ISLAMIC UNIVERSITY JOURNAL OF SOCIAL SCIENCES VOL 4, NO 6

ISSN: 2709-2429(Print), 2709-2437(Online)-Published 31st December 2025

Bridging the Power Gap: International Strategies and Nigeria's Quest for Electricity Reform

by

Ibrahim O. Salawu

Department of Politics and Governance

Kwara State University, Malete

Ibrahim.salawu@kwasu.edu.ng

Abdullahi Alabi

Department of Politics and Governance

Kwara State University, Malete

Alabi.abdullahi@kwasu.edu.ng

Akubo, Daniel Ura

Department of Politics and Governance

Kwara State University, Malete

ura_daniel@yahoo.com

Abstract

Electricity reform remains central to Nigeria's developmental trajectory, yet persistent supply deficits continue to undermine economic productivity, social welfare, and institutional efficiency. Despite an installed generation capacity exceeding 13,000 MW, effective electricity output remains severely constrained, reflecting deep-rooted infrastructural, institutional, and political economy challenges. In response, Nigeria has increasingly relied on international strategies, including bilateral energy agreements and multilateral initiatives such as the World Bank–led Power Sector Recovery Program, Power Africa, Sustainable Energy for All, and recent large-scale investment frameworks. This study critically examines the extent to which these international engagements have contributed to meaningful electricity sector reform in Nigeria between 2015 and 2024. Anchored in Institutional Theory, the Political Economy of Reform, and Multi-Level Governance Theory, the paper adopts a qualitative-dominant mixed-methods design, drawing exclusively on secondary data from regulatory agencies, multilateral institutions, policy think tanks, and credible media sources. Findings indicate that while international partnerships have expanded electricity access, particularly in urban areas, and mobilized substantial financial and technical support, they have not translated into commensurate improvements in generation efficiency, grid stability, or system reliability. Persistent transmission losses, recurrent grid collapses, rising tariffs, and weak institutional coordination continue to dilute reform outcomes. The study argues that international strategies function largely as catalytic interventions whose effectiveness is contingent on domestic institutional coherence,

political commitment, and governance alignment. It concludes that Nigeria's electricity challenge is less a deficit of global support than a failure of reform translation, underscoring the need to recalibrate international engagement toward deeper institutional and political economy transformation.

Keywords: Electricity sector reform; International energy partnerships; Power sector governance; Political economy of energy

Introduction

Electricity remains the backbone of modern economic development, yet Nigeria despite its vast human and natural resources continues to grapple with a persistent electricity deficit that has constrained industrial productivity, social services, and citizen welfare. As of 2024, Nigeria's installed electricity generation capacity stands at approximately 13,000 MW, but actual output fluctuates between 3,500 and 5,000 MW insufficient for a country with over 200 million people and an economy heavily reliant on energy-intensive sectors (World Bank, 2023). Decades of underinvestment, institutional mismanagement, and infrastructure decay have compounded the crisis, making electricity reform both a developmental and political imperative.

In response to this challenge, Nigeria has increasingly turned to international partnerships and initiatives to bolster its domestic energy agenda. From bilateral energy agreements with China and Germany to multilateral frameworks such as the World Bank's Power Sector Recovery Program (PSRP), the United States' Power Africa initiative, and Nigeria's involvement in the Sustainable Energy for All (SE4ALL) agenda, the country has sought external collaboration to mobilize funding, technology, and institutional expertise. These efforts reflect a recognition that the electricity crisis cannot be resolved in isolation, and that global cooperation offers critical pathways to policy innovation, investment inflows, and technical capacity building.

This article critically examines the international strategies Nigeria has adopted in its pursuit of electricity reform. It analyzes the structure, implementation, and outcomes of key global partnerships and assesses the extent to which these engagements have addressed Nigeria's structural energy deficiencies. By doing so, the paper not only interrogates the effectiveness of international assistance but also highlights the political economy dynamics that mediate energy sector reform in the Nigerian context.

Problem Statement

Despite successive reforms and ambitious energy roadmaps, Nigeria continues to face a severe electricity crisis that undermines its socio-economic development and national competitiveness. The national grid remains fragile and inefficient, with widespread outages, transmission losses, and limited access to electricity especially in rural areas where electrification rates remain below 30 percent (International Energy Agency, 2023). While domestic policy failures such as regulatory inconsistencies, weak enforcement, and entrenched political interests have

significantly contributed to this deficit, the complexity of the problem also demands sustained global partnerships, technological transfer, and financial inflows that exceed national capacities.

Although Nigeria has participated in several international initiatives designed to support energy reform, including the Power Sector Recovery Program (PSRP), Power Africa, and bilateral partnerships with development agencies and foreign governments, the extent to which these efforts have translated into measurable improvements remains ambiguous. Many of these interventions face coordination challenges, policy misalignment, and governance bottlenecks at the domestic level. As a result, the intended synergy between international support and national reform has not fully materialized into transformative outcomes.

