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Legal and institutional pathways to energy transition in Nigeria: Challenges, opportunities and reform imperatives

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Abstract: The global energy transition is reshaping international energy governance, finance and law, yet resource-dependent developing economies such as Nigeria face the difficult task of reconciling continued exploitation of hydrocarbons with the transition to cleaner energy. This article examines whether Nigeria's existing legal and institutional architecture is capable of supporting that transition. Using a doctrinal research methodology, it analyses relevant legislation, policies and institutional arrangements governing energy transition.

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It argues that Nigeria's principal challenge is not the absence of transition-related laws and institutions, but the fragmented and poorly coordinated manner in which they operate. The article concludes that a coherent, predictable and adequately resourced governance architecture is essential to translating Nigeria's energy-transition commitments into sustained implementation. It recommends harmonising existing laws and institutional mandates, strengthening inter-agency coordination and technical capacity, expanding dedicated financing mechanisms, and addressing policy and security constraints that impede energy development.

Key words: climate change; electricity; energy security; energy transition; renewable energy

1 Introduction

Energy is indispensable to economic development, industrialisation, technological advancement and social welfare.[1] Access to reliable, affordable and sustainable energy remains a fundamental prerequisite for economic growth, poverty reduction, environmental sustainability and national competitiveness.[2] However, increasing concerns over climate change, environmental degradation, energy security and access and the long-term sustainability of fossil fuel dependence have prompted a fundamental rethinking of how energy is produced and consumed.[3] For Nigeria, the transition presents both significant opportunities and complex challenges. The country possesses abundant renewable energy resources, including solar, wind, hydropower, biomass and geothermal energy. If Nigeria's renewable energy potential is effectively harnessed and integrated into the national grid, it could significantly increase electricity generation beyond the 5 105 megawatts recorded in July 2024.[4]

However, on the challenge side, Nigeria remains heavily dependent on crude oil and natural gas, with the petroleum sector still dominating a substantial source of government revenue and foreign exchange earnings.[5] This dependence is a delicate policy and legal dilemma. On the one hand, Nigeria must honour its

1 AS Vendaga 'Decentralisation of the Nigerian Electricity Industry (NESI): Prospects and challenges' BarristerNG (web blog) 9 December 2023, https://barristerng.com/decentralization-of-the-nigerian-electricity-industry-nesi-prospects-and-challenges-by-ater-solomon-vendaga%C2%B7/ (accessed 1 December 2025).

2 Y Devarajan and others 'Advancing SDG-7 for affordable and clean energy: Decentralised energy access pathways, policy-finance barriers, and AI-enabled transition strategies' (2026) 45 *International Journal of Sustainable Energy*, https://doi.org/10.1080/14786451.2026.2620883 (accessed 1 December 2025).

3 Yuan Yang and others 'Energy transition: Connotations, mechanisms and effects' (2024) 52 *Energy Strategy Reviews* 101320.

4 OJ Olujobi and others 'Carbon emission, solid waste management and electricity generation: A legal and empirical perspective for renewable energy in Nigeria' (2022) 22 *International Environmental Agreements: Politics, Law and Economics* 599; D Adaji 'Power generation hits three-year high of 5,105MW' *The Punch* 8 August 2024, https://punchng.com/power-generation-hits-three-year-high-of-5105mw/ (accessed 21 August 2026.)

5 OJ Olujobi and others 'COVID-19 pandemic: The impacts of crude oil price shock on Nigeria's economy, legal and policy options' (2022) 14 *Sustainability* 11166, https://doi.org/10.3390/su141811166. (accessed on 1 December 2025).

international climate obligations and progressively decarbonise its economy; on the other, it must safeguard energy security, economic development, employment and fiscal stability within a predominantly hydrocarbon-based economy. This article argues that Nigeria's transition is hindered less by inadequate laws than by fragmented institutions, weak coordination and limited implementation capacity. The challenge, therefore, lies not merely in replacing fossil fuels with renewable energy, but in establishing a coherent legal and institutional framework capable of managing a just, orderly and economically sustainable transition.

Recognising these realities, Nigeria has undertaken a series of legislative, regulatory and policy reforms designed to facilitate energy transition. At the international level, Nigeria is a party to the Paris Agreement and has committed itself to achieving net-zero greenhouse gas emissions by 2060.[6] Domestically, this commitment has been reinforced through the enactment of the Climate Change Act, 2021, the Petroleum Industry Act, 2021, and the Electricity Act, 2023, together with the adoption of the National Energy Transition Plan and other renewable energy policies. Collectively, these instruments seek to promote low-carbon development, improve electricity access, encourage renewable energy investment, strengthen climate governance and enhance the sustainability of the Nigerian energy sector.[7] The Fifth Alteration to the 1999 Constitution further advances electricity-sector decentralisation by enabling states to establish and regulate electricity markets within their jurisdictions. This creates greater scope for state-led and decentralised renewable energy projects.[8] Despite these reforms, however, their impact remains constrained by weak implementation, institutional fragmentation and limited coordination among relevant agencies.

The implementation of these legal reforms is supported by an evolving institutional framework comprising the National Council on Climate Change, the Nigerian Electricity Regulatory Commission, the Nigerian Upstream Petroleum Regulatory Commission, the Nigerian Midstream and Downstream Petroleum Regulatory Authority, the Energy Commission of Nigeria, the Rural Electrification Agency, and other specialised institutions responsible for regulating various aspects of Nigeria's energy sector. These institutions perform complementary regulatory, supervisory and policy functions intended to facilitate the country's transition towards a more diversified, sustainable, and resilient energy system.

6 C Nriezedi-Anejionu 'Nigeria net-zero 2060' African Law & Business (Web blog) 31 July 2025, https://www.africanlawbusiness.com/expert-views/nigeria-net-zero-2060/ (accessed 29 June 2026).

7 Nigeria Energy Transition Plan 'Natural Gas', https://www.energytransition.gov.ng/natural-gas/ (accessed 29 June 2026).

8 Enugu, eg, has established a state electricity regulatory framework and adopted the Enugu State Off-Grid Electrification Regulations 2025, creating a clearer basis for state-led and decentralised renewable energy projects.

Despite these significant legislative and institutional developments, the effectiveness of Nigeria's energy transition framework remains subject to considerable legal and regulatory challenges. The existing framework is characterised by fragmented legislation, overlapping institutional responsibilities, inconsistent policy implementation, regulatory uncertainty, weak inter-agency coordination, inadequate enforcement mechanisms, and the absence of a comprehensive legislative framework specifically dedicated to energy transition. While several statutes and policies regulate aspects of renewable energy, electricity, climate change, environmental protection and petroleum operations, they do not operate within an integrated legal framework capable of providing coherent governance for Nigeria's transition towards a low-carbon economy. Again, the co-existence of legislation promoting continued hydrocarbon development alongside laws encouraging decarbonisation have equally heightened the complexity of Nigeria's transition agenda and raises important questions regarding regulatory coherence, institutional effectiveness and policy consistency.

Consequently, these challenges, together with the inefficiencies around financing constraints, inadequate infrastructure, technological limitations, limited institutional capacity and competing developmental priorities, have continued to stall the transition agenda. In fact, as global investment increasingly shifts towards environmentally sustainable projects, jurisdictions seeking to attract investment in renewable energy require legal systems that provide regulatory certainty, institutional accountability, effective dispute resolution mechanisms and transparent governance structures.[9] For Nigeria, however, fragmented institutional mandates, regulatory uncertainty and weak coordination can increase investment risks and undermine confidence in renewable energy projects. Thus, the quality of a country's legal and institutional framework has become an important determinant of investor confidence, renewable energy deployment and successful energy transition. Against this backdrop, this article examines the legal and institutional framework governing energy transition in Nigeria, with a view to evaluating its effectiveness, identifying existing regulatory and institutional gaps, and proposing reforms capable of strengthening Nigeria's transition towards a secure, sustainable and low-carbon energy future.

To achieve this purpose, the article is structured into five main parts. The first part is the introduction, while part 2 conceptualises energy transition and the energy sustainability trilemma; part 3 analyses the existing legal and institutional frameworks governing the sector; part 4 evaluates the key challenges facing Nigeria and opportunities in the transition agenda; and, finally, part 5 concludes with targeted recommendations for legislative and structural reform.

9 S Azubuike, E Emeseh & DY Amakiri 'Climate change, energy transition, and the Global South: Learnings from the international framework on the ozone layer' (2024) 42 *Journal of Energy & Natural Resources Law* 255-277.

