigeria's energy transition from oil to solar. The hegemony of oil-sector narratives in Nigerian media, the marginalisation of environmental frames in solar coverage, and the systemic ineffectiveness of government Energy Transition Plan communication collectively constitute a communicative barrier to Nigeria's energy transition as significant as frequently-cited technical, financial, and infrastructural barriers.

The study affirms theoretical propositions of agenda-setting theory (McCombs & Shaw, 1972), framing theory (Entman, 1993), and diffusion of innovations theory (Rogers, 2003) within Nigeria's energy transition context, whilst demonstrating how structural features of Nigeria's petro-state media economy shape and constrain communicative conditions for sustainable energy transition.

The study concludes that achieving SDG 7 and SDG 13 in Nigeria requires fundamental rethinking of energy communication strategy grounded in empirical understanding of media effects, audience heterogeneity, and cultural meaning systems within which energy decisions are made. The energy transition will not be achieved through policy documents alone; it requires vibrant, diverse, credible, and strategically engaged media ecosystem positioning solar energy as central pillar of Nigeria's national development vision.

5.2 Recommendations

For the Federal Government and Energy Transition Plan Secretariat: Develop and adopt a National Energy Transition Communication Policy establishing clear mandates, metrics, and resource allocations for public communication. Redesign government energy communication to utilise trusted intermediaries community leaders, religious institutions, local entrepreneurs rather than relying solely on direct government messaging. Establish a dedicated Energy Communication Unit staffed by communication professionals with dedicated budgets for media campaigns, digital content production, and journalism training partnerships.

For Media Organisations and Practitioners: Establish dedicated environment and energy desks staffed by journalists with specialist training in energy systems and sustainable development policy. Develop editorial guidelines ensuring proportionate solar energy coverage relative to fossil fuel reporting. Integrate energy and climate communication into journalism curricula in Nigerian training institutions (Nigerian Institute of Journalism, mass communication university programmes). Support digital media organisations and social media influencers through grants, training, and institutional partnerships to produce high-quality, accessible solar energy content.

For Civil Society and Energy Stakeholders: Develop systematic media engagement strategies building relationships with editors and journalists, providing accessible story ideas, and ensuring

community-level solar success stories reach national media. Solar energy companies should invest in communication as core business function, producing consumer education content, success story documentation, and digital advocacy material contributing to broader solar energy narratives.

5.3 Contribution to Knowledge

This study provides the first comprehensive mixed-methods empirical assessment of media representation's relationship to energy transition outcomes focused on Nigeria's oil-to-solar transition, filling documented gaps in both Nigerian media studies and broader energy transition communication scholarship. The study extends agenda-setting and framing theories to energy communication in sub-Saharan African petro-state contexts, demonstrating these theories' operation under conditions of structural media dependency on fossil-fuel advertising and petro-nationalist political culture. The conceptual framework modelling dynamic relationships between media representation, public cognition, and adoption behaviour offers transferable analytical architecture for energy communication research in other oil-dependent developing economies.

Recommendations

The following recommendations are made based on these findings:

1. AI-generated science communication materials intended for undergraduate student use should be reviewed by a qualified human editor before distribution in order to address the trust gap identified in this study.
2. Science educators should incorporate explicit instruction on evaluating the credibility of AI-generated information as part of digital and scientific literacy teaching.
3. Institutions integrating AI writing tools into learning materials should disclose the extent of human involvement in producing such content since perceived source appears to influence the student confidence.
4. Developers of AI writing systems serving educational audiences should continue improving the perceived authenticity and accountability of AI-generated text and not only its readability.

Further studies should examine whether familiarity with AI-generated science writing which is gained through repeated exposure, narrows the trust gap observed in this study.

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