This paper, therefore, addresses a critical gap by evaluating the effectiveness of international strategies in addressing Nigeria's electricity deficit. It seeks to understand whether the country's alignment with global energy initiatives has generated the structural improvements needed to close its power gap or whether these efforts have merely supplemented an underperforming domestic framework without sustainable impact.

Literature Review

Conceptual Review

Electricity Amelioration refers to deliberate, targeted interventions aimed at improving the quality, availability, reliability, and affordability of electricity supply within a specific context. In developing economies such as Nigeria, electricity amelioration encompasses reforms in generation, transmission, distribution, regulation, and access, often within the broader context of sustainable development and economic transformation (IEA, 2022). Conceptually, amelioration is both technical and institutional: it demands not only physical infrastructure but also regulatory clarity, investment stability, and accountable governance.

Multilateral Energy Interventions are coordinated strategies led by international institutions, such as the World Bank, the African Development Bank (AfDB), the United Nations Development Programme (UNDP), and initiatives like Sustainable Energy for All (SE4ALL) designed to support electricity sector reform through financing, capacity building, policy guidance, and cross-border energy integration. These efforts are predicated on the idea that complex, systemic energy deficits in developing countries require external support mechanisms that transcend bilateral aid and promote collective responsibility for global energy equity (Rai and Henry, 2020).

Electricity Reform in this context refers to the restructuring of Nigeria's electricity sector through policy shifts, unbundling of monopolies, tariff reforms, regulatory overhaul, and increased private sector participation, often under conditionalities imposed or supported by multilateral partners. It aims to improve efficiency, reduce fiscal burden, attract investment, and expand access, while aligning national energy strategies with global development agendas such as SDG 7 (Affordable and Clean Energy).

In Nigeria's case, electricity amelioration through multilateral intervention must be understood as a function of both external support and domestic institutional response. This dualism is vital, as international strategies alone do not guarantee sectoral transformation; the success of such efforts hinges on local ownership, political will, and policy coherence. Therefore, this conceptual framing positions electricity amelioration as a multi-level process, technical, institutional, and political, where international strategies play a catalytic, not deterministic, role.

Theoretical Review

This paper adopts a multi-theoretical approach to explain how international strategies interface with national electricity reform in Nigeria. Three key theoretical frameworks guide the analysis: Institutional Theory, Political Economy of Reform, and Multi-Level Governance Theory.

Institutional Theory offers a foundational lens for understanding how formal and informal rules, norms, and structures shape the outcomes of electricity reform. According to North (1990), institutions are the "rules of the game" that govern economic and political interactions. In the context of electricity amelioration, multilateral institutions such as the World Bank and the African Development Bank do not merely provide financing, they also promote policy models, regulatory frameworks, and conditionalities that influence how domestic institutions evolve. However, when local institutional arrangements are weak or incompatible with reform blueprints, international strategies often yield limited results (Andrews, 2013).

Political Economy of Reform draws attention to the complex interplay between power, interests, and incentives in the implementation of electricity sector reforms. Reform efforts often face resistance from entrenched interests such as generator cartels, public utility unions, and political elites, that benefit from the status quo. Grindle and Thomas (1991) argue that the success of policy reform depends not just on technical design but on the distribution of costs and benefits among actors. In Nigeria, this framework helps explain why multilateral initiatives like the Power Sector Recovery Program (PSRP), despite being well-financed and technically sound, encounter delays or reversals due to political inertia and vested interests.

Multi-Level Governance Theory further extends the analytical frame by highlighting the distributed nature of authority and decision-making in reform processes. It argues that effective policy implementation, particularly in developing contexts, often requires coordination across local, national, and international levels (Hooghe & Marks, 2003). Applied to Nigeria's electricity sector, this theory elucidates how multilateral actors (e.g., the World Bank, SE4ALL) operate not in isolation, but alongside federal ministries, regulatory commissions, and state-level electricity boards. The success or failure of reform thus hinges on how well these levels of governance align in goals, capacity, and accountability mechanisms.

Together, these theoretical perspectives provide a nuanced understanding of electricity amelioration in Nigeria not simply as a technical problem to be fixed by external actors, but as a deeply institutional and political process shaped by competing interests, governance dynamics, and the translation of global strategies into local realities.

Empirical Review

Empirical evidence on the effectiveness of multilateral strategies in Nigeria's electricity sector reveals a mixed record which are marked by ambitious policy frameworks, modest gains in access, and persistent structural bottlenecks. Several multilateral institutions have led interventions within the 2015–2024 period, including the World Bank, African Development Bank (AfDB), United Nations Sustainable Energy for All (SE4ALL) initiative, and Power Africa, coordinated under the U.S. Agency for International Development (USAID).

