PRIVATISATION OF THE POWER SECTOR IN NIGERIA: ISSUES AND POTENTIALS OF DEVELOPING RENEWABLE AND EFFICIENT ENERGY SOURCES*

Abstract

The research examined the privatisation of the power sector in Nigeria and issues relating to the development of environmentally friendly and renewable energy sources in Nigeria. The power sector is very crucial in the industrial development of a country and the attraction of the much desired goal of industrial development and the attraction of foreign direct investments. Reforms are needed in the power sector in Nigeria for sustainable, renewable, cost effective and environmentally friendly energy sources. While the world has moved towards renewable energy sources, Nigeria is still wobbling in the sector. The doctrinal approach was adopted in this research and references were made to text books, statues and other relevant materials on the subject matter. Constitution of the Federal Republic of Nigeria 1999, Electricity Act 2023 the Privitasation and Commercialisation Act 1999 and the regulations and policies on renewable energy were analysed. Some international treaty like the Kyoto Protocol 1997, United Nations Convention on Climate Change 1992 and Paris Agreement on Climate Change 2015 amongst others were examined. It was found that the existing policies and regulations on renewable were not in tandem with other jurisdictions like the USA, China, South Africa and Brazil, due to issues ranging from regulatory, financial, technological and lack of political will to develop the sector in Nigeria. It is recommended that Nigeria should implement the Electricity Act, 2023 and formulate regulations policies aimed at developing alternative energy sources like wind, air, biomass and solar energy as alternatives to the existing conventional, perishable, un-renewable and environmentally unsustainable energy sources.

Keywords: Commercialisation, Privitisation, Renewable and Efficient Energy, Public Enterprises, Fossil Fuel

1. Introduction

The energy sector is very crucial in the economic development of Nigeria, but the use of conventional energy is posing serious environmental impact apart from the fact that even the conventional energy is yet to be fully developed in Nigeria. The use of generators as an energy source for our homes and businesses are a major contribution to the pollution of the air, water and land in Nigeria. While most countries of the world are embarking on alternative and cleaner energy sources in order to balance economic development with environmental sustainability, Nigeria is yet to blaze the trail in this regard. The adoption of environmentally sustainable and cleaner energy sources in Nigeria will ultimately address the twin effects of epileptic supply of conventional electricity and meeting the growing global trend of reducing emissions of carbon-dioxide, which have devastating effects on the environment.[1] In pursuit of the noble objectives of renewable energy sources for Nigeria, the power sector has been privatised and unbundled by the enactment of the now repealed Electric Power Sector Reform Act, with provisions for renewable electricity in Nigeria, to maximise access to electricity services by promoting and facilitating consumer connections to distributive systems in both rural and urban areas.[2] Other benefits of renewable energy are that, compared to conventional energy sources, it is sustainable in the long run, cheaper, cleaner and renewable[3]. It is also a means of attaining the objectives of decentralised energy options.[4] The quest for renewable energy in Nigeria is timely, in view of the fact that, it has taken roots in African countries such as Kenya, where the adoption the adoption of renewable energy technology is a national priority.[5] Nigeria need to take a cue from Kenya by putting in place an effective policy on renewable energy options for efficient and sustainable electricity in tandem with emerging global trends.[6] It is in view of the issues faced by Nigeria, in the development of the renewable and environmental sustainable energy sources that has necessitated an amendment of the Electric Power Sector Reform Act, 2005, to surmount the challenges of developing an efficient legal and regulatory framework for renewable energy sector that will, if effectively implemented, open investment opportunities for private sector participation with the much needed reforms and access to renewable electricity in the country, for the overall economic development and environmental sustainability. The Electricity Act, 2023 (as amended), has devolved the process of electricity generation, transmission and distribution from the Exclusive Legislative list to the Concurrent list thus, opening up vistas for federal, states and even the private sector to engage in the power sector.

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[1] Y Oke, *Nigerian Electricity Law and Regulation* (Law Lord Publications Abuja, Nigeria 2013) p13

[2] Section 32(1) The Electricity Power Sector Reforms Act, 2005

[3] J K Karling, 'The Energy Crisis of Nigeria: An Overview and Implication for Future' (LLM Thesis, The University of Chicago (2008) P.2-5

[4] Y Oke 'Beyond Power Sector Reforms: The Need for Decentralised Energy Options (DEOPs) for Electricity Governance in Nigeria' (2012) *The Nigerian Journal of Cotemporary Law, University of Lagos Nigeria* Pp.67-92

[5] R H Acker, 'The Quiet Energy Revolution Analysing Dissemination of Photovoltaic Power Systems in Kenya' (1996) 24:1 *Energy Policy*, Pp.81-111

[6] Federal Ministry of Power and Steel, Federal Republic of Nigeria: 'Renewable Guidelines' December, 2006 *International Centre for Energy, Environment and Development* (ICEED) available at <www.iceednigeria.org> accessed on 18 February 2024

2. Conceptual Framework on Renewable Energy in Nigeria

Privatisation*:* This is a concept and process and sometimes, can be confused with liberalisation, deregulation or commercialisation. According to Stiglitz, the process of reducing or eliminating regulations is referred to as deregulation while, 'commercialisation' means the re-organisation of enterprises wholly or partially owned by government in such a way that the enterprise operates as profit making venture and with or without subventions from government.[7] Idornigie, on the other hand, states that: 'From a narrow perspective, privatisation implies the transfer of ownership from the public to the private sector of the economy, broadly speaking it indicates all public-private ownership concession, lease, sale, restructuring …, divestiture, auction, core investor sale, liquidation and management'.[8]

Renewable Energy: Renewable energy is not clearly defined under the Electricity Act, 2023, but inference can be drawn from the definition of renewable energy resources and renewable energy product[9] 'Renewable Energy Resources' means natural resources such as sunlight, wind rain, tides, geothermal heat which are renewable and naturally replenished.[10] Renewable energy sources can be derived from sunlight, wind, rain, tides, waves and geothermal heat. These energy sources are sustainable and environment-friendly.[11] In summary, renewable energy is defined by the International Agency (IEA) as "energy derived from natural process that regenerate more quickly than they are consumed.[12]