2 Conceptualising energy transition

Energy transition is the shift from reliance on fossil fuels to renewable and cleaner energy sources. It is commonly understood as

> a process of fundamental transformation of the main elements of the energy system towards a new configuration of energy service, embodied in a prolonged chain and complex system involving energy production, storage, transmission and consumption, energy technologies, management, and practices related to energy security, geopolitics, and energy governance.[10]

Historically, three major energy transitions have occurred.[11] The first involved a shift from traditional biomass, particularly firewood, to coal as the dominant energy source. The second transition was marked by the gradual replacement of coal with oil, which became central to industrial development and global transport systems. The third, which remains ongoing and forms the focus of this article, involves the transition away from fossil fuels toward renewable and low-carbon energy systems.[12] Fundamentally, this contemporary low-carbon transition anticipates an energy system increasingly driven by clean electricity, with the overarching objective of achieving net-zero greenhouse gas emissions by 2050.[13]

Unlike energy revolutions of the past, the low-carbon transition is not driven by scarcity or the discovery of new energy resources, but is propelled by the urgent need to mitigate climate change.[14] Thus, it is observed that the transition is driven by the convergence of international climate policy, technological innovation and evolving global finance structures.[15] Of particular relevance are the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.[16] These instruments provide the primary framework for energy transition. They require participating states to align financial flows with low-emission, climate-resilient development pathways.[17] As a state party to both instruments, Nigeria has undertaken commitments to reduce emissions and pursue low-carbon development, including through its nationally determined contributions (NDCs) and its 2060 net-zero target. These commitments provide an international basis for Nigeria's domestic energy-transition policies and reforms.

10 Yang and others (n 3) 101320.
11 As above.
12 As above.
13 As above.
14 UN Secretariat of the High-Level Dialogue on Energy 'Theme report on energy transition: Towards the achievement of SDG 7 and net-zero emissions' (United Nations 2021).
15 B Tamang 'Global climate change: Challenges, opportunities, and multilateral strategies for sustainable development' (2024) 1 *NPRC Journal of Multidisciplinary Research* 65-77.
16 United Nations Framework Convention on Climate Change 'The Paris Agreement', https://unfccc.int/process-and-meetings/the-paris-agreement (accessed 29 July 2026).
17 As above.

These international instruments are reinforced by domestic policy imperatives such as Renewable Portfolio Standards (RPS), feed-in tariffs, carbon pricing mechanisms, and other regulatory incentives designed to stimulate investment in renewable energy deployment. Other efforts include technological advances that are reducing the cost of renewable energy, especially by making solar and wind among the most competitive sources of new electricity generation, with battery energy storage systems (BESS) playing a crucial role in grid stability and reliability.[18] Similarly, emerging grid-forming batteries now provide functions traditionally supplied by fossil fuel plants. Green hydrogen is also gaining importance in decarbonising hard-to-abate sectors, while hydropower continues to supply dependable baseload electricity that supports the integration of intermittent renewables.[19]

Despite these developments, developing economies such as Nigeria,[20] however, often face high perceived investment risk, weak regulatory frameworks, and the absence of equitable just-transition mechanisms addressing the socio-economic consequences for fossil-fuel-dependent communities.[21] This is compounded by the energy sustainability trilemma of balancing affordability, reliability and environmental sustainability. There is no discussion on energy transition that does not include just transition.

A just energy transition is the process of shifting from fossil fuel-reliant systems to cleaner, renewable sources in a manner that is fair and equitable for all affected, including workers and communities historically dependent on fossil fuels.[22] The concept originated in the labour movement and is now a core principle of international climate governance. The International Labour Organisation (ILO) defines it as greening the economy fairly and inclusively, creating decent work, reducing poverty and leaving no one behind.[23] In Nigeria, just transition is particularly significant because reducing dependence on oil and gas could affect employment, public revenues and livelihoods in oil-producing communities. Nigeria's Energy Transition Plan, therefore, recognises the need to manage potential oil-sector job losses through reskilling, alternative livelihoods

18 O Tatarenko and others 'Case study – Storing green hydrogen to safeguard energy security' (Rocky Mountain Institute 2023), https://rmi.org/insight/case-study-storing-green-hydrogen-to-safeguard-energy-security/ (accessed 1 July 2026).
19 As above.
20 ZYI Abba, N Balta-Ozkan & G Drew 'Catalysing decentralised renewable energy investment in Nigeria: Investor-focused risk evaluation and de-risking strategies' (2025) 7 *Renewable and Sustainable Energy Transition* 100112, https://doi.org/10.1016/j.rset.2025.100112 (accessed 21 August 2026).
21 O Osude 'Energy transition and legal challenges in shifting from fossil fuels to clean energy: A United States perspective' (2023) *International Journal of Law and Societal Studies* 134, https://www.bluemarkpublishers.com/index.php/IJLSS (accessed 1 July 2026).
22 International Labour Organisation 'Just transition towards environmentally sustainable economies and societies', https://www.ilo.org/topics-and-sectors/just-transition-towards-environmentally-sustainable-economies-and-societies (accessed 30 July 2026).
23 As above.

and the creation of employment opportunities in renewable energy and other emerging sectors.[24]

Similarly, the International Energy Agency stresses that net-zero pathways must address employment, affordability, energy access and public participation alongside climate objectives.[25] Heffron and McCauley argue that justice should be a central principle of energy law and policy, since transitions inevitably create both beneficiaries and disadvantaged groups; an effective transition, therefore, requires legal and institutional frameworks capable of ensuring distributive justice, procedural fairness, and restorative measures for affected communities and workers.[26]

3 Legal and institutional framework for energy transition

3.1 Legal framework for energy transition in Nigeria

3.1.1 Constitution of the Federal Republic of Nigeria (1999, as amended)

The Constitution of the Federal Republic of Nigeria (CFRN) is the *grundnorm* that provides the foundation for every other law in Nigeria.[27] Section 4 particularly vests the legislative powers of the Federation in the National Assembly, comprising the Senate and the House of Representatives, and the legislative powers of a state in the House of Assembly and empowers it to make laws for the peace, order and good government of the Federation and states on matters contained in the Exclusive and Concurrent Legislative Lists. This provision provides the constitutional authority for the enactment of legislation such as the Climate Change Act, 2021, the Petroleum Industry Act, 2021 and the Electricity Act, 2023, which collectively established the legal framework for Nigeria's transition.

The Constitution (Fifth Alteration) Act 17, assented to in March 2023, amended Paragraph 14(b), Part II of the Second Schedule by deleting the phrase 'not covered by the national grid system', thereby clarifying the power of states to establish independent electricity markets. This amendment is significant for states such as Lagos, Edo and Kaduna, which had already begun developing their own electricity markets, as it enables states to develop electricity solutions suited to local resources and demand, including off-grid and distributed renewable systems. Enugu's adoption of the Off-Grid Electrification Regulations, 2025 earlier captured in the introduction demonstrates how this decentralisation

24 Nigeria Energy Transition Plan 'Oil and Gas', https://energytransition.gov.ng/oil-gas/ (accessed 21 August 2026).
25 International Energy Agency 'World Energy Outlook 2025: Net Zero Emissions by 2050' (IEA 2025), https://www.iea.org/reports/world-energy-outlook-2025/net-zero-emissions-by-2050 (accessed 30 July 2026).
26 RJ Heffron & D McCauley 'What is the "just transition"?' (2018) 88 *Geoforum* 74, https://doi.org/10.1016/j.geoforum.2017.11.016 (accessed 30 July 2026).
27 Constitution of the Federal Republic of Nigeria 1999 (as amended).

can support state-level frameworks for renewable energy development, making the amendment an important step towards addressing Nigeria's power supply challenges and advancing renewable energy.

Other constitutional provisions, such as sections 16, 17, 19 and 20 of Chapter II of the Constitution, promote environmental protection, sustainable economic development and social welfare, all of which underpin Nigeria's transition to a low-carbon economy. Although these provisions are generally non-justiciable under section 6(6)(c), the courts have recognised that they may acquire enforceable effect through legislation.[28] Nigerian courts have adopted a more expansive approach to their justiciability. In *Attorney-General of Ondo State v Attorney-General of the Federation*,[29] the Supreme Court recognised that Chapter II provisions may acquire enforceable effect through legislation. Accordingly, the non-justiciability of Chapter II does not preclude the pursuit of environmental protection through other enforceable legal rights and statutory mechanisms. This development is particularly relevant to environmental protection. In *Jonah Gbemre v Shell Petroleum Development Company of Nigeria Ltd*,[30] environmental harm was addressed through the enforceable rights to life and human dignity, while *Centre for Oil Pollution Watch v NNPC*[31] demonstrated the courts' willingness to facilitate environmental litigation.