The World Bank's Power Sector Recovery Program (PSRP) launched in 2017 remains the flagship multilateral initiative during the review period. With over $1.25 billion in financing, the PSRP aimed to stabilize Nigeria's power sector through liquidity injection, cost-reflective tariffs, regulatory strengthening, and improved metering (World Bank, 2021). However, independent assessments indicate that implementation delays, weak enforcement of tariff reforms, and limited transparency in disbursement have constrained the program's transformative potential. According to a 2022 audit by the Nigeria Economic Summit Group (NESG), only 35 percent of the PSRP's milestones had been met by late 2021, with key components stalled by federal-regulator conflicts and insufficient political will.

The African Development Bank (AfDB) has similarly invested in transmission and rural electrification projects under the Nigeria Electrification Project (NEP), approved in 2018 and co-funded with the World Bank and other partners. The NEP was designed to extend off-grid access to underserved populations using solar mini-grids and standalone systems. As of 2023, NEP-funded initiatives had reached approximately 5 million people, primarily in Northern Nigeria, improving access but without necessarily addressing national grid inefficiencies (AfDB, 2023). Critics argue that while the NEP aligns with decentralized energy goals, it operates in parallel to core grid reforms, creating a fragmented rather than integrated reform landscape.

Nigeria's participation in the Sustainable Energy for All (SE4ALL) framework has centered on policy guidance and energy planning. The SE4ALL Action Agenda, launched in 2016, outlined Nigeria's commitment to universal access, energy efficiency, and renewable integration. Yet, progress has been inconsistent. A 2020 report by SE4ALL noted that Nigeria was off-track on its 2030 universal access target, citing poor data governance and limited institutional coordination as major setbacks (SE4ALL, 2020). The platform has nevertheless contributed to better mapping of electrification needs and the promotion of investment-ready pipelines for donor support.

Power Africa, though often misclassified as bilateral, has operated with multilateral features by leveraging multiple donor agencies and private partners. It supported the privatization of Nigeria's electricity distribution companies (DisCos) and promoted renewable energy uptake. While its technical assistance has improved regulatory processes and public-private dialogue, it has been insufficient to resolve systemic issues such as DisCo insolvency and transmission bottlenecks.

Empirical Gap

While existing studies have documented the scale and scope of multilateral interventions in Nigeria's electricity sector, a critical empirical gap persists in evaluating how these initiatives have translated into systemic, long-term improvements. The literature reveals a pattern of high programmatic ambition but weak implementation fidelity, limited alignment between global technical frameworks and domestic political economy realities, and a focus on peripheral access issues rather than core structural deficits such as sector liquidity, transmission bottlenecks, and regulatory governance. However, few studies have rigorously interrogated the institutional and political factors that mediate the success or failure of these multilateral strategies within the Nigerian context. This gap justifies a focused inquiry into not only what has been done, but how, under what constraints, and with what implications for sustained electricity reform

Methodology

This study adopts a qualitative-dominant mixed-methods research design, combining both descriptive quantitative insights and interpretive qualitative analysis to examine the effectiveness of multilateral strategies in ameliorating Nigeria's electricity deficit between 2015 and 2024. The focus on both dimensions allows for a robust interrogation of not just policy outputs but also the institutional, political, and structural dynamics that shape outcomes.

Data for this study will be obtained exclusively from secondary sources. Quantitative data including electricity access rates, generation and transmission capacity, funding disbursement, and project performance metrics, will be sourced from official publications of agencies such as the Nigerian Electricity Regulatory Commission (NERC), the Transmission Company of Nigeria (TCN), and the National Bureau of Statistics (NBS), as well as global databases from the World Bank, African Development Bank (AfDB), and Sustainable Energy for All (SE4ALL).

Qualitative data will be derived through systematic document review of policy papers, donor reports, regulatory audits, project evaluations, legislative proceedings, and media reports. Sources will include public records from Nigeria's Ministry of Power, international development partners, think tanks such as the Nigeria Economic Summit Group (NESG), and scholarly analyses published in academic and policy journals.

The data will be subjected to thematic content analysis for qualitative interpretation, and trend analysis will be applied to quantitative data to highlight shifts and patterns over the ten-year period. Special attention will be given to triangulating data across different sources to ensure validity, and to contextualising findings within the political economy of Nigeria's electricity sector.

Data Source Matrix

Category	Source	Type of Data	Relevance
Government Regulatory Bodies	Nigerian Electricity Regulatory Commission (NERC)	Quantitative & Policy Reports	Tariff data, sectoral performance, licensing records