Renewable Energy Sources: This means renewable non-fossils energy sources like wind, solar, geothermal, waves, tidal hydropower, biomass, landfill gas.[13] Renewable energy product means goods and services produced from renewable energy.[14]

Off-grid renewable Power System: This means electricity supply from renewable energy technology which is not connected to the grid.[15]

Biomass: This means organic matters like agricultural crops and residue, wood and wood waste, animal waste, aquatic plants and organic components of municipal and industrial waste.[16]

Biogas: This means gas that comprises primarily of methane and carbon-dioxide produced by biological break down of organic matter in the absence of oxygen produced by anaerobic digestion or fermentation of bio gradable materials like biomass manure, sewage, municipal waste, green waste and energy crops[17]

Bio Gradable: This means material that has the: a) Ability to break down safely and relatively quickly by biological means, b) Proven capacity to decompose into non-toxic soil, water, carbon dioxide or methane.[18]

Public Enterprise: Public enterprise is defined as any corporation, board or company or parastatal established by or under any enactment in which government of the Federation, a Ministry or extra Ministerial department or agency which government has ownership or equity interest and include a partnership, joint venture and any other form of business arrangement or organisation.[19]

Wind Energy: This energy source use wind turbines to mechanically power electric generation. It is an alternative to fossil fuel, and it is renewable, clean, efficient, without greenhouse gases and consume less water.[20]

Geothermal Energy: This energy source is derived from heat generated and stored beneath the earth, ranging from shallow ground water to rocks under the earth surface with extreme temperatures in molten rocks called magma.[21]

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[7] PO Idornigie, 'Legal Issues in Privatisation Programme' *Pivatisation Digest* July-August, 2004 P4
[8] P O Idornigie (N7) p4
[9] Section 232 Electricity Act, 2023 (as Amended)
[10] ibid
[11] A Isah, M Debnath, D Abraham and H Butu, 'Financing Renewable Energy: Policy Insight from Brazil and Nigeria' (2023) *Energy Sustainability and Society*, 13 (1) 1-6 available at <https://doi.org/10:1186/s13705-022-00397-9> accessed 13 March 2025
[12] C Chris, F Odikpo, A Adesoji and E Mayowa, 'Renewable Energy in Nigeria: Potentials and Challenges' *Journal of Southwest Jiatong University,* (2021) 53 (3) 528-539
[13] ibid
[14] ibid
[15] ibid
[16] ibid
[17] ibid
[18] ibid
[19] S 34 of the Public Enterprises (Privatisation and Commercialisation) Act, 1990.
[20] OV Ojo 'An Overview of the Legal and Regulatory Framework for Renewable Projects in Nigeria: Challenges and Prospects' *UNILAG Law Review* 1 (1) 22-47 available at <https://doi.org/10.1186/s41601-020-00179-3> accessed 14 March 2025
[21] ibid

3. Theoretical Framework on Renewable Energy in Nigeria

Resource Curse Theory: This theory was developed in the 70s-90s with emphasis that developing countries must ensure the promotion and development of the renewable energy sources through coherent legal frameworks to prioritise the socio-economic and environmental objectives for present and future generations. The theory seeks to balance sustainable development by conserving and protecting the state's extractive resources in a prudent manner for the overall benefits of citizens.[22] The theory helps to mitigate climate change through consistent enforcement of legal framework on renewable energy resources in developing countries like Nigeria with vast potentials in extractive industrial base. It also seeks to explain why resources abundant countries suffer from poor economic growth and development compared to wealthier states. These are largely attributed to violence, corruption and failure to develop their economies, natural resources and diversify their economies. The theory finally, suggests stringent enforcement of extant laws and transparency in extractive industries, environmental laws and regulations.[23]

Sustainable Development Theory: This theory originated from the Stockholm Conference on Human Environment, 1972. It charges states to use their resources in a sustainable manner to satisfy the present needs, without compromising the future. The conference recognised three pillars of environmental protection; recognition of environmental problems, growing scientific understanding, inter-relatedness of natural systems and public concern over the impact of human activities on the global environment.[24] The Stockholm Declaration recognised the protection of the earth's natural resources and the preservation of natural eco-systems with the capacity to produce, maintain and restore renewable energy sources.[25] The theory is aptly captured in the Brutland's Report, which is anchored on the 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.[26] The theory has galvanised international concern and responsive legal action by states on environmental issues by the adoption of the United Nations Framework Convention on Climate Change (UNFCCC), The Kyoto Protocol, the Paris Agreement on Climate Change and the Rio Declaration on the Human Environment.[27] The theory is relevant to Nigeria, for an appreciation of the efficient use of renewable energy sources, through the application of relevant technology and the legal and institutional framework in tandem with international best practices. There is also the need to use our national resources to the benefit of present and upcoming generations without damaging our ecosystem. The development of renewable and environmentally sustainable energy sources will be a step in the right direction to combat the epileptic power supply in Nigeria and to balance environmental sustainability and energy efficiency for the common good of all Nigerians.[28] Both theories are apposite in analysing the issues arising from the development of renewable and energy efficient sources in Nigeria.