3.1.2 Electricity Act, 2023

The Electricity Act (EA) 2023 repeals the Electric Power Sector Reform Act, 2005 (EPSRA) and consolidates all the laws governing the power sector in Nigeria. EA provides a comprehensive framework to guide accelerated growth in generation capacity, transmission expansion, market development and third-party investment, while promoting local content and strengthening federal-state coordination.[32] Building on the gains of the Fifth Alteration Act, 2023, the Act for the first time provides for the decentralised electricity market by empowering states to make laws that establish independent electricity markets and regulatory authorities.[33] However, the effectiveness of this framework depends on states exercising these powers and on the Nigerian Electricity Regulatory Commission (NERC) transferring regulatory oversight in accordance with the Act.[34] Of particular relevance to this study is the fact that the EA seeks to integrate renewable energy into Nigeria's energy mix through specific mechanisms,

28 Olujobi and others (n 4).
29 *A-G, Ondo State v A-G, Fed* (2002) 9 NWLR (Pt 772) 222.
30 Suit FHC/B/CS/53/05 (unreported).
31 (2019) 5 NWLR (Pt 1666) 518.
32 Electricity Act 2023, Explanatory Memorandum.
33 Electricity Act 2023 sec 2(2).
34 As of July 2026, 16 states have transitioned into their established electricity markets as reported by NERC Nigerian Electricity Regulatory Commission 'The Transition to State Electricity Regulation: Key Takeaways & The New SERC Directory' 22 July 2026, https://nerc.gov.ng/media/the-transition-to-state-electricity-regulation-key-takeaways-the-new-serc-directory/ (accessed 21 August 2026).

including provisions on embedded generation, mini-grids and feed-in tariffs, while establishing a comprehensive legal and institutional framework for the operation of the electricity market in Nigeria.[35]

Similarly, the development and utilisation of renewable energy are among the key objectives of the Act. It promotes embedded generation, hybridised generation, cogeneration and generation from solar, wind, small hydro, biomass and other renewable sources. The Act empowers NERC to oversee the implementation of the renewable provisions. Section 164 of the Act requires NERC to implement multiple measures to increase the contribution of renewable energy to Nigeria's energy mix. Some of the key measures include simplification of licensing and fees regime for issuance of licences to renewable energy service companies; provision of regulations specifying the role of generation licensees, transmission service providers and Independent System Operator distribution licensees in the integration of renewable energy generated capacity into the national grid and distribution network; provision of mini-grid regulations on renewable energy to cater for installation, metering and other requirements for renewable energy mini-grid Systems; review of the extant National Content Development Regulations for the power sector to address local content requirements for local skills acquisition, local production, and assembly of solar photovoltaics (PV) components, deep cycle batteries, electromechanical components of small hydropower technology, wind power, boilers and turbines for cogeneration of less than 30 megawatts or other components specified by NERC for local contents requirements; ensuring stable and long-term favourable pricing mechanism for renewable energy; introduction of feed-in tariffs for all small hydro schemes, all biomass co-generation power plants, solar and wind-based plants irrespective of their sizes, within the terms of the tariffs to be up to 20 years, to guarantee buyers under standard power purchase agreements (PPAs) and provide return on investments; provision of support to REA towards efficient implementation of rural electrification using renewable energy sources specified under EA issuance of renewable energy standards on installation; decommissioning and disposal of renewable energy accessories and monitor compliance in conjunction with other relevant ministries, departments and agencies with mandates on product safety and standards and issuance of guidelines on net-metering for roof-top solar PV systems, small wind power in line with the provisions of this Act regarding the procedure for adoption of guidelines or other regulatory documents by the Commission.[36]

Section 164 extensively provides the measures to address several structural barriers to renewable energy deployment by reducing regulatory burdens, improving investment certainty, supporting decentralised generation and encouraging domestic production. The provision on feed-in tariffs, for instance,

35 Electricity Act 2023 secs 1, 164-171, 80 & 65.
36 Electricity Act 2023 secs 164-165.

seeks to provide long-term price certainty and guaranteed off-take through standard power purchase agreements, thereby improving the bankability of renewable energy projects. Similarly, the provisions on mini-grids and net metering create regulatory pathways for distributed generation and rooftop solar. Section 166 mandates the Federal Ministry of Finance to introduce tax incentives for renewable energy generation and consumption. Consistent with this, the value-added tax reforms under the 2025 Tax Reforms Acts exempt several clean energy products and services, including CNG conversion kits, electric vehicles, CNG conversion services, biogas equipment and renewable energy infrastructure from value added tax. NTA also categorised as zero rated the following electricity generated by generation companies (GENCOs) and supplied to National Grid or Nigeria Bulk Electricity Trading Company (NBET); electricity transmitted by Transmission Company of Nigeria (TCN) to Electricity Distribution Companies (DISCOs).[37] Such fiscal incentives reduce project costs, improve affordability of clean technologies and enhance investor confidence in Nigeria's renewable energy sector. These fiscal reforms demonstrate a gradual shift from general energy subsidies towards targeted incentives that support the country's long-term decarbonisation objectives.

Equally important to the transition agenda, section 168 requires distribution utilities to contract with renewable generators only in accordance with Commission guidelines, with approved feed-in tariffs published in the Federal Gazette.[38] Given Nigeria's rapidly growing energy demand, which cannot be sustainably met by finite fossil fuel sources, the promotion of renewable energy in the Act, particularly for rural electrification, is a welcome development, though its effectiveness depends heavily on implementation.

3.1.3 Mini-Grid Regulations, 2023

The Mini-Grid Regulations, 2023, issued by NERC, improved significantly upon the 2016 regulations. The Regulations provide clearer requirements for licensing, technical standards, tariffs, customer complaints and dispute resolution, while requiring operators to maintain defined service obligations. They also retain important grid-arrival protections: A distribution licensee must give a mini-grid operator 12 months' written notice before extending its network into the mini-grid's area, with arrangements for the continued operation or transfer of the mini-grid and compensation for eligible assets.[39] These provisions improve accountability by subjecting operators to regulatory and customer-protection requirements while reducing the risk that grid expansion will strand private investment. Their significance is particularly evident in Nigeria's electrification strategy, where mini-grids are intended to serve unserved and underserved

37 Nigeria Tax Act 2025 sec 186.
38 Electricity Act 2023 secs 166 & 168.
39 Mini-Grid Regulations 2023 paras 20(2)-(4).

communities; the Rural Electrification Agency's current programmes incorporate service standards, technical requirements, environmental safeguards and reporting obligations into mini-grid projects.[40] By addressing this key regulatory weakness and adopting international best practices, the Regulations mark a pivotal, investor-friendly step for decentralised renewable energy, particularly in underserved rural areas, notwithstanding persistent challenges around financing and tariff viability.

3.1.4 Net Billing Regulation, 2026

The NERC Net Billing Regulation 2026 (Regulation NERC-R-002-2026) is a significant regulatory instrument supporting Nigeria's energy transition agenda by creating a legal framework for the integration of distributed renewable energy systems, particularly rooftop solar photovoltaic (PV) installations, into the national electricity grid.[41] The Regulation is made pursuant to section 226 of the Electricity Act 2023 and establishes the procedures, technical standards, metering requirements, commercial arrangements and settlement mechanisms governing net billing arrangements. From an energy transition perspective, the Regulation advances Nigeria's shift towards cleaner energy by incentivising consumers to generate electricity from renewable sources and export surplus electricity to the distribution network in exchange for billing credits. This transforms electricity consumers into 'prosumers', thereby encouraging private investment in renewable energy technologies and reducing dependence on fossil-fuel-based electricity generation.

3.1.5 NERC Renewable Energy Feed-in Tariffs Regulations, 2015

NERC approved the Feed-in Tariff Regulations for Renewable Energy Sourced Electricity in 2015. The Regulation on Feed-in-Tariff for Renewable Energy Sourced Electricity in Nigeria in 2015 (FIT Regulation) was adopted by NERC to facilitate the integration of renewable into the national grid through a mandatory obligation on NBET, the bulk electricity purchaser, to buy electricity from renewable developers that meet the prerequisites.[42] These Regulations set specific tariffs for renewable power plants with a capacity between 1 and 30 megawatts. The Regulations also mandate that the Nigerian Bulk Electricity Trader (NBET) procure 50 per cent of the electricity generated from these plants, with the remaining 50 per cent to be procured by distribution companies.[43] By virtue of

40 Rural Electrification Agency 'Mini Grid' (Distributed Access through Renewable Energy Scale-Up (DARES)), https://www.dares.rea.gov.ng/mini-grid.html (accessed 21 August 2026).
41 Net Billing Regulations, 2023 Reg 3.
42 Alliance Law Firm 'Renewable energy comparative guide – Nigeria' *Monda* 24 July 2025, https://www.mondaq.com/nigeria/energy/1368422/renewable-energy-comparative-guide (accessed 18 July 2026).
43 Renewable Energy Feed-in Tariffs Regulations 2015 paras 5(f), 6 & 7.

section 231(3) of the Electricity Act, 2023, this regulation continues to have the effect of law insofar as it has not conflicted with the provisions of the main Act.

3.1.6 Petroleum Industry Act, 2021

The Petroleum Industry Act, 2021 (PIA) modernises the legal framework for the oil and gas industry, creating efficient governing institutions, a commercially oriented national petroleum company, a more robust fiscal structure, and improved local content practice. Of particular relevance to Nigeria's energy transition, PIA promotes natural gas as a transition fuel by providing fiscal incentives designed to encourage domestic gas utilisation and the development of gas infrastructure. Under section 302 of the Act, companies engaged in domestic midstream petroleum operations, downstream gas operations and large-scale gas utilisation industries are entitled to the incentives. However, with the consequential amendment of PIA by the Nigeria Tax Act, 2025, which sought to consolidate all fiscal provisions in Nigeria, section 80 of the Nigeria Tax Act grants qualifying investors in gas pipelines an additional five-year tax-free period upon the expiration of the Economic Development Tax Incentive provided under Part II of Chapter 8 of the Act, thereby extending the total tax relief available to eligible gas pipeline investments.