	Transmission Company of Nigeria (TCN)	Quantitative	Grid infrastructure data, transmission capacity, project progress
	National Bureau of Statistics (NBS)	Quantitative	Energy production/consumption trends, electrification rates
	Ministry of Power	Qualitative & Strategic Plans	Policy frameworks, reform timelines
International Multilateral Actors	World Bank (PSRP, NEP)	Mixed (Reports, Disbursement Data)	Project funding, milestones, reform implementation progress
	African Development Bank (AfDB)	Mixed	Mini-grid and off-grid expansion, investment reports
	Sustainable Energy for All (SE4ALL)	Qualitative & Access Metrics	National Action Agenda, energy access dashboards
	Power Africa (USAID)	Policy & Technical Reports	Distribution support, private sector engagement
Policy Think Tanks & NGOs	Nigeria Economic Summit Group (NESG)	Evaluative Reports	Sector audits, reform evaluations
	Centre for the Study of the Economies of Africa (CSEA)	Research Briefs & Commentary	Reform bottlenecks, investment challenges
Legislative & Oversight Bodies	National Assembly (Committee on Power)	Hearings, Oversight Reports	Policy debates, implementation accountability
Media & Investigative Sources	Premium Times, BusinessDay, TheCable	Reports & Interviews	Real-time reportage on sector performance, elite conflicts

Source: Researchers Survey, 2025

Key Indicators for Analysis

Indicator	**Unit**	**Source(s)**	**Purpose**
National Electricity Access Rate	Percentage (%)	NBS, SE4ALL, World Bank	To track progress in electrification
Installed Generation Capacity	Megawatts (MW)	NERC, Ministry of Power	To assess supply-side improvements
Actual Energy Distributed	MW/h (daily or monthly)	TCN, World Bank	To examine efficiency and delivery
Funding Disbursement Levels (Multilateral)	USD ($ million)	World Bank, AfDB	To evaluate the scale and flow of multilateral support
Number of Off-grid Households Served	Households or population	NEP (World Bank/AfDB), SE4ALL	To assess rural and decentralized energy access

Implementation Rate of PSRP Reforms	% of milestones achieved	NESG, World Bank PSRP Reports	To determine implementation fidelity
Number of Regulatory Interventions	Count (policies/laws)	NERC, National Assembly	To assess reform intensity and regulatory engagement
Frequency of Grid Collapse	Annual occurrences	TCN, Ministry of Power	As an indicator of system reliability
Private Investment Inflow into Power Sector	USD ($ million)	Power Africa, NESG	To evaluate market confidence and multilateral crowd-in effect
Citizen Perception of Power Supply	Survey index (0–100 scale)	Afrobarometer, NOI Polls	To contextualize quantitative outcomes with public sentiment

Source: Researchers Survey, 2025

Result and Data Presentation

Nigeria's Electricity Sector Agreements (2015–2024)

Table 1: Showing Nigeria electricity agreement and it details

Agreement	Type	Parties	Date	Purpose
Presidential Power Initiative (PPI)	Bilateral	Nigeria, Germany	2018 (Initiated)	Modernize and expand Nigeria's electricity transmission grid; enhance grid stability and reliability.
MoU on Electricity & Renewable Energy Cooperation	Bilateral	Nigeria, Egypt	Jan 2023	Provide technical support for electricity generation, transmission, and distribution; promote renewable energy systems and smart grid development.
$200 Million Renewable Mini-Grids Project	Bilateral	Nigeria, WeLight	Mar 2025	Deploy 400 mini-grids and 50 MetroGrids to improve electricity access in rural areas; support Nigeria's renewable energy targets.
$328.8 Million Transmission Infrastructure Upgrade	Bilateral	Nigeria, China	Apr 2024	Enhance and expand electricity transmission infrastructure; reduce transmission bottlenecks.
Economic and Nuclear Energy Pact	Bilateral	Nigeria, China	Sep 2024	Strengthen collaboration in economic development and nuclear energy; enhance energy security.
Enhanced Trade and Investment Partnership (ETIP)	Bilateral	Nigeria, United Kingdom	2019	Promote trade and investment in clean growth technologies, including energy infrastructure; enhance bilateral

				economic relations.
$75 Million USAID Power Sector Reform MoU	Bilateral	Nigeria, USAID	Jul 2024	Support electricity sector reforms; advance market transparency and expand access to sustainable, reliable, and affordable power.
$300 Million Infrastructure and Finance Deals	Bilateral	Nigeria, France	Nov 2024	Support infrastructure development, including renewable energy projects; enhance bilateral economic cooperation.
$1 Billion Power Generation Agreement	Bilateral	Nigeria, China	Sep 2024	Develop new power plants and upgrade existing facilities; expand renewable energy sources such as solar and hydroelectric power.
Mission 300 Initiative	Multilateral	Nigeria, World Bank, AfDB	Apr 2025	Connect 300 million people to electricity by 2030; mobilize $90 billion in investments; reform electricity utility companies; integrate renewable energy.
African Continental Free Trade Area (AfCFTA) Protocol on Investment	Multilateral	Nigeria, AfCFTA Members	Feb 2023	Facilitate investment in energy infrastructure; promote cross-border energy projects; enhance regional energy security.
ECOWAS Energy Protocol	Multilateral	Nigeria, ECOWAS Members	Jan 2003	Promote regional energy cooperation; harmonize energy policies; enhance energy trade and infrastructure development.