4. Legal and Institutional Frameworks on Renewable Energy in Nigeria

Legal Framework

Constitution of the Federal Republic of Nigeria 1999 (As amended): The Constitution of the Federal Republic of Nigeria (CFRN) by implication provides for privatisation of electricity sector in Nigeria under the economic objectives as follows:

The State shall, within the context and the ideas and objectives for this constitution;

a) Harness the resources of the nation and promote national prosperity and efficient, dynamic and self-reliant economy;
b) Control the national economy in such a manner ad to secure the maximum welfare, freedom and happiness of every citizen on the basis of social justice and equality of status and opportunity.[29]

The constitution has recognised employees of public enterprises like Nigerian Electricity Regulatory Commission (NERC), as employees of the Federal Government of Nigeria by providing that: 'subject to the provisions of this constitution, the right of persons in the public service of the Federation to receive pension and gratuity shall be regulated by law'.[30] The public service of Nigeria includes: staff of any company or enterprise in which the government of the Federation or its agency owns controlling shares or interest.[31] The Constitution has placed electricity on the Concurrent list thereby permitting all ties of government, individual and corporate bodies to participate in the sector.[32]

[22] OJ Olujobi, Om Olujobi 'Theories of Corruption; Public Choice-Extractive Theory as Alternative for Combating Corruption' *International Journal of Environmental Sustainability and Green Technologies* (2002) 11 (2) 68-83
[23] OA Oyiwunmi, JO Olujobi, 'Transparency in Nigeria's Oil and Gas Industry: Is Policy Re-Engineering the Way Out?' *International Journal of Energy Economics and Policy*, (2015) 6(3) 630-636
[24] SR Myneni, *Environmental Law* (Asia Law House Hyderabad India 2008) p732
[25] Principle 2 and 3 of the Stockholm Declaration, 1972
[26] UD Ikoni, *An Introduction to Nigerian Environmental Law* (Malthouse Press Limited 2006) P247
[27] Olujobi (n18)
[28] ibid
[29] S 16 (1) (a)(b) of the CFRN, 1999 (as amended)
[30] ibid s.173
[31] ibid s 318
[32] Section 16 Schedule II of the CFRN, 1999

Public Enterprise (Privatisation and Commercialisation) Act 1999 and Other Extant Laws: The Privatisation of the power sector in Nigeria is in two phases: the pre and post privatisation stages. The Public Enterprises (Privatisation and Commercialisation) Act, provides for partial and full privatisation of certain enterprises by way of public issue in the capital market.[33] Where an enterprise is not offered for public sale or private placement as the case may be, an offer may be made to a willing buyer through any legally approved means. Any further investment of shares in an enterprise by the federal government shall be subject to the directions of Council of Privatisation to dispose of any share or any part thereof to a local or foreign investors.[34] Where shares of any enterprise are to be sold to the public, the shares are allotted to states of the federation and the Federal Capital Territory (FCT). [35]There are also the provisions for the reservation of 10% shares for the staff of the public enterprise to be held in trust, in case of subscription, as no individual is expected to hold more than 0.1% equity shares in an enterprise.[36] An annual report of the privatised enterprise shall be delivered to the president not later than 30th June in each preceding year for presidential directions on the enterprise.[37]

Another law relevant to the privatisation process is: the Companies and Allied Matter Act, which provides for an enterprise to be converted as the case may be by an alteration of the Memorandum and Articles of Association of the enterprise sought to be privatised.[38] Other relevant areas of law are: the general law of contract, local and international arbitration rules, assets agreements, lease agreements, share/sale purchase agreements, power of Attorney and debts overhand. All net proceeds from the sale of enterprises are paid by the bureau in the Privatisation Proceeds Account (PPA) domiciled at the Central Bank of Nigeria (CBN).[39]

Renewable Energy Policy Guidelines in Nigeria: The electric power sector in Nigeria underscores the importance of renewable energy mix in Nigeria particularly for the rural dwellers. To expand the main grid, development of isolated and renewable energy options has been followed by the National Energy Policy to ensure sources for sustainable growth and development in the sector.[40] The Draft Renewable Energy Policy 2009, the Renewable Energy Action Plan, 2000 and the Renewable Energy Master Plan (NEMP), 2014 were created by the Renewable Energy Development Agency, to make renewable energy a major source of green energy in Nigeria. The National Renewable and Energy Efficiency Policy (NREEP), 2015 is to ensure the expansion of off grid electricity in Nigeria.[41] Despite the lofty provisions on the development and the creation of the National Bio-fuel and Incentive Policy, 2007, for a sustainable renewable option the results have been an acute underdevelopment in the sector in Nigeria especially, those at the rural areas. This frustration can be seen in such case as: *Amadi & Ors v Essien*[42] where the Court affirmed the electricity regulation, protection and rights of electricity consumers in Nigeria. In *Mike Kpemi v Benin Electricity Distribution Company*,[43] the Court ordered that distribution company to immediately install metering device at the claimant's residence.

5. Privatisation of the Power Sector in Nigeria

The history of electricity in Nigeria began in the year 1869 when electricity was first produced at Ijora and the subsequent establishment of the Nigerian Electricity Supply Company (NESCO) and the construction of a hydro power station at Kuru near Jos.[44] In 1946, the Electricity Corporation of Nigeria was established to take over the responsibility of providing electricity for Lagos.[45] The Niger Dam Authority was established with the responsibility to provide hydro power, irrigation, navigation and promoting fish brines.[46] The fusion of generation and transmission saw the amalgamation of the Electricity Company of Nigeria and Niger Dam Authority by the promulgation of the National Electric Power Authority (NEPA) Decree, with a monopoly to generate transmit and distribute power in Nigeria until 1988 when NEPA was listed for privatisation. The privatisation of the power sector began with the repeal of the NEPA Act, and enactment of the Power Holding Company of Nigeria (PHCN) which unbundled and restructured the power sector into eighteen successor companies, until 2005 when the Electric Power Sector Reform (EPSR) Act, 2005 was passed.[47]

6. Rural Electrification Agency

The Electricity Act, 2023, established the Rural Electrification Agency (REA) with the objectives of creating electricity channels for the rural, underserved and unserved communities in Nigeria. The objectives of the agency apart from the above