Similarly, PIA establishes a Midstream and Downstream Gas Infrastructure Fund financed by 0,5 per cent of wholesale petroleum and gas sales, deployed as equity investment to increase domestic gas consumption, encourage private investment in high-risk projects and reduce gas flaring.[44] If judiciously deployed, the Fund could support a medium-term shift from oil to gas that meaningfully reduces the sector's carbon intensity, consistent with a gradual, gas-anchored transition to renewables.[45] Nigeria's Energy Transition Plan recognises gas as a transition fuel, particularly for establishing baseload capacity and stabilising the grid to facilitate the integration of renewables. However, the Plan also envisages this role as temporary: Gas consumption is projected to increase by about 25 per cent above the 2019 baseline by 2030 before declining to approximately 50 per cent of the 2019 level as Nigeria approaches its 2060 carbon-neutrality target.[46] This reinforces the need to ensure that gas investment under the PIA supports, rather than delays, the progressive deployment of renewable energy.

PIA also requires NNPC Limited to engage in renewable resource development in competition with private investors, and establishes a Frontier Exploration Fund, financed by rents on petroleum licences and a share of NNPC

44 Petroleum Industry Act 2021 sec 52.
45 O Ukoha 'The PIA and gas as transition fuel' *THISDAY* 6 September 2021, https://www.thisdaylive.com/2021/09/06/the-pia-and-gas-as-transition-fuel/ (accessed 1 December 2025).
46 T Oladapo 'Nigeria: A climate look past and forward' *Climate Scorecard* 18 February 2023, https://www.climatescorecard.org/2023/02/nigeria-a-climate-look-past-and-forward/ (accessed 21 August 2026).

Limited's profit oil and gas, dedicated to frontier acreage development.[47] Due to the high-risk nature of exploration and the avoidance of emission-intensive assets by investors, these funds arguably compete for capital better directed toward gas, hydrogen, solar and wind projects. Nigeria could instead consider redirecting such resources toward a dedicated 'Future Energy Fund' to support broader decarbonisation and abatement technologies. On the World Economic Forum (WEF)'s Energy Transition Index, Nigeria ranked 108th out of 120 countries in 2023, reflecting significant weaknesses in its overall transition readiness. The Index identifies regulatory frameworks, investment conditions, infrastructure, skills and institutional capacity as key enablers of effective transition. While Nigeria performed relatively better on regulation and political commitment, the WEF notes that significant investment, stronger institutional and fiscal frameworks, improved planning and greater policy harmonisation remain necessary to translate these commitments into effective action.[48] This suggests that Nigeria's principal challenge is not simply the absence of policy commitment, but the capacity of its legal and institutional structures to translate existing commitments into coordinated and adequately financed implementation.

Relatedly, the Federal Government's Presidential Compressed Natural Gas Initiative (P-CNGi) aims to convert ten million petrol-powered vehicles to compressed natural gas within 36 months, offering a cheaper, lower-emission alternative to petrol amid escalating fuel costs.[49] While CNG offers real transitional benefits in cost, emissions and energy security, successful implementation requires addressing infrastructure development, safety and public awareness, alongside the longer-term goal of transitioning to electric vehicles and renewable energy. While CNG offers short-term transitional benefits, prolonged investment in CNG vehicles and infrastructure could delay transport electrification by diverting investment from electric vehicles and charging infrastructure. CNG, therefore, should remain a transitional measure within a broader pathway towards electric and renewable-powered transport.

3.1.7 Climate Change Act, 2021

The Climate Change Act, 2021 (CCA) provides a framework for achieving low greenhouse gas emissions, inclusive green growth and sustainable economic development, targeting net-zero emissions between 2050 and 2070.[50] It establishes the National Council on Climate Change, vested with powers to make climate

47 Petroleum Industry Act 2021 sec 9.
48 World Economic Forum 'Fostering effective energy transition 2023' 28 June 2023, https://www.weforum.org/publications/fostering-effective-energy-transition-2023/ (accessed 29 July 2026).
49 M Olajide 'Transitioning to CNG in Nigeria: A paradigm shift toward sustainability and a new hope for Nigerians' *UIMSA Press* 9 July 2024, https://uimsapress.org/transitioning-to-cng-in-nigeria-a-paradigm-shift-toward-sustainability-and-a-new-hope-for-nigerians/ (accessed 19 July 2026).
50 Climate Change Act 2021 sec 1.

policy decisions, and a Climate Change Fund financed by donations, grants, NDC-related international funds, fines, carbon tax, and emissions trading, applied toward advocacy, mitigation and adaptation projects, and incentives for private and public entities transitioning to clean energy.[51] CCA mandates a National Climate Change Action Plan every five years, consistent with an approved carbon budget, and imposes emission-reduction obligations on private entities with 50 or more employees and on public entities, while empowering courts to order the prevention, cessation or compensation of environmentally harmful acts, including climate change harms.[52] Notably, CCA does not itself plan for suitable low-carbon alternatives, leaving Nigeria's fossil-fuel-dependent economy exposed to global oil price volatility and the pressures of the green economy transition.

3.1.8 National Agency for the Great Green Wall (Establishment) Act, 2015

The National Agency for the Great Green Wall (Establishment) Act, 2015 (NAGGWA) provides for the institutional framework for the implementation of the Great Green Wall Programme in Nigeria and addressing drought, desertification and land degradation. To achieve these, NAGGWA establishes National Agency for the Great Green Wall[53] as well as its governing body, the National Council on the Great Green Wall.[54] The functions of National Agency for the Great Green Wall under NAGGWA include implementing the Great Green Wall Programme, coordinating relevant governmental and other institutions, building capacity and skills at federal, state and local community levels, promoting sustainable natural-resource management, rehabilitating degraded land and ecosystems, and ensuring compliance with relevant environmental conventions and agreements.[55] NAGGWA also adopts a decentralised approach to implementation by promoting training, human-capacity development and technology transfer at state, local government and community levels.[56] These provisions provide an important foundation for a locally grounded approach to environmental and climate-transition initiatives, particularly by linking institutional coordination with skills development, technology transfer and community-level participation. However, unlike NOGICDA, NAGGWA does not establish specific local-content quotas or preferential requirements for Nigerian enterprises. Its contribution to local content in the emerging green economy, therefore, lies principally in its capacity-building, technology-transfer and decentralised implementation mechanisms, which could be strengthened to promote greater Nigerian participation in renewable energy, ecological restoration and other green-economy activities.

51 Climate Change Act 2021 secs 15-20.
52 Climate Change Act 2021 secs 23-29.
53 National Agency for the Great Green Wall Act 2015 sec 2.
54 National Agency for the Great Green Wall Act 2015 sec 3.
55 National Agency for the Great Green Wall Act 2015 sec 6.
56 National Agency for the Great Green Wall Act 2015 sec 19(4).

3.1.9 Nigerian Oil and Gas Industry Content Development Act, 2010

The Nigerian Oil and Gas Industry Content Development Act, 2010 (NOGICD) provides the legal framework for local content development in the oil and gas sector, mandating priority for Nigerian companies and personnel, and its principles extend by analogy to the energy transition. It establishes a Governing Council and Nigerian Content Monitoring Board, requires Board approval for major contracts, mandates first consideration for Nigerians in employment and training, caps expatriate management positions at 5 per cent, and requires succession planning, technology transfer, the use of Nigerian professional services, and annual content performance reporting.[57] NOGICDA embodies an interventionist model aimed at the eventual indigenisation of the oil and gas industry, a model that could usefully inform local content requirements in Nigeria's emerging renewable energy sector. However, its oil-and-gas model cannot be transplanted wholesale to renewable energy, given the sector's diverse technologies, smaller-scale projects and dependence on imported equipment. Renewable energy local-content rules should, therefore, adopt a gradual approach focused on skills, technology transfer and domestic manufacturing without imposing rigid requirements that could raise costs or deter investment.

3.2 Nigeria energy transition policies

Nigeria has adopted several energy policies aimed at energy transition. Some of the most relevant policies are examined below:

3.2.1 Nigeria Energy Transition Plan, 2022

Nigeria's National Energy Policy serves as the blueprint for transition, aiming to diversify the energy mix away from fossil fuels. It is operationalised through the Nigeria Energy Transition Plan (ETP), a data-driven, multi-pronged strategy targeting net-zero emissions by 2060 across the power, cooking, oil and gas, transport and industry sectors.[58] Launched on 24 August 2022 by the Federal Government and the Energy Transition Implementation Working Group, ETP is a comprehensive strategy targeting 277 gigawatts of installed power capacity by 2060, treating natural gas as an ideal transitional fuel that provides flexible supply alongside intermittent solar and wind and enables the scaling of hydrogen storage technologies.[59] The Plan focuses on key sectors such as power, cooking, oil and

57 Nigerian Oil and Gas Industry Content Development Act 2010 secs 17, 28-31, 42, 49, 55-56, 60 & 69-71.

58 SE Ajose-Adeogun 'Analysing Nigeria's energy transition plan' *BusinessDay* 15 October 2025, https://businessday.ng/opinion/article/analysing-nigerias-energy-transition-plan/ (accessed 30 July 2026).

59 Sustainable Energy for All 'Nigeria energy transition and investment plan', https://www.seforall.org/our-work/initiatives-projects/energy-transition-plans/nigeria (accessed 30 July 2026).

gas, transport and industry. Its key objectives include poverty eradication for over 100 million people, sustainable economic growth, universal electricity access, mobilisation of private investment, and managed transition of jobs from the traditional energy sector. However, the implementation of ETP has not matched its ambition, as financing constraints, infrastructure deficits and institutional weaknesses continue to limit the translation of its targets into measurable energy-transition outcomes.