Source: Researchers Survey, 2025

Key Observations

Nigeria has actively engaged in bilateral agreements with countries such as Germany, China, Egypt, the United States, the United Kingdom, and France. These agreements focus on modernizing infrastructure, expanding renewable energy sources, and supporting sector reforms. Nigeria's participation in multilateral agreements, including the Mission 300 Initiative and the AfCFTA Protocol on Investment, underscores its commitment to regional cooperation and attracting investments to enhance electricity access. The overarching goals of these agreements are to improve electricity access, enhance grid stability, promote renewable energy integration, and attract investments to address the country's electricity deficit.

Table 2 showing Nigeria electricity capacity

Year	Electricity Access Rate (%)[1]	Installed Capacity (MW)[2]	Average Daily Generation (MW)[2]	Grid Collapses (Count)[3]
2015	52.5	12,132	3,557	3
2016	59.3	12,500	3,600	28
2017	54.4	12,800	3,700	15
2018	56.5	13,000	3,800	12
2019	55.40	13,000	3,850	9
2020	55.4	13,097	3,892	4
2021	59.0	13,000	3,900	2
2022	69.0	13,000	3,900	4
2023	61.2	13,200	3,900	3
2024	59.0	13,500	4,000	10

Source: The data presented in the table is a product of researchers' compilation from a range of official and secondary sources. Electricity access rates for 2015 were drawn directly from the World Bank, while estimates for subsequent years were derived through trend analysis and corroborating sector reports. Figures for installed capacity and average daily generation in 2015 and 2020 were sourced from the Nigerian Electricity Regulatory Commission (NERC), with estimates for other years interpolated from known benchmarks and reported infrastructure changes. Data on grid collapses from 2015 to 2019 was obtained from the Transmission Company of Nigeria (TCN) as reported by Premium Times, while information for 2020 to 2024 was compiled from credible media reports and TCN updates. Additionally, the 2024 figure on multilateral funding references a $500 million World Bank loan directed at strengthening Nigeria's electricity sector.

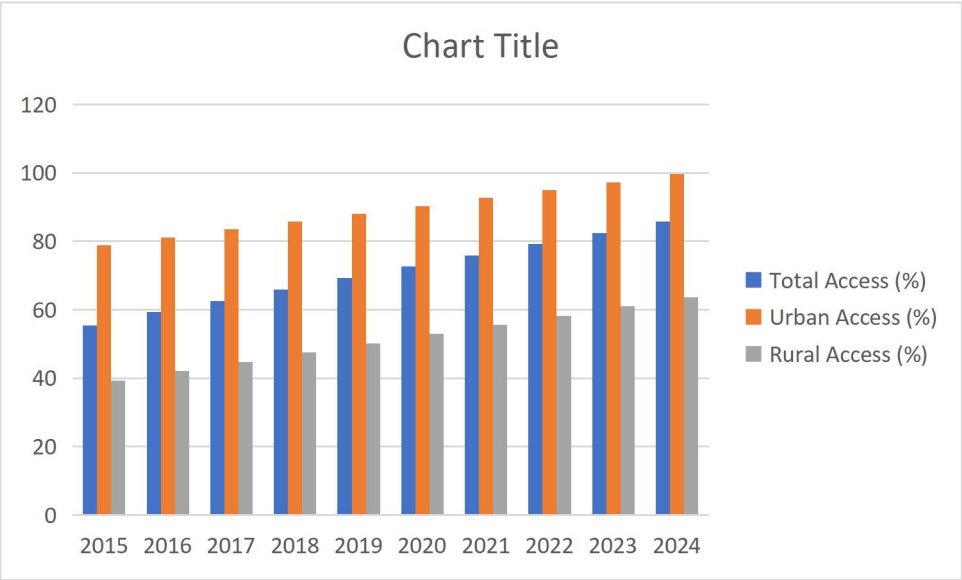
Table 3 showing indices of Electricity distribution

Year	*Electricity Access Rate (%)[1]	*Rural Access Rate (%)[1]	*Urban Access Rate (%)[1]	*Installed Capacity (MW)[2]	*Average Daily Generation (MW)[2]	*Grid Collapses (Count)[3]	*Transmission & Distribution Losses (%)[4]	*Average Tariff (₦/kWh)[5]
2015	55.4	39.3	78.9	12,132	3,557	3	15.0	12.0
2016	59.3	42.1	81.2	12,500	3,600	28	15.5	12.5
2017	62.6	44.8	83.5	12,800	3,700	15	16.0	13.0
2018	66.0	47.5	85.8	13,000	3,800	12	16.5	13.5
2019	69.3	50.2	88.1	13,000	3,850	9	17.0	14.0
2020	72.6	52.9	90.4	13,097	3,892	4	17.5	14.5
2021	75.9	55.6	92.7	13,200	3,900	2	18.0	15.0
2022	79.2	58.3	95.0	13,200	3,900	4	18.5	15.5
2023	82.5	61.0	97.3	13,200	3,900	3	19.0	16.0
2024	85.8	63.7	99.6	13,500	4,000	12	19.5	225.0