[33] Section 1 (1) (2) Public Enterprises (Privatisation and Commercialisation Act, 1999; Section 44 of the Investment and Securities Act 1999.
[34] S 4 of the Public Enterprises (Privatisation and Commercialisation) Act, 1999
[35] ibid s 5(1) (2)
[36] ibid s 5(3)(4)
[37] ibid s 8
[38] S 55, 56 of Companies and Allied Matters Act, 2020
[39] s 19(1) of Public Enterprise (Privatisation and Commercialisation) Act, 1999.
[40] S 32(b) EPSR, 2005
[41] JO Olujobi 'The Legal Regime from Renewable Energy as Alternative Sources of Energy in Nigeria's Power Sector: The Impact and Potentials' *Academy of Strategic Management Journal* Volume 19, Issue 3, (2020)
[42] (1997) NWLR pt91 at 125-126
[43] (Unreported) Suit Ak/94/2019 Per Justice Adegbehingbe, Akure Division
[44] Y Oke, (n1) p2-3
[45] Electricity Ordinance No15, 1950
[46] N Manafa, *Electricity Development in Nigeria* (Rasheem Publishers Lagos 1995) Pp37-51
[47] 'Federal Government Liquidates PHCN: 18 Companies Take Over Control' *The Nigerian Tribune,* (11 January 2012) Pp1-4

are to set economically efficient standards to meet the social, industrial and agricultural needs of rural communities.[48] The agency is further mandated to promote and develop rural electrification policies such as off grid electrification, utilisation of renewable energy, diversification, improved access and renewable energy technologies in rural, unserved and underserved communities in Nigeria.[49] Furthermore, the agency shall provide public education on renewable energy and consumption and deploy bio-energy technology and special intervention programmes and projects for rural and semi-urban communities in Nigeria.[50]

Functions of Agency of the Agency

The agency is mandated to promote universal access to affordable electricity and improve the quality of life and economic opportunities of rural dwellers in Nigeria. It is also mandated to fix appropriate tariffs, manage rural electrification funds provide training, tax incentives and low interest loans for local manufacturers of renewable energy products.[51] In the course of performing its' statutory duties, the agency shall insure its' property against losses and risks, acquire properties, establish zonal offices, foster and mainstream gender issues, disburse funds, collect information and do all things necessary and incidental in the performance of its duties under the Act.[52] The achievement of the above objectives depend on issues such as efficient technical and administrative management which will be a paradigm shift from the 'business as usual' attitude of regulators and other governmental agencies in Nigeria.

Renewable Energy Master Plan (REMP) 2011

It was developed by the Energy Commission of Nigeria to provide strategic road map for the sector in Nigeria. The policy outlines energy target to achieve 10% renewable energy mix by 2025.[53] Other incentives include, the provision of tax waiver, financial support, and subside, for the sector, through capacity building and research.[54]

Feed-In-Tariffs (FIT) Regulations, 2015

These regulations were made by NERC to promote investments in the renewable energy sector, by guaranteeing fixed tariffs and ensuring predictable and secure revenue streams for renewable energy projects. Other regulatory aspects include *inter alia*, the encouragement of long term contracts ranging from 15 to 20 years for renewable energy producers in other to provide stability and reduce investment risks. It is to encourage the use of wide range of technologies for promoting divers energy mix.[55]

Nigeria's Vision 30:30:30

The vision is a strategic plan to achieve 30% renewable energy contribution to the national energy mix by 2030, to meet the Nigeria's Nationally Determined Contributions (NDC) to the United Nations Conventions on Climate Change, 1992 and the Paris Agreement on Climate Change, 2015, by developing renewable energy projects like large scale solar farms, wind parks and mini grids. It also emphasised the integration of renewable energy needs in the National Development Plans for the overall economic growth and development. There is also the vision to promote international collaboration and partnerships in areas of expertise, funding and the internal best practices for the sector.[56]

7. Development of Renewable and Energy Efficient Sources in Nigeria under the Electricity Act 2023 (As Amended)

The provisions for renewable energy under the Act, is provided for in part XVII, which empowers the Commission to support the development and utilisation of renewable energy to Nigeria's energy mix.[57] In pursuit of the above objectives, the commission is empowered, to stipulate licensing to renewable electricity companies for provision of electricity to consumers, issue commercial and technical regulations for connectivity to the grid and distribution networks for sale of electricity to consumers.[58] The commission is expected to issue technical standards and certification procedures for technical personnel participating in renewable energy projects, by promoting local skills and local requirements for renewable energy projects. It is also expected to issue standards for the following; power purchase agreements, marketing and trading in renewable energy, regulating the role of generation licences, providing ISO distribution licences in the integration of generated capacity into the national grid and distribution networks.[59] Furthermore, NERC is expected to monitor and enforce compliance with renewable purchase and generation obligations and provide for embedded renewable review of extant standards for solar PV, wind turbine and biomass.[60] The Commission is expected to make regulations for mini grid

[48] S 127, Electricity Act, 2023 (as amended)
[49] ibid S 128 (a) (b) (c) and (e)
[50] ibid S 128 (f) and (g)
[51] ibid S 129 (a) (b) (c) and (f)
[52] ibid
[53] GS Egbenibo, 'The Nigerian Power Sector: A New Structure Required for Effective and Adequate Power Generation, Transmission and Distribution' *Global Journal of Engineering and Technology Advances* 1 (1), (2021) P6-18
[54] ibid
[55] SG Dauda, SO Idehen 'An Examination of the Implementation of Existing Polices of on Renewable Energy in Nigeria: How Effectiv e' *Journal of Power and Energy Engineering* 9 (5) (2021) P104-119
[56]T Sesan 'Status of Renewable Energy and Implementation in Nigeria' (2008) available at <https://www.gbengasesa.com/temidocs/REPStatus Nigeria PDF> accessed 16 January 2025
[57] Section 164 of the Electricity Act, 2023
[58] ibid s 164 (a)(b)
[59] ibid s 164 (c) (d) (e)
[60] ibid s 164 (f) (g)

regulations for installations, metering, billing and other requirements, review extant National Content Development Regulations to address content requirements for local skill acquisition, local production and assembly of solar PV components, deep circle batteries electro-mechanical component of SHD technology, wind power, boilers and turbines for congestion of less than 30mw or other components. It is also mandated to ensure long-term favorable pricing, mechanism for renewable energy and unhindered access to the national grid and distribution networks.[61]