3.2.2 National Renewable Energy and Energy Efficiency Policy, 2015

The National Renewable Energy and Energy Efficiency Policy, 2015 (NREEEP) provides a comprehensive policy framework for diversifying Nigeria's energy mix through the deployment of renewable energy and energy-efficiency technologies. The Policy seeks not only to increase renewable energy generation but also to promote investment, research and development, technology acquisition, local technological development and community participation in renewable energy projects. Significantly, it recognises the need to increase indigenous participation in the renewable energy value chain and expressly identifies the achievement of a high level of local content as one of its objectives. It consequently proposes financing mechanisms and incentives to support indigenous investment and enhance the competitiveness of Nigerian participants in the sector.[60]

NREEEP also contemplates a coordinated institutional framework involving the Federal Ministry of Power, relevant ministries, departments and agencies, NERC, SON, NESREA, states, local governments, non-governmental organisations (NGOs) and civil society organisations.[61] It envisages cooperation among these institutions in policy formulation and implementation, while encouraging the establishment of renewable energy and energy-efficiency units at state and local-government levels. This institutional and decentralised approach is particularly relevant to local content development because it creates opportunities for the development of domestic technical capacity and broader participation in renewable energy projects. The Policy further provides for research and development, skills development and the development of local manufacturing capabilities, including the training of skilled personnel for the production, operation and maintenance of renewable energy technologies.[62]

However, the principal weakness of NREEEP lies in the gap between its policy aspirations and its implementation architecture. Although the Policy recognises the need for concrete action, it acknowledges that relevant agencies had not previously been held sufficiently accountable for the coordinated and timely implementation of renewable energy policies. It therefore envisaged the

60 National Renewable Energy and Energy Efficiency Policy 2015 para 24.
61 National Renewable Energy and Energy Efficiency Policy 2015 paras 8-9.
62 National Renewable Energy and Energy Efficiency Policy 2015 para 30.

preparation of a National Renewable Energy Action Plan (NREAP), a National Energy Efficiency Action Plan (NEEAP) and a long-term Integrated Resource Plan, supported by defined targets, timelines and implementation measures.[63] It also proposed a Monitoring and Evaluation Watchdog Group, comprising relevant stakeholders, to monitor progress, prepare periodic reports and oversee the achievement of renewable energy and energy-efficiency targets.[64] The fact that these mechanisms were contemplated as necessary instruments for translating the Policy into action illustrates the inadequacy of relying on broad policy commitments without sufficiently robust institutional and enforcement mechanisms.

3.2.3 National Integrated Electric Policy and Strategy Implementation Plan, 2025

In March 2025, NEC approved the National Integrated Electric Policy and Strategy Implementation Plan (NIEPSIP). The plan, set out in eight chapters, strongly supports integrating renewable energy and addressing climate change, aligning with Nigeria's commitments under international agreements such as UNFCCC and the Paris Agreement. Nigeria has committed to reducing greenhouse gas emissions and achieving net-zero emissions by 2060, supported by ETP and NREEEP.[65] The policy promotes diversifying the energy mix with sources like solar, wind and biomass, encourages energy efficiency, and supports initiatives like the green bonds market. It also aims to reduce reliance on diesel generators by pursuing Sustainable Development Goal 7 (SDG7) for affordable, reliable, sustainable and modern energy access. The National Renewable Energy Action Plan (NREEAP) 2015-2030 targets 30000 megawatts of electricity capacity, with renewables contributing 30 per cent by 2030 but, like NREEEP, it lacks a concrete roadmap or implementation timeline, and no successful projects to date suggest Nigeria is on track to meet this target.[66] Separately, the National Nuclear Programme Strategic Plan (SP-2015) targets 1200 megawatts from Nigeria's first nuclear plant by 2027, and 4800 megawatts from four plants by 2037, though Nigeria's on-grid mix remains dominated by thermal gas (about 80 per cent) and hydro (about 20 per cent), with solar and biomass largely confined to inadequate rural electrification.

63 National Renewable Energy and Energy Efficiency Policy 2015 para 38.
64 National Renewable Energy and Energy Efficiency Policy 2015 para 40.
65 National Integrated Energy Policy – Strategic Implementation Plan 2025 ch 4.
66 P Onuh and others 'Challenges and opportunities in Nigeria's renewable energy policy and legislation' (2024) 23 *World Journal of Advanced Research and Reviews* 2354.

3.2.4 Nigeria's Carbon Market Activation Policy, 2025 and National Carbon Market Framework, 2026

Nigeria's Carbon Market Activation Policy, 2025 (CMAP), the country's first comprehensive carbon market framework, sets out the legal and institutional architecture for domestic and international carbon trading, links Nigeria's market to article 6 of the Paris Agreement, and proposes carbon taxation and emissions trading as future regulatory tools, alongside fiscal incentives and anti-fraud safeguards to ensure market credibility.[67] Building on this, the National Carbon Market Framework, 2026 (NCMF) establishes a national carbon registry, mandatory emissions reporting, and standardised project approval processes, with an estimated revenue potential of up to US $3 billion annually, coordinated by the National Council on Climate Change across the energy, agriculture and waste sectors.[68]

3.3 International agreements and treaties

3.3.1 The Paris Agreement

Nigeria, as a signatory to the Paris Agreement, is committed to transitioning from fossil fuels and reducing emissions through nationally determined contributions (NDCs) containing both conditional and unconditional pledges. The Agreement, adopted by 195 parties at COP21 in December 2015 and entering into force in November 2016, commits states to holding global temperature rise well below 2°C, and pursuing efforts to limit it to 1,5°C, above pre-industrial levels.[69] It represents a landmark in binding multilateral climate governance, though, like most international agreements, it suffers from weak enforceability: While it requires monitoring and reporting of emissions, it cannot compel any state to reduce them.[70] These commitments have influenced Nigeria's domestic transition framework, particularly the Climate Change Act, 2021, which establishes a legal framework for achieving net-zero emissions by 2060, and the National Energy Transition Plan, which translates this commitment into sector-specific pathways for decarbonisation.

3.3.2 United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992 and has been in force since 1994. It has attained a near-

67 Federal Ministry of Environment 'Carbon market activation policy' (2025).
68 Federal Government of Nigeria 'National carbon market framework' (2026).
69 United Nations Framework Convention on Climate Change 'United Nations Framework Convention on Climate Change', https://unfccc.int/process-and-meetings/united-nations-framework-convention-on-climate-change (accessed 30 July 2026).
70 IP Amechi 'The Nigerian Petroleum Industry Act and the energy transition: Issues, challenges and opportunities' (2022) 13 *Journal of Sustainable Development Law and Policy* 1.

universal ratification rate having been ratified by 198 countries. UNFCCC aims to stabilise greenhouse gas concentrations at levels that allow ecosystems to adapt naturally while enabling sustainable economic development.[71] It provides the overarching international framework for Nigeria's transition to a low-carbon, green economy, a transition complicated by continued reliance on fossil fuels but supported by policies aimed at expanding renewable energy and achieving net-zero emissions by 2060, and underpins Nigeria's advocacy for equitable climate finance and technology transfer. UNFCCC principles, including common but differentiated responsibilities, climate finance and technology transfer, inform Nigeria's climate policy and are reflected domestically in the Climate Change Act, 2021, NDCs and Energy Transition Plan.

3.3.3 Kigali Communiqué, 2022

The Kigali Communiqué sets seven principles for a just and equitable African energy transition, including universal energy access, the use of gas as a transitional fuel, increased investment, local job creation, greater development finance and technology transfer.[72] Nigeria's ETP reflects these principles by combining universal energy access, poverty reduction, job creation and economic development with a pathway to net-zero emissions by 2060, while recognising gas as a transitional fuel and prioritising renewable-energy expansion.[73]

3.4 Institutional and Regulatory Framework for Energy Transition in Nigeria

3.4.1 Federal Ministry of Power

The Federal Ministry of Power is the executive arm of the Federal Government with the responsibility for the provision of power in the country. The Ministry plays a central, leading role in Nigeria's energy transition by spearheading the implementation of the National Energy Transition Plan, which aims for net-zero emissions by 2060, enhancing energy access, and fostering economic development through renewable energy deployment, increased energy efficiency, and the expansion of natural gas as a transition fuel. The Ministry is responsible for developing policies, attracting investment, fostering local manufacturing, and implementing technical assistance to build a sustainable energy future for Nigeria. A recent example of the ministry's commitment to renewable energy is the 10-year concession granted to Proserve Energy Services Limited.[74] This concession

71 UNFCCC arts 1-2.
72 Surveillance Ghana 'Kigali Communiqué outlines principles for a just and equitable energy transition' (20 May 2022).
73 Nigeria Energy Transition Plan Nigeria Energy Transition Plan, https://energytransition.gov.ng/ (accessed 21 August 2026).
74 Akinwale 'Govt takes ministry building off national grid' *ThisDay* (Lagos) 8 May 2019, https://allafrica.com/stories/201905080209.html (accessed 21 August 2026).

aims to establish a 750 kilowatt solar power supply system, aligning with the ministry's goal to promote renewable energy and contribute to decarbonisation.