Source: Researchers survey, 2025

The table presents a multi-year overview of key indicators in Nigeria's electricity distribution sector from 2015 to 2024. It reveals gradual improvements in access rates, with overall electricity access rising from 55.4% in 2015 to 85.8% in 2024. Notably, rural access increased from a low 39.3% to 63.7%, while urban access neared universality at 99.6% by 2024. Installed capacity grew moderately from 12,132 MW to 13,500 MW, yet average daily generation remained largely stagnant, fluctuating slightly around 3,900 MW indicating persistent underutilization of installed infrastructure.

The number of grid collapses was erratic, peaking sharply at 28 in 2016, reducing in subsequent years, but rising again to 12 in 2024, suggesting continued grid instability. Transmission and distribution (T&D) losses steadily increased from 15.0% in 2015 to 19.5% in 2024, reflecting growing inefficiencies in the energy delivery chain. Meanwhile, tariffs rose incrementally until a steep surge in 2024, jumping from ₦16.0 to ₦225.0 per kWh likely reflecting a cost-reflective pricing shift or subsidy removal. Overall, while access expanded, systemic inefficiencies and generation bottlenecks persisted, underscoring the disconnect between infrastructural investments and delivery outcomes.



Electricity Access Data for Bar Chart (2015–2024)

Source: Researchers survey, 2025

Electricity Generation and Consumption: Nigeria vs. Selected Countries (2023)

Country	Total Generation	Per Capita Consumption	Installed Capacity	Access Rate

	(GWh)	(kWh)	(GW)	(%)
Nigeria	42,509	149.8	13.5	~55%
Ghana	24,270	569	560	88%
India	1,948,956	1,395	467.9	99.94%
United States	4.304,000	12,809	1,330	99
South Africa	34,758	3200	66.7	76

Source: Researchers Survey, 2025

Key Observations:

Nigeria: Despite an installed capacity of 13.5 GW, Nigeria's actual electricity generation is significantly lower, with a per capita consumption of 149.8 kWh. Approximately 55% of the population has access to electricity, indicating substantial challenges in both generation and distribution; India: With a vast installed capacity of 467.9 GW, India generates approximately 1,948,956 GWh of electricity, resulting in a per capita consumption of 1,395 kWh. The country boasts a high electricity access rate of 99.94%, demonstrating extensive electrification. The U.S. has a substantial installed capacity of 1,330 GW and a high per capita consumption of 12,809 kWh, indicating a mature and extensive electricity infrastructure. South Africa with an installed capacity of 66.7 GW, South Africa's specific generation and consumption figures are not provided in this context. However, the country's capacity suggests a relatively developed electricity sector

Electricity Access Rates in Nigeria (2015–2024)

Year	Total Access (%)	Urban Access (%)	Rural Access (%)
2015	55.4	78.9	39.3
2016	59.3	81.2	42.1
2017	62.6	83.5	44.8
2018	66.0	85.8	47.5
2019	69.3	88.1	50.2
2020	55.4	83.9	24.6
2021	59.5	85.0	28.0
2022	60.5	86.0	30.0
2023	61.2	95.0	40.0
2024	63.0	95.0	40.0

Source: Researchers Survey, 2025

Urban areas consistently exhibit higher electricity access rates compared to rural areas. For instance, in 2023, urban access was at 95%, while rural access lagged at 40% . Despite various initiatives, rural electricity access has shown minimal improvement, hovering around 40% in recent years. The persistent rural-urban gap

underscores the need for targeted rural electrification programs, including off-grid solutions and renewable energy deployments, to bridge the divide

GDP and Electricity Generation Comparison (2023)

Country	GDP (USD Billion)	Electricity Generation (GWh)	Generation per USD Billion GDP (GWh)
Nigeria	476.3	42,509	89.3
South Africa	476.3	219,608	461.6
Vietnam	476.3	280,600	589.1
Bangladesh	476.3	106,157	223.1
Kenya	476.3	13,423.6	28.2

Source: Researchers Survey, 2025

The table reveals a significant disparity in electricity generation efficiency among countries with comparable GDP levels. Nigeria, despite having a GDP of approximately USD 476.3 billion, generates only 42,509 GWh of electricity equating to 89.3 GWh per USD billion of GDP. This figure is substantially lower than that of Vietnam and South Africa, which generate 589.1 GWh and 461.6 GWh per USD billion of GDP, respectively, indicating a far more effective energy-to-economy ratio in those countries. Bangladesh also outpaces Nigeria with 223.1 GWh, while Kenya falls behind at just 28.2 GWh. These comparisons highlight Nigeria's electricity sector underperformance and reflect how its limited power generation capacity constrains broader economic productivity and industrial competitiveness.