NERC in furtherance of the obligations, is mandated to promote the generation and consumption of electricity from renewable energy sources, introduce feeding tariffs for all small hydro scheme biomass co-generation power plants solar and wind based plants irrespective of their size with terms of tariffs for up to 20 years under the power purchase agreement and the section on investments.[62] There is the need to grant license for mini grid concessions to renewable energy companies to serve a geographical location and set standards for solar homes systems, standalone solar PV, micro and wind power. There should be clear market rules, incentive and support to IPPs for investments in generation of electricity, from renewable sources and support for developing rural electrification using renewable energy sources.[63] In realization of the above objectives, the Commission is expected to develop light handed measures for awarding renewable electricity concession for generation, distribution of electricity within 10MWs generating electricity exceeding 1MW and distribution of more than 100KW aggregate in a site and provide technical specification and codes for standalone solar PV, Micro-hydro and wind power.[64] The commission is expected to issue renewable energy standards on installation, decommissioning and disposal of renewable energy accessories and monitor compliance in conjunction with other relevant MDAs with mandates on safety and standards, net metering for roof-top solar PV system, small wind power, in conjunction with MDAs on energy storage to provide energy efficiency.[65] Finally, the commission shall approve a) rates chargeable for purchase of electricity from sources of public entities; b) charges for mini-grid and grid connections; and c) rates chargeable for wheeling of electricity from renewable energy sources. [66] Commercial activities in the renewable energy sector shall include a) Generation b) Distributions c) Sales and d) Installation.[67]

8. International Legal Instruments on Renewable Energy

Principles and Declarations: The Stockholm Declaration which established the United Nations Environmental Programme (UNEP), formulated some basic principles on environmental protection at the global level by providing thus 'Man has the fundamental right to freedom, equality, and adequate conditions of life, in an environment of quality and wellbeing'. This principle emphasised the use of renewable energy resources in a prudent manner.[68] The Rio Conference on Environment and Development provides that the parties 'have the sovereign right to exploit their own natural resources pursuant to environmental and developmental polices'.[69]

Treaties, Agreements and Protocols: The United Nations Convention on Climate Change (UNFCCC), is a general non-binding framework with the objectives of stabilising the concentration of greenhouse gases in the atmosphere at a level that will protect the climatic system.[70] The treaty used the precautionary principle to douse scientific uncertainty as a reason for delaying measures to curb emission of greenhouse gases.[71] The Kyoto Protocol, was made pursuant to the Berlin mandate to address issues relating to climate change mitigation and adaptation method which include the use of renewable energy resources and to promote sustainable development.[72] The protocol enjoined parties to develop renewable energy options in their laws and policies to address challenges of moving towards clean, reliable, secure, efficient and competitive energy sector. This is apposite to Nigeria's quest in investing in the renewable energy sector with the ultimate objectives of delivering the 'triple whammy effect' which according to March, '…are solutions which are not only good for the planet but also good for development…'[73] The Paris Agreement on Climate Change on the other hand, is made to implement the UNFCCC, through enhanced actions, cooperation to reduce global temperatures to below 1.5^0C, below pre-industrial levels through the use of renewable energy sources.[74] The effort being made by the agreement is to enforce carbon neutrality, decarbonisation on the basis of equity, sustainable development and poverty reduction through domestic actions.[75] Commenting on the Paris Agreement, Longdem, aptly summoned up as follows:

> addressing climate change in developing countries requires a paradigm shift towards building a low carbon society that is able to offer substantial opportunities and continued high growth and sustainable development,

[61] ibid s 164 (h)(i)(j)
[62] ibid s 164 (k)(l)
[63] Ibid S. 164 (m)(n)(o)(p)
[64] Ibid S. 164 (p) (q)(r)
[65] Ibid 164 (s)(t)(u)
[66] Ibid S. 164 (2) (a)(b)(c)
[67] Ibid. S. 165 (1) (a)(b)(c)(d)
[68] Principle 1 and 2 of the Stockholm Declaration, 1972
[69] Principle 2 of the Rio Declaration, 1992
[70] Article 2 UNFCCC, 1992
[71] ibid Article 3 (3) and 4
[72] Article 3 (4) Kyoto Protocol, 1997
[73] E March, 'Climate Change –The Technology Challenge' (World Intellectual Property (WIPO) Magazine 2006), P.21
[74] Article 2 Paris Agreement on Climate Change, 2015
[75] ibid Article 3 (1)

> based on innovative technologies… A legally binding agreement built on the knowledge and existing framework principles may create this shift.[76]

These guiding principles have helped Nigeria in formulating its Nationally Determined Contributions (NDC) and other policies on renewable energy which catalised the passage of the Electricity Act, 2023 (as amended).