3.4.2 Institutions established under EA, 2023

Nigerian Electricity Regulatory Commission

NERC was established in 2005 by the Electric Power Sector Reform Act, 2005 to regulate the Nigerian electricity industry. With the repeal of EPSRA, 2005, it is now established under section 33 of EA, 2023. Its primary duty is to protect the interests of consumers, issue licences to operators/investors, set and review electricity tariffs and, where possible, promote competition. The Federal Government, through NERC, has created an enabling environment for intending investors in the Nigerian Electricity Industry.[75] NERC's main objective is the protection of existing and future consumers' interests in relation to electricity generated and conveyed by distribution or transmission systems. In furtherance of its objective, NERC plays an important regulatory role in expanding access to electricity by facilitating connections to distribution networks, establishing service standards and creating regulatory frameworks that support reliable electricity supply, including the integration of renewable energy into the electricity market.[76] NERC has issued industry codes, market rules and tariff orders, and although it set a target in 2015 to generate a minimum of 2 000 megawatts from renewables by 2020, split evenly between distribution companies and the Bulk Trader, this target has not been achieved, illustrating the gap between regulatory ambition and implementation. Besides, despite NERC's expanded mandate under the Electricity Act, 2023, its capacity to advance renewable energy remains constrained by grid limitations, evolving regulatory mechanisms and persistent market-financing challenges. The emergence of state electricity regulators further requires effective coordination to ensure regulatory consistency for renewable projects operating across state and national grid boundaries.[77]

Rural Electrification Agency

The Rural Electrification Agency (REA) manages the Rural Electrification Fund under sections 142 to 143 of the Electricity Act, 2023 which, unlike its EPSRA, 2005 predecessor, is dedicated specifically to renewable electricity investment in rural and underserved areas, supported by tax incentives and affordable financing for local renewable energy producers.[78]

75 Electricity Act 2023 sec 33(1).
76 As above.
77 A Adeyemi 'Promoting renewable energy through a decentralised electricity regulatory framework – An analysis of Nigeria's Electricity Act 2023' (2024) 15 *Journal of Sustainable Development Law and Policy* 399, 412-435.
78 Electricity Act 2023 sec 129(1)(g).

Nigerian Bulk Electricity Trading Plc

The Nigerian Bulk Electricity Trading Plc (NBET), incorporated in 2010 as the sole licensed bulk purchaser and reseller of electricity, enters power purchase agreements with generation companies and resells to distribution companies under vesting contracts, serving as a credit-worthy counterparty to catalyse private investment in the sector.

Nigerian Independent System Operator

The Nigerian Independent System Operator (NISO) manages the national grid, administers the electricity market, and plans grid expansion to integrate renewable sources, ensuring stability and fair access as the sector decentralises.[79]

Transmission Company of Nigeria

The Transmission Company of Nigeria (TCN) was licensed in 2006 as one of the unbundled successors to the defunct National Electric Power Authority. TCN performs the market operator, system operator, and transmission service provider functions, evacuating generated electricity to distribution companies.

Energy Commission of Nigeria

The Energy Commission of Nigeria (ECN) is established under section 1 of the Energy Commission of Nigeria Act. ECN is Nigeria's apex body for energy planning, policy coordination and research, playing a central role in Nigeria's energy transition. Its functions as provided in section 5 of the Act include promoting energy diversification by coordinating research and development in both conventional and renewable energy sources, including solar, wind, biomass and nuclear energy, through a network of specialised research centres across the country. While ECN has been instrumental in advancing clean energy development, the Electricity Act, 2023 has created overlapping responsibilities with NERC, leaving unresolved institutional boundaries between the ECN's policy coordination role and NERC's regulatory oversight of the electricity sector.

National Council on Climate Change

The National Council on Climate Change (NCCC) is established under CCA, 2021,[80] as Nigeria's apex institution for coordinating climate governance and driving the country's energy transition. NCCC formulates national climate

79 Electricity Act 2023 Part on system operations.
80 Climate Change Act 2021 sec 3.

policies, coordinates implementation across ministries, departments and agencies, administers the Climate Change Fund, and supports the development of market-based mechanisms such as carbon taxation.[81] By requiring public institutions and major private-sector entities to integrate emission reduction measures into their operations, the Council provides the institutional framework for transitioning to a low-carbon economy and achieving Nigeria's climate and energy transition objectives.

National Agency for the Great Green Wall

The National Agency for the Great Green Wall (NAGGW) is established under section 1 of the National Agency for the Great Green Wall (Establishment) Act, 2015 and is responsible for implementing Nigeria's Great Green Wall Programme, particularly measures aimed at combating desertification, restoring degraded land and improving the resilience and livelihoods of affected communities.[82] NAGGW's functions further include providing technical assistance, promoting training and human-capacity development, and facilitating the transfer of appropriate technology to local communities.[83] NAGGW is empowered to coordinate relevant stakeholders and collaborate with frontline states and local government implementation committees in implementing the programme.[84] NAGGW therefore plays an important enabling role in the energy transition by strengthening local capacity and community participation in environmental restoration and other climate-related activities. Its relevance to local content lies principally in its emphasis on human-capacity development, technology transfer and local participation, which can contribute to building the domestic skills and technical capabilities required for Nigeria's emerging green economy.

Nigerian Electricity Management Services Agency

The Nigerian Electricity Management Services Agency (NEMSA) is established under section 172 of the Electricity Act, 2023. It is empowered to enforce statutory technical and safety standards, certifies electrical personnel, and inspects power plants, transmission lines and distribution networks, playing a critical enabling role by ensuring that renewable energy infrastructure meets prescribed technical standards, thereby supporting investor confidence and safe grid modernisation. Their responsibilities relating to energy transition is to ensure technical compliance with electrical standards.

81 Climate Change Act, 2021 sec 5.
82 National Agency for the Great Green Wall Act 2015 sec 6.
83 As above.
84 National Agency for the Great Green Wall Act 2015 sec 7.

4 Challenges and opportunities

4.1 Challenges

4.1.1 Inadequate and inconsistent legal regime for energy transition

Although Nigeria has established several policies and legislative measures to promote energy transition, there is, however, a lack of coherence and alignment between these policies and the broader energy sector regulations.[85] The various policies, guidelines and programmes are too many, repetitive, wordy and conflicting in territorial boundaries to make for effectiveness. For instance, some of such policies, guidelines or programmes include[86] the National Energy Policy, 2022 (NEP); the Nigerian Biofuel Policy and Incentives, 2007 (NBPI); the Captive Energy Generation Regulation, 2008 (CEGR); the National Renewable Energy and Energy Efficiency Policy, 2015 (NREEEP); and the Integrated National Electricity Policy and Strategic Plan (INEPSIP). These numerous policies create uncertainty for regulators and investors alike.[87] Although China's stronger manufacturing base, investment capacity, grid infrastructure and technological development have facilitated greater renewable-energy deployment, policy coherence also plays an important role in providing the stability and direction necessary for sustained investment and implementation. Nigeria's comparatively lower renewable energy contribution of about 21 per cent, against China's 30 per cent, therefore, highlights the need to address not only capacity and infrastructure constraints but also fragmentation within its policy framework.[88]

4.1.2 Absence of comprehensive energy transition legislation

Nigeria's legislative framework support for renewable energy development is the ECN Act, 2004 and EA, 2023. The major function of ECN as provided for in section 5 of the ECN Act, 2004 is the strategic planning and coordination of national policies in the field of energy in all its ramifications. The ECN Act confers on ECN the monopoly on policy making in relation to energy exploitation and distribution on the commission without any specific provision on the exploitation and utilisation of renewable energy. It would have been expected that the recent EA would remedy this legislative framework challenge. However, EA only listed renewable energy promotion and development among the functions of NERC. This is unlike the China's Renewable Energy Law, 2005, as amended in 2009, which laws spelt out the role of renewable

85 Energy Commission of Nigeria, 2022.
86 Onuh and others (n 66) 2372.
87 As above.
88 International Renewable Energy Agency 'Renewable energy roadmap: Nigeria' (IRENA 2023), https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2023/Jan/IRENA_REMap_Nigeria_2023.pdf (accessed 20 July 2026).

energy and periodic percentage contribution to its energy mix.[89] To increase its percentage contribution of renewable energy on its energy mix, Nigeria needs to put in place an effective renewable energy specific legislation in place not as an ancillary or addendum to other legislative framework, but as an independent specific and definite legislation on renewable energy development for Nigeria, as is the case in China. Although the Electricity Act, 2023 and NREEEP provide important elements of a renewable energy framework, their limited specificity and fragmented implementation leave regulatory gaps that create uncertainty for investors and project developers.