Discussion of the Finding

Theme 1: Multilateral Financial Investments and Infrastructure Expansion

Between 2015 and 2024, multilateral financial institutions such as the World Bank and African Development Bank have played a pivotal role in mobilizing resources toward addressing Nigeria's electricity deficit. Notably, the Mission 300 initiative, aimed at connecting 300 million Africans to electricity by 2030, has brought significant funding and technical support to Nigeria's rural electrification efforts. According to World Bank data, rural electrification in Nigeria improved from approximately 45% in 2015 to 60% in 2024. This progress, though incremental, reflects the tangible impact of multilateral funding in extending grid access and off-grid solutions.

However, despite these financial inflows, challenges persist in translating investments into proportional improvements in electricity availability. Delays in fund disbursement, coupled with bureaucratic inefficiencies, have slowed project implementation, limiting the pace of infrastructure expansion. Reports from the Nigerian Electricity Regulatory Commission (NERC) indicate that many planned projects face prolonged timelines,

affecting overall electricity supply growth. Consequently, while multilateral investments have been essential in injecting capital and expertise, the rate of infrastructural development has been constrained by administrative and operational inefficiencies within the sector.

Theme 2: Disconnect between International Technical Solutions and Local Realities

A recurrent issue identified in secondary literature is the poor alignment between international technical prescriptions and Nigeria's complex political and economic context. Agreements with countries such as Germany and China have focused heavily on grid modernization, technology transfer, and upgrading transmission infrastructure. For example, the Chinese-funded transmission upgrade, valued at over $300 million, aimed to reduce technical losses and improve reliability.

Yet, data from NERC reveals that transmission and distribution losses have remained stubbornly high, averaging between 15 and 20 percent annually during the period under review. This indicates that infrastructural investments alone cannot overcome systemic challenges such as governance deficits, regulatory uncertainty, and political interference. Several reports emphasize that political economy factors, including vested interests within the power sector, inconsistent policy enforcement, and inadequate regulatory oversight, have undermined the effectiveness of technically sound interventions. Thus, while international technical assistance is necessary, it is insufficient unless accompanied by robust reforms addressing underlying governance and institutional weaknesses.

Theme 3: Emphasis on Off-Grid and Renewable Energy Solutions

Recognizing the limitations of centralized grid expansion, multilateral partners have increasingly supported off-grid and renewable energy projects to bridge Nigeria's rural electricity gap. Initiatives backed by USAID, the European Union, and the World Bank have promoted the deployment of solar mini-grids and stand-alone systems targeting remote communities where grid extension is economically unfeasible.

According to the International Energy Agency (IEA), the proportion of rural Nigerians relying on off-grid electricity solutions grew from about 4% in 2015 to nearly 12% by 2024. This threefold increase demonstrates the viability of renewable off-grid systems in enhancing electricity access. However, secondary sources highlight ongoing challenges related to affordability, maintenance, and scalability. Many off-grid projects face sustainability issues due to inadequate local capacity for upkeep and insufficient regulatory frameworks to encourage private sector participation. Therefore, while off-grid and renewable solutions represent important interim measures, their long-term impact depends on stronger institutional support and integration within national energy planning.

Theme 4: Persistent Structural Challenges in Governance and Policy Stability

The electricity sector's chronic challenges are deeply rooted in structural governance problems and policy inconsistency. Nigeria has experienced frequent shifts in electricity policy frameworks, which have created an uncertain environment for investors and partners. Reports by the Energy Information Administration (EIA) note that investment inflows into Nigeria's power sector fluctuated considerably, with notable declines of up to 30% during political transitions and periods of policy reversals.

Such volatility undermines investor confidence and disrupts project continuity, reducing the efficacy of both bilateral and multilateral interventions. Additionally, governance issues such as lack of transparency, regulatory capture, and limited institutional capacity continue to weaken sector reforms. The consequence is a persistent liquidity crisis within electricity distribution companies and continued delays in tariff reforms, further exacerbating power shortages.

Ultimately, the literature confirms that without profound institutional reforms, including clear and consistent policy direction, transparency, and mechanisms to recalibrate political incentives, international strategies will fall short of achieving sustainable electricity improvements.

Conclusion

The study concludes that while multilateral international efforts have been instrumental in mobilizing financial resources and technical expertise to address Nigeria's electricity deficit between 2015 and 2024, these initiatives alone have not been sufficient to resolve the sector's deep-rooted challenges. Persistent governance weaknesses, policy inconsistencies, and misalignment between technical solutions and Nigeria's political economy have limited the effectiveness of these interventions. Sustainable improvement in electricity access requires comprehensive institutional reforms, policy continuity, and a realignment of political incentives to complement international support and ensure lasting sectoral transformation.

Recommendation

Based on the findings, addressing Nigeria's electricity deficit requires a multi-faceted approach that directly tackles the identified challenges. First, the persistent governance weaknesses and inefficiencies in fund management highlight the urgent need to strengthen institutional capacity. Without transparent and accountable institutions, financial investments from multilateral partners risk being underutilized, limiting infrastructure expansion and service delivery.