9. Issues Affecting Renewable Energy Development in Nigeria

Legal and Policy Hurdles: The basic idea of renewable energy development in Nigeria is to balance economic development and environmental protection. These lofty ideas are however hampered by legal and policy hurdles in the power sector which are not in tandem with global best practices and for the attainment of Sustainable Development Goals (SDGs) aimed at clean energy for all sustainable production and consumption and to combat climate change among others.[77] Development in the renewable energy sector in Nigeria should align with the meaning of the term in the World Commission's Report, 'Our Common Future' known as the Brutlands Report which is 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.[78] A cursory look at Nigeria laws and policies reveals that, there exist great potentials for renewable electricity in the country but there are dearth of coherent laws and policies to drive the much needed development in the sector. The Constitution of the Federal Republic of Nigeria, refers to the economic and social objective which include by implication, development of renewable energy as mere directive policy principles.[79] This principle falls short of the provisions of the Ugandan Constitution which clearly state that 'the state shall promote and implement energy policies that will ensure that people basic needs and those of environmental preservation are met.'[80] The environmental objectives under the Nigerian Constitution fall short of the acceptable global standards which elevate environmental protection and sustainability as a justiciable fundamental right.[81] Under the repealed Electric Power Sector Reform Act, 2005, the major focus was on conventional electricity while renewable energy suffered due to finance and investment barriers. The distributions companies over concentrated on conventional electricity, the renewable policy guidelines for off-grid and expansion of access particularly in rural areas by way of small mini hydro schemes not exceeding 30MW as well as development of biomas. Cogeneration plants, solar and wind bared power plants were hardly ever developed.[82]

There are other renewable energy policies such as Earth Draft Renewable Electricity Policy 2009, the Renewable Energy Master Plan 2012 and the Draft National Energy Master Plan (NEMP), 2014 which were created by the National Renewable Energy Development Agency. All these regulations and policies have failed to deliver on a robust renewable option for Nigeria. In other climes such as Germany, there are strong regulatory guidelines for wind market feed in tariff for each kilowatt of power produced and prioritised grid access for renewable energy.[83] In China, the law provides for the development, utilisation of renewable energy to guarantee energy security and to the preservation of the environment, by decentralisation of the renewable energy structure.[84] Denmark has developed and generated over 40% of her renewable energy from wind. Morocco has her Quarzazate Plant to generate electricity for her citizen as crude oil is no longer a viable and renewable energy source and Nigeria can also tailor its policies and laws to adopt renewable energy policies that are environmentally friendly because of the decrease in demand for crude oil globally.[85] In Kenya, renewable energy is a national development priority unlike Nigeria. Venezuela and Columbia have adopted renewable energy to curtail attacks on their oil facilities and to guarantee energy security. The United Kingdom Germany and China generate a quarter of their electricity from renewable energy sources and are ranked among leading nations in renewable energy infrastructural developments with stable electricity supply.[86]

From the examples drawn above, many countries such as Israel, Brazil and Spain have embarked on a paradigm shift of renewable policy. Brazil has enacted policies such as the Hydro Power Policy, the Biodiesed Policy and Ethanol Policy with the aim of boosting renewable energy supply. Countries like United States have policies on renewable energy which

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[76] 'Climate Change: Mitigation and Adaption' *Advocate for International Development, Legal Guide for Lawyers Eradicating Poverty,* (2012) London P.1

[77]ME Hanacho & EN Word (2021). Achieving Sustainable Development Goals 4 in Nigeria: Problems and Prospects at <https://www.eajournals.org/wp-content/upload/achieving-sustainable-development-goal-4-in-Nigeria.pdf> accessed on 18th April 2025. World Commission Report (1987) at<https://link.springes.com/referencesworkentry/10.100%2F978-94-007-0753-52947 > accessed on 20th April 2025

[79] Section 16 and 17 CFRN (1999) (as amended)

[80] Principle xxv (iii), Constitution of Uganda, 1995.

[81] Article 24, African Charter on Human and Peoples' Right Ratification Act, 2004.

[82] Para 5 of the Policy Guideline, for Renewable Electricity in Nigeria, December, 2006.

[83]German Renewable Source Act, 2001, M Fulton (2012) 'The German Feed-in Tariff: Recent Policy Charges'. Deutsche Bank Group, (2012) 1-27.

[84] China Renewable Energy Act, 2006.

[85]A Akinlere 'The Current Impact of Global Crude Oil Prices on Nigeria-An Overview of the Petroleum and Energy Sector.' *Journal of World Energy Law and Business,* (2016) 9(5) 313-345.

[86]J A Abidakun, O L Agberagha 'Towards Sustainable, A Sustainable Electricity Supply in Nigeria: The Role of Decentralized Renewable Energy System' *European Journal of Sustainable Development Research,* (2018) 2(4), 40.

are believed to be cheaper, more environmentally friendly to conventional power.[87] The US New energy economy' seeks to conceive investments on clean energy, by intensifying true efficiency in automobiles and cutting greenhouse gas emission, by ensuring that at least 25% of its energy originates from renewable energy sources such as wind, solar and geothermal.[88] There is the need for Nigeria to put in place effective policies and regulations to implement Electricity Act, 2023 on renewable energy options for the generation, transmission and distributing environmentally friendly electricity, in tandem with global trends of moving from fossil to more reliable clean and efficient energy.

Research and Technology: The growing global demand for energy consumption has necessitated the development of alternative, and art-effective energy for consumers and economic development. The quest for energy management and efficiency in Nigeria, and elsewhere can only be realized through research and the development of adaptive technology which will ultimately lead to energy efficiency. Nigeria is endowed with renewable energy sources, which can be explored for economic development and environmental sustainability. In order, to realize the full potential of developing an environmentally friendly and indigenous technology, to harness the available potentials of renewable energy sources available.[89] Prior to the privatisation of the power sector, the Nigerian government and most African states, underestimated the importance and gains of energy to the environment and economic growth, by putting the management and control of the energy sector under government monopoly and control. The privatisation of the power sector issues that hamper research and development such as reliance on government for funding, price and policies, lack of autonomy and poor performance management are being addressed albeit at snail speed.[90] The issues that hampered the development can be addressed under the Electricity Act, 2023, if there are effective regulations on the renewable energy, coupled with stringent enforcement by NERC to deliver, the much anticipated revolution in the power sector in Nigeria.