4.1.3 Bureaucratic inefficiencies and delays

The regulatory environment is also characterised by procedural delays. For example, renewable energy developers have reported lengthy approval processes involving NERC, the Rural Electrification Agency and environmental authorities, while customs clearance for imported solar equipment has also caused project-delivery delays.[90] These delays increase development costs and can discourage private investment in renewable energy.[91] The lack of effective enforcement mechanisms is another significant barrier. While policies and regulations exist, their enforcement is often weak due to limited institutional capacity and resources. Regulatory bodies such as NERC and REA are tasked with overseeing the implementation of renewable energy projects, but they frequently lack the necessary financial and technical resources to fulfil their mandates effectively.[92]

4.1.4 Poor public awareness of energy transition

One of the key challenges to energy transition in Nigeria is poor public awareness. Nigeria officially launched its Energy Transition Plan in August 2022, to show its commitment towards the decarbonisation of the earth's atmosphere and also drive economic growth. The plan focused on Nigeria's pathway to achieving net-zero emissions by 2060. The then Vice-President, Yemi Osinbajo, and other key players in the energy industry were part of the launch, yet the public awareness remains poor.[93] To that end, a larger population of the citizenry both learned

89 Renewable Energy Law of the People's Republic of China 2005 (as amended 2009) arts 4, 8 & 14.

90 E Dinneya-Onuoha 'Unlocking renewable energy materials in Nigeria: Availability, application, and roadmap for sustainability' (2025) 3 *RSC Sustainability* 2534, https://doi.org/10.1039/D5SU00121H (accessed 21 August 2026).

91 International Renewable Energy Agency, 2020.

92 Energy Commission of Nigeria, 2022.

93 Sustainable Energy for All (SEforALL) 'Nigeria's Vice President launches energy transition plan as country seeks USD 10 billion initial support package' 24 August 2022, https://www.seforall.org/news/nigerias-vice-president-launches-energy-transition-plan-as-country-seeks-usd-10-billion (accessed 20 July 2026).

and unlearned are yet to understand the concept called energy transition.[94] They are yet to be acquainted with what energy transition is all about; how it impacts them, the benefits therein, and the need to follow the plan.[95]

4.1.5 High cost of transitioning

Another key challenge to energy transition in Nigeria is the high cost involved in energy transition.[96] At the launch of Nigeria's energy transition plan, the government stated that it would need about $410 billion (about ₦308 trillion) to reach net-zero by 2060.[97] Although this figure is spread across almost four decades and, therefore, does not represent an immediate funding requirement, it nevertheless implies sustained annual investment of roughly US $10 billion, alongside significant expenditure on infrastructure, technology and institutional capacity.[98] Consequently, energy experts have called for greater mobilisation of international and concessional finance to address Nigeria's energy transition funding gap, given the scale of investment required to implement the ETP.[99] Demonstrating this approach, the UK government pledged a £95 million investment at COP27 to support climate-resilient agriculture (CRA) and sustainable rural economic transformation in Nigeria.[100]

4.1.6 Lack of requisite technological skills

Considering the level of innovation required to fully transition to net-zero carbon emissions, the energy transition plan has been declared a global industrial revolution. This industrial revolution for energy transition requires new technological advancements, especially in electrification.[101] As it stands, Nigeria lacks the requisite technological skills to pursue any of the key advancements.[102]

94 A Mojeed 'Experts discuss challenges impeding energy transition efforts in Nigeria' *Premium Times* 17 February 2025, https://www.premiumtimesng.com/news/more-news/774972-experts-discuss-challenges-impeding-energy-transition-efforts-in-nigeria.html (accessed 20 July 2026).

95 EN Johnson Nchege, MO Enyoghasim & NJ Ogbonna 'Renewable energy adoption in Nigeria: Barriers to implementation and opportunities for growth' (2024) 2 *AEFUNAI Journal of Economics, Finance and Development Studies* 88-98.

96 MS Adaramola, SS Paul & OM Oyewole 'Barriers to renewable energy development in Nigeria: A review' (2020) 33 *Renewable Energy Focus* 8-15.

97 CH Jaynes 'IEA: Clean energy investment must reach $4.5 trillion per year by 2030 to limit global warming to 1.5°C' *World Economic Forum* 28 September 2023, https://www.weforum.org/stories/2023/09/iea-clean-energy-investment-global-warming/ (accessed 20 July 2026).

98 International Energy Agency 'World energy outlook 2020' (IEA 2020), https://www.iea.org/reports/world-energy-outlook-2020 (accessed 20 July 2026).

99 F Okpale 'Nigeria urged to bridge $15.8b funding gap in energy transition plan' *BusinessDay* 16 October 2024, https://businessday.ng/energy/article/nigeria-urged-to-bridge-15-8b-funding-gap-in-energy-transition-plan/ (accessed 21 August 2026).

100 UK Foreign Office 'Foreign Secretary at COP27 pledges new support for developing countries to deal with climate change' (Press release) 14 November 2022, https://reliefweb.int/report/world/foreign-secretary-at-cop27-pledges-new-support-developing-countries-deal-climate-change (accessed 20 July 2026).

101 Onuh and others (n 66) 2364.

102 This gap can be addressed through technology-transfer partnerships, specialised training and collaboration with international manufacturers and research institutions.

For instance, one of the main causes of air and noise pollution in cities is the exhaust of vehicles powered by internal combustion engines. However, switching the cars on the road to electric vehicles would be a significant step toward reducing local pollutant concentrations. This is especially true of NO2 (nitrogen dioxide), which will thus also reduce the number of premature deaths. In this energy transition, electric vehicles are a major turning point in public transportation, as most developed countries are already transitioning to electric transport.

4.1.7 Policy inconsistency

The Global Government Institute's 2017 report stresses that laws alone cannot resolve Nigeria's energy issues; political will is essential. Despite legislative efforts for renewable energy and emission reduction, inconsistent political commitment and weak institutional coordination hinder effective implementation. Policy inconsistency creates uncertainty for investors, undermining the long-term investments needed for a low-carbon economy. The importance of policy consistency was succinctly captured by the Director-General of the World Trade Organisation, Dr Ngozi Okonjo-Iweala, who observed:

> One of the things I think we suffer is policy inconsistency. We start policies, and we don't continue it; maybe a new government comes in, or a new manager in a government department, all the policies that are in place are questioned, so business people don't know what environment to operate in.[103]

This observation aptly reflects the realities of Nigeria's energy sector.[104] Energy transition projects, including renewable energy generation, electricity transmission and distribution, gas infrastructure, hydrogen development and climate-related investments, require policy certainty over several decades. Where governments frequently alter regulatory or fiscal frameworks, investors become reluctant to commit capital, while existing projects may experience delays or cancellations. Consequently, policy inconsistency significantly undermines Nigeria's ability to attract both domestic and foreign investment needed to achieve its energy transition objectives.

103 Nigeria Economic Summit Group 'Policy and regulatory inconsistencies in Nigeria: A major bane of private investments' (2021), https://nesgroup.org/storage/app/public/papers/Policy%20%26%20Regulatory%20Inconsistencies%20in%20Nigeria_A%20Major%20Bane%20of%20Private%20Investments.pdf (accessed 3 July 2026).

104 Nigeria's electricity sector illustrates this problem: The electricity tariff regime has undergone repeated revisions, including the introduction of the Multi-Year Tariff Order (MYTO), subsequent tariff freezes and subsidies, and the 2020 service-reflective tariff reforms; similarly, renewable-energy policy has evolved from the 2003 National Energy Policy and 2005 Renewable Energy Policy to the 2015 Renewable Energy and Energy Efficiency Policy and the 2023 Electricity Act. These successive policy changes, while reflecting attempts to address emerging challenges, have also produced regulatory uncertainty that can affect long-term investment decisions in the energy sector.

4.2 Opportunities

Notwithstanding the above challenges, the legal regime for Nigeria's energy transition offers opportunities if properly harnessed.

4.2.1 Technological innovation and infrastructure development

The Nigerian legal framework is evolving to support technological innovation and infrastructure development that are essential to the country's energy transition. Key reforms, such as the Electricity Act, 2023, encourage private-sector involvement in electricity generation, transmission and distribution through mechanisms such as embedded generation and mini-grids.[105] This decentralisation enhances the adoption of renewable energy technologies and serves underserved areas. Furthermore, the Energy Transition Plan emphasises infrastructure investment in electricity networks, renewable facilities, gas infrastructure, electric vehicle charging and digital energy systems, fostering an environment conducive to innovation and enhancing national energy security. However, realising these opportunities depends on addressing the financing, regulatory, infrastructural and institutional challenges identified above.

4.2.2 Financial and fiscal incentives for energy transition

Financial and fiscal incentives are critical for a successful energy transition, as renewable technologies often require significant upfront investments. Nigeria has implemented measures such as the Presidential Initiative on Compressed Natural Gas (Pi-CNG) to promote cleaner transport fuels and enhance project bankability.[106] Notably, the Nigeria Tax Act 2025 imposes a 5 per cent surcharge on fossil fuel products while exempting renewable energy sources and CNG, discouraging carbon-heavy consumption.[107] Similarly, VAT reforms also exempt clean energy products and services, reducing costs and improving affordability for investors.[108] These changes reflect a shift towards targeted incentives supporting Nigeria's decarbonisation goals. However, these fiscal incentives are unlikely to be sufficient without regulatory certainty, reliable infrastructure and effective implementation mechanisms.