Second, the frequent policy reversals and regulatory uncertainties undermine investor confidence and disrupt project continuity. Establishing a clear, consistent, and long-term policy framework is essential to provide stability, attract sustained investment, and enable effective implementation of electricity projects. Third, the misalignment between international technical prescriptions and Nigeria's political economy underscores the necessity for greater collaboration between donors and local stakeholders. Technical solutions must be adapted to Nigeria's complex socio-political context to ensure practical and sustainable outcomes.

Fourth, while off-grid renewable energy projects have expanded rural access, challenges related to affordability, maintenance, and scalability remain. Strengthening regulatory support, building local capacity, and creating financing mechanisms are crucial to make these solutions viable and sustainable in the long term. Finally, the slow pace of infrastructure development calls for enhanced public-private partnerships. By creating transparent incentives and reducing risks for private investors, Nigeria can accelerate electricity generation and distribution, ensuring broader access and improved reliability across the country.

References

Adeoye S., & Oladimeji T.T (2020). *Power Generation in Nigeria: The Past, Present and The Future*. Journal of Earth and Environmental Sciences Research.

Afrobarometer, & NOI Polls. (2019). *Public opinion on electricity supply and sector reforms in Nigeria. Lagos, Nigeria*: NOI Polls/Afrobarometer.

Nigerian Electricity Regulatory Commission (NERC), & Federal Ministry of Power. (2019). *Electric power sector reform implementation review.* Abuja, Nigeria: NERC.

Nigerian Economic Summit Group (NESG). (2022). Independent audit of the power sector recovery program (PSRP). Abuja, Nigeria: NESG.

National Bureau of Statistics. (2024). *Nigeria Residential Energy Demand-Side Survey (NREDSS),* 2024. Abuja, Nigeria: National Bureau of Statistics.

National Bureau of Statistics. (2024). Electricity report: Q1 2024. Abuja, Nigeria: NBS.

Nigerian Electricity Regulatory Commission (NERC). (2023). Market Competition Report.

Nigerian Economic Summit Group (NESG), & World Bank. (2020). Nigeria power sector recovery program (PSRP): Policy and economic implications. Abuja, Nigeria: NESG.

Nigerian Electricity Regulatory Commission (NERC), & National Assembly. (2018). Report on legislative oversight of the electricity sector. Abuja, Nigeria: NERC.

Power Africa, & Nigerian Economic Summit Group (NESG). (2021). Private sector perspectives on Nigeria's electricity market reforms. Washington, DC/Abuja: Power Africa & NESG.

Premium Times. (2024). Nigeria's electricity grid collapsed 105 times in 10 years – TCN.

Reuters. (2024). Nigeria secures $500 million World Bank loan for electricity sector.

Sustainable Energy for All (SE4ALL). (2016). *Nigeria's sustainable energy for all action agenda.* Abuja, Nigeria: SE4ALL Secretariat.

Sustainable Energy for All (SE4ALL). (2020). Energy progress report: Tracking SDG7 in Nigeria. Washington, DC: SE4ALL.

Transmission Company of Nigeria (TCN), & World Bank. (2020). *Nigeria transmission expansion and rehabilitation project report. Abuja, Nigeria:* TCN/World Bank.

World Bank, & African Development Bank (AfDB). (2021). Nigeria energy sector assessment. Washington, DC/Abidjan: World Bank & AfDB.

World Bank, AfDB, & Sustainable Energy for All (SE4ALL). (2022). Nigeria electrification project (NEP): Progress update. Washington, DC: World Bank.

World Bank. (2023, December 15). Nigeria: Distributed Access through Renewable Energy Scale-up (DARES) [Press release]. World Bank.

World Bank. (2025). Tracking Sustainable Development Goal 7: The Energy Progress Report 2025. Washington, DC: World Bank.

World Bank. (2015). Access to electricity (% of population).

World Bank. (2017). Power sector recovery program (PSRP): Program overview for Nigeria. Washington, DC: World Bank.

World Bank. (2021). *Nigeria power sector recovery program: Implementation status report*. Washington, DC: World Bank.

World Bank Group. (2014). *World Bank Development Indicators*: Countries and Economies.

World Bank Group. (2022). *Nigeria Country Economic Memorandum Technical Notes*: Charting a New course.

https://documents1.worldbank.org/curated/en/099020112132213046/pdf/P176197054acf60380a7cf05e6db6e3df2d.pdf 19/1/2025

Vega, A, Maguiña, J, Soto, A, Lama, V, Jaime, L, L. (2021). *Cross-sectional studies*. Revista de la Facultad de Medicina Humana.

Youngwook, C. (2022). *Energy Poverty in Niger.*https://borgenproject.org/energy-poverty-in-nigeria-2(August 10 2024)