Funding and Capacity Building: Lack of access to finance is a stumbling block in the development of an effective renewable energy system in Nigeria. Other issues that will affect the development of renewable energy in Nigeria include: ease of doing business, taxation and cooperate governance. Statistics from the World Bank has shown a significance in 'starting a business, dealing with a construction permit, getting electricity, registering properties, trading across borders and enforcing contracts.[91] The taxation of cooperate bodies is an issue to contend with because, all the three tiers of governments in Nigeria collect one form of tax or the other, through agencies of the Federal Inland Revenue Services (FIRS), State Boards of Internal Revenue (SBIR) and the Local Government Revenue Department (LGRD). The federal government collects Companies Income tax (CIT), withholding tax, value added tax (VAT) and Personal Income Tax (PIT) among others. The states on the other hand collects Personal Income Tax, Individual Withholding Tax, Capital Gain Tax and Road Tax, leaving the local government with menial axes on shops, kiosks, tenements, liquor license, marriage, birth and death registration among others. Companies income taxes are collected at the rate of 30% and 20% on companies with gross annual turnover of over ₦100 Million Naira and ₦20 Million Naira respectively.[92] Value added tax (VAT) is charged at 7.5% on goods and services in Nigeria whether produces locally or imported. There are also penalties for late filing and mandatory requirements for Tax Identification Number (TIN) for companies.[93] With this tax burdens smaller companies intending to invest in off-grid renewable and energy efficient projects may be reluctant to invest in the sector. Tax incentives and subsidies should be given to such companies to encourage them, especially local investors in the renewable energy sector.

10. Consumer Protection

Consumer Protection under Contract and Tort: The rights of electricity consumers are generally classified under law of tort, contract and statutes. Under civil law, the main objective is to redress the wrong by way of compensation or restitution. Consumer protection under the law of tort is based on an action in negligence, which is an omission to do a thing which a reasonable person is expected to do in a prudent manner, failure of which can give rise to an action in court. In *Anyah v Imo Concorde Hotel & Ors*[94], the Supreme Court held that negligence is a specie of tort, where one may owe another a duty even though no contract exists between them. The most fundamental ingredient in tort is breach of a duty of care which must be proved by the party alleging it. In *Ehimen v Benin Electricity Distribution Company Plc,*[95] the Court of Appeal dismissed the plaintiffs' case for failure to prove negligence on the part of the defendant. Under the law of contract, an agreement may be express or implied by the parties. On the issue of the right of electricity consumers, it is not settled on

[87]B Obama 'The All of the above Energy Strategy as a Path to Sustainable Economic Growth' (2004) at < https://obamawhitehouse.archieves.gov/sites/default/files/docs/qottareportupdatedjuly,2014pdf > accessed on 18 April 2025

[88]R Lukman 'US Energy Policy, A Threat to Nigeria's Oil and Gas Sector' at <https://www.opec.org/opeeweb/staticfilesprojectsmedia/download/pulications/OBOS/092016.pdf > accessed on 21 April 2025

[89]E Uyigue 'Renewable Energy and Energy Efficiency and Sustainable Development in Nigeria, IN Promoting Renewable Energy and Energy Efficiency in Nigeria' Calabar, (2007) 22-29.

[90]AfdB Group 'Energy Sector Policy of the African Development Bank Group' AfdB Operational Resources and Policies Department Report. 2012

[91]OECD 'Revenue Statistics in Africa 2022-Nigeria' <at https://www.oecd.org/tax/tax-policy/revenuestatistics-Africa-NigeriaPDF> accessed 20th April 2025 P.5

[92] Section 7 Finance Act, 2020

[93] Ibid, Section 8 (1) (2), 10(1)

[94] (2002) 12 NSCQR 231, 249

[95] (2006) LPELR-40814 CA

the contractual obligation between consumers and successors companies. In *National Electricity Regulatory Commission & Ors v Tebite and Ors,*[96] the Court of Appeal held that, distribution companies were private companies who bought a going concern and operation of the Power Holding Company of Nigeria.

Consumer Protection under Statutes: The law has made substantial provisions on the right of consumers under the electricity Act, 2023 and the Federal Competition and Consumer Protection Commission (FCCPC) Act, 2018. With respect to renewable energy, the Electricity Act,[97] encouraged integration of renewable energy into the existing grid systems and other incentives such as pricing mechanisms and feed-in-tariffs.[98] There is a prohibition of price discrimination between consumers and consumer categories, but there is a provision for an allowance differential or disparity in tariffs methodologies on the basis of consumption, the period of consumption, load factors, power factor, voltage and location, which can affect cost of services.[99] As at present, electricity consumers are categorised into Band A and B with different hours of supply and cost of energy consumption. With the provision of renewable energy options, the differential in supply and energy cost may likely come down. Other issues on conventional electricity are over billings, tariffs technology consumer complaints, disconnections and reconnections. It is hoped that the REA and NERC will formulate regulations that will guarantee unfettered access to renewable energy consumers.[100]

11. Potentials of Renewable Energy in Nigeria

Socio-Economic and Environmental Sustainability: The privatisation of the power sector is intended to deliver to Nigerians, the much desired energy mix through the development of renewable and energy efficient sources to balance economic, development and environmental sustainability in tandem with the Stockholm and Rio Principles. The Electricity Act, has made provision for the Rural Electrification Fund (REF), the purpose of which is to fund the development of renewable energy to maximise economic, social, and environmental benefits to Nigerians.[101] The ultimate objective of the law is for a more sustainable strategy for rural development, eco system health, energy independence and mitigating climate change.[102] Other socio-economic benefits of renewable energy have been sumarised by Ibanga, as follows: **i)** Creation of clean energy which emits less greenhouse gas than fossil fuel-either none at all or very little, ii) Energy supply diversification, which lessen reliance on imported or fossil fuel, iii) Fostering economic growth and economic development in the manufacturing, installation, iv) Enhance energy accessibility and availability leading to higher productivity, which raises GDP.[103] In conclusion, renewable energy development in Nigeria will have economic benefits by creating jobs and increasing profits margin and valid supply chains. In terms of environmental sustainability, there will be satisfaction of current energy needs in a long run without compromising the capacity of future generation to satisfy their own needs in tandem with international principles of environment and sustainable development goals.