4.2.3 Constitutional decentralisation of electricity governance

Constitutional decentralisation of electricity governance in Nigeria, following the Fifth Alteration of the Constitution and the Electricity Act, 2023,

105 Electricity Act 2023 sec 146.
106 Presidential Initiative on Compressed Natural Gas and Electric Vehicles (Pi-CNG & EV) 'Home', https://pci.gov.ng/ (accessed 20 July 2026).
107 Nigeria Tax Act, 2025 sec 161.
108 Nigeria Tax Act, 2025 sec 186.

transforms energy regulation by allowing states to legislate on electricity generation and distribution. This shift from a federal-centric model fosters innovation and investment, particularly in renewable energy, by enabling states to create independent electricity markets tailored to their specific resources, such as solar, hydro, biomass and wind. The reforms aim to enhance regulatory diversity, stimulate competition and improve electricity access nationwide. It must, however, be noted that decentralisation may also produce regulatory fragmentation and coordination challenges between federal and state authorities. These can be addressed through clear allocation of regulatory responsibilities, harmonised technical standards, intergovernmental coordination and effective information-sharing mechanisms.

4.2.4 Growing regulatory support for renewable energy and natural gas

Nigeria's legal framework increasingly recognises renewable energy and natural gas as essential elements of its energy transition strategy. Unlike many developed nations, Nigeria takes a 'just transition' approach addressing energy poverty and reliance on hydrocarbon revenues.[109] The Energy Transition Plan designates natural gas as a transition fuel, aiding industrialisation and reducing carbon emissions. However, this approach remains contested, as continued investment in gas infrastructure may prolong fossil fuel dependence, create stranded-asset risks and potentially delay the expansion of renewable energy.[110] The Petroleum Industry Act, 2021 provides a regulatory structure that enhances natural gas development, covers upstream and downstream operations and ensures gas delivery and pricing. This framework supports the National Gas Policy and related initiatives, acknowledging natural gas as critical to energy security and the low-carbon transition. Concurrently, regulations under the Electricity Act, 2023 promote renewable energy through various initiatives, creating a balanced strategy for economic growth and sustainability.

4.2.5 Improved investment and transition financing opportunities

The enormous capital requirements associated with the energy transition make investment mobilisation one of the greatest opportunities presented by Nigeria's evolving legal regime. The Energy Transition Plan (ETP) estimates that Nigeria requires approximately US $410 billion in additional expenditure beyond business-as-usual to achieve net-zero emissions by 2060, with an initial investment pipeline of about US $23 billion, of which approximately US $17 billion is expected to come from the private sector. The Plan therefore recognises that

109 Nigeria Energy Transition Plan 2022.

110 C Strambo and others 'How do governments discursively reconcile plans for expanding oil and gas production with global climate goals? The cases of Colombia and Nigeria' (2025) 116 *Political Geography* 103243, https://doi.org/10.1016/j.polgeo.2024.103243 (accessed 21 August 2026).

achieving the transition will depend on mobilising domestic and international private capital, concessional finance, blended finance mechanisms and public-private partnerships rather than relying solely on government expenditure.

Nigeria's legal and policy reforms have substantially improved the investment landscape by enhancing regulatory certainty, strengthening climate governance and liberalising the electricity sector through the Electricity Act, 2023, while the ETP identifies commercially viable investment opportunities across electricity generation and transmission, distributed renewable energy, gas commercialisation, battery energy storage, clean cooking, electric mobility, metering, healthcare infrastructure and digital energy systems. These reforms are complemented by fiscal incentives, including pioneer status incentives for eligible renewable energy and power projects, which improve project bankability and reduce investment risk.

The credibility of this legal framework is reflected in the increasing commitment of international development partners. The World Bank approved the Nigeria Distributed Access through Renewable Energy Scale-up (DARES) Project with US $750 million in International Development Association (IDA) financing.[111] The programme is expected to provide new or improved electricity access to over 17,5 million Nigerians, while leveraging more than US $1 billion in private investment and parallel financing from partners, including the Japan International Cooperation Agency (JICA); the Global Energy Alliance for People and Planet (GEAPP); United States Agency for International Development (USAID); Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); Sustainable Energy for All (SEforALL); and the African Development Bank (AfDB).

Similarly, the African Development Bank has established the Economic Governance and Energy Transition Support Programme (EGET-SP) to support reforms aimed at improving the financial sustainability of Nigeria's electricity sector, implementing the Energy Transition Plan and strengthening the policy environment necessary to attract domestic and foreign private investment.[112] Beyond project financing, Nigeria also participates in continental initiatives such as Mission 300, jointly led by the World Bank and the African Development Bank, which seeks to mobilise approximately US $90 billion to expand electricity access across Africa by 2030 through a combination of

111 World Bank 'Nigeria to expand access to clean energy for 17.5 million people' (Press release) 15 December 2023, https://www.worldbank.org/en/news/press-release/2023/12/15/nigeria-to-expand-access-to-clean-energy-for-17-5-million-people (accessed 20 July 2026).

112 African Development Bank Group 'Nigeria – Economic Governance and Energy Transition Support Program (EGET-SP) Phase I – Project Appraisal Report' (project appraisal report) 30 July 2024, https://www.afdb.org/sites/default/files/documents/projects-and-operations/nigeria_-_economic_governance_and_energy_transition_support_program_eget-sp_phase_i_-_project_appraisal_report.pdf (accessed 20 July 2026).

multilateral finance, concessional funding and private sector investment.[113] These initiatives demonstrate that Nigeria's transition is increasingly supported by a diversified ecosystem of financiers, including multilateral development banks, bilateral development agencies, sovereign wealth funds, institutional investors, climate funds, philanthropic organisations and green capital markets. As the implementation of the Electricity Act, 2023, the Climate Change Act, 2021 and the Energy Transition Plan continue to improve regulatory certainty and project bankability, Nigeria is well positioned to attract larger volumes of climate finance, green bonds, blended finance, sustainability-linked investments and other innovative financing mechanisms necessary to accelerate a just and sustainable energy transition.

4.2.6 Emergence of carbon markets and green economy opportunities

The emergence of carbon markets in Nigeria marks a significant advancement in its energy transition legal framework. These markets incentivise greenhouse gas emissions reductions by enabling the generation and trading of carbon credits, thereby fostering investment in renewable energy and other climate projects. The Nigerian Carbon Market received its statutory foundation under the Climate Change Act, 2021[114] and was further developed through the Carbon Market Activation Policy, 2025,[115] which seeks to facilitate Nigeria's integration into regional and international carbon markets by generating high-integrity carbon credits and establishing transparent governance mechanisms. The National Carbon Market Framework, 2026 supports this by detailing project management procedures and promoting both compliance and voluntary markets. While these mechanisms can support the Energy Transition Plan by attracting investment into low-carbon projects, carbon markets are a means of financing emissions reduction, not an end in themselves; their effectiveness depends on generating credible reductions and supporting broader energy-transition goals.

5 Conclusion and recommendations

Nigeria has established a substantial foundation for energy transition through the Electricity Act, 2023, Petroleum Industry Act, 2021, Climate Change Act, 2021, National Energy Policy, NREEEP and Energy Transition Plan. The analysis, however, demonstrates that the principal weakness is not the absence of policy initiatives but the fragmentation and limited implementation of existing measures. Overlapping institutional mandates, regulatory uncertainty, inadequate financing and technical capacity, infrastructure deficits and

113 'African nations seek to connect 300 million people to power by 2030' *Reuters* 27 January 2025, https://www.reuters.com/world/africa/african-nations-seek-connect-300-mln-people-power-by-2030-2025-01-27/ (accessed 20 July 2026).
114 Climate Change ACT, 2021 sec 4(j).
115 Carbon Market Activation Policy 2025 para 20.

continued dependence on hydrocarbons constrain the effectiveness of the transition framework. The challenge, therefore, is to move from policy adoption to coordinated implementation. Accordingly, to pursue a more coherent and implementation-focused transition, a range of recommendations is necessary.

First, the National Assembly, in consultation with the Federal Ministry of Power, the Federal Ministry of Environment and other key stakeholders, should enact a comprehensive Renewable Energy Act to consolidate existing provisions, clarify institutional mandates, and provide predictable rules for investment and project development. Similarly, the Federal Government should strengthen and institutionalise the existing Energy Transition Implementation Working Group and Energy Transition Office by giving them clearer coordination, monitoring and accountability functions, particularly to resolve overlaps among federal and state energy institutions and to track the implementation of the Energy Transition Plan. Moreover, the Federal Government through the Ministry of Finance and relevant financial institutions should establish dedicated renewable energy financing mechanisms, including renewable energy funds, green bonds and climate-finance instruments, to mobilise and de-risk private investment.

The article further recommends that the Federal Ministry of Finance, the Nigeria Revenue Service and NERC strengthen targeted fiscal and regulatory incentives, including appropriate tax reliefs, predictable feed-in tariffs and concessional financing, in order to improve the viability of renewable energy projects. Furthermore, the article recommends that the Energy Commission of Nigeria, universities and private sector developers establish structured research, skills development and technology transfer partnerships focused on technologies such as solar, battery storage, mini-grids and electric mobility. The Federal Ministry of Power, REA and state electricity authorities may undertake sustained public awareness and stakeholder engagement programmes to promote acceptance of and participation in renewable energy projects. The NERC, ECN, REA and state electricity regulators should also strengthen their technical capacity through specialised training, adequate staffing, dedicated funding and improved regulatory systems to effectively implement and monitor the energy transition.