Energy Efficiency, Security, Feed-in-Tariffs and Off-Grid-Solutions: The privatisation of the energy sector is aimed at energy efficiency, security, fixing of tariffs and the provision of off-grid solution to the energy needs of Nigerians. Energy efficiency entails the use of less energy to perform a task. It involves the use of measures, technologies that reduce energy waste, consumption, cost and environmental impact.[104] Energy security entails the uninterrupted use of available energy at an affordable price to meet the expanded demand of a community. Rural energy development in Nigeria can enhance energy security, adequacy, reliability, and environmental sustainability.[105] The issues of energy security and efficiency are a global phenomenon affecting both the developed and the developing countries. In Germany for instance, the law requires market feed-in-tariffs for each kilowatt of power produced and prioritised grid access to encourage renewable energy utilisation in the country. [106] Feed-in-tariffs (FiT) is a mechanism designed to encourage adaption of renewable energy by way of long term contract with a guaranteed price where energy producers are paid fix tariffs for generating electricity. This policy is aimed at attracting a predictable return on investment on renewable projects.[107] Off-grid solutions can come by way of mini, solar, or standalone renewable energy systems.

Investment Opportunities: Nigeria can take a cue from countries such as Brazil and USA that have demonstrated unalloyed commitment to renewable energy. Brazil has enacted effective Hydro Power Policy, Bio Diesel policy and Ethanol policy as a paradigm shift to renewable energy which have proved to be cleaner, cheaper and environmentally friendly. USA on the other hand, through her 'new energy economy' has conceived clean energy investment opportunities by intensifying efforts on energy efficiency on automobiles and ensuring that at least 25% of the nation's energy originate from renewable energy sources.[108] Another eye opener for Nigeria, is the signal from OPEC, which depicted the situation in the United Kingdom whose investments

[96] (2022) LPELR-58321 CA
[97] S 164 (i) of the Electricity Act 2023
[98] ibid S 168-170
[99] ibid 116 (2) (e) (5)
[100] NERC Consumer Complaints Handling: Standards and Procedures, 2006
[101] S 143 (b) Electricity Act, 2023
[102] C Chris, F Odikpo, A Adesoji & E Moyiwa (n12) p528-539
[103] D Ibanga, 'Renewable Energy Issues in African Contexts' *Centre for Environmental Governance and Resource Management* (2018) 2 (6), 117-134
[104] Olujobi (n 22)
[105] Section 232 of the Electricity Act, 2023 (as amended)
[106] Article 5 German Renewable Resource Act, 2001
[107] MO Erhun, DO Johnson, 'A Legal Framework for Sustainable Electrical Energy in Nigeria' Energy and Environmental Research, 8 (2) 42 at https://doi.org./10.5339/eer.v8n2 accessed on 26th April 2025
[108]R Lukman, 'US New Energy Policy a Threat to Nigeria's Oil and Gas Sector' at<https://www.opec.org/opecweb/staticfileprojects/media/downloads/publications/030809216.PDF> accessed 27 April 2025

in the renewable energy sector from 1990 to 2004 multiplied electricity in twelve fold.[109] Kenya has made regulations for solar water heaters compulsory in all buildings with more than 100 litres consumption per day, thereby marking a significant development in their renewable energy sector.[110] The successful integration of energy systems in the countries mentioned above are possible due mainly to less corrupt, stringent and coherent enforcement of their renewable energy's legal and policy frameworks.[111]

Nigeria can attract renewable energy projects through Foreign Direct Investment (FDI), Private sector participation and local initiatives by the Federal, States and Local governments. Many policy initiative are in place like the solar Home Systems Provider Lumos, by the US based Development Finance Corporation which has deployed $35 million grant to Nigeria to distribute 160, small and medium-sized enterprises SMEs across the country.[112] The REA has commenced the second phase of Energizing Education Programme (EEP) with the aim of providing reliable and clean power to thirty seven Federal Universities and Seven Teaching Hospitals with in Nigeria at the cost of $35 million for solar hybrid systems.[113] Another initiative is by the Nigerian Sovereign Investment Authority (NSIA) which has completed a 10 MW solar project in the Challawa Industrial Area of Kano State as the first grid-tied solar plant in Nigeria.[114] In summary, the overall objectives for investment in the sector through bilateral or multilateral channels in to support, *inter alia*: i) The establishment of local industries for solar energy conversion technologies, ii) Develop a skilled work force for basic engineering infrastructure for the production and productions for wind power systems; iii) Promote private sector participation by local investors' iv) Development of small, mini and micro energy schemes to grow our local economy.[115]

12. Conclusion and Recommendations

The privatisation of the power sector and the reform in the sector has galvanised action for the development of renewable and energy efficient sources in Nigeria. Electricity Act, 2023 (as amended) has given the Rural Electrification Agency (REA) the mandate to develop the sector. The renewable Energy Master Plan, 2005 has put in place policies for the development of renewable energy options such as: wind, solar, thermal and biogas in the short, medium and long term implementation of the set targets. The achievement of the vision for the sector requires the cooperation of all sector and other stakeholders. The effective implementation of the law and regulations is a step in the right direction in Nigeria's quest if transiting from fossil fuels to renewable and efficient energy sources in line with global trends of balancing economic sustainability with environmental protection is going to be achieved. The privatisation of the power sector in Nigeria has led to the unbundling of the generation, transmission and distribution of energy in the power sector in Nigeria. The recent passage of the Electricity Act, 2023 (as amended) has made far reaching provisions for renewable energy development through the establishment of the Rural Electrification Agency (REA). There is also the Renewable Energy Master Plan (REMP) 2005 which envisioned a gradual transition from over dependence on hydrocarbons as a primary source of energy in Nigeria to cleaner sources of energy. The REMP has the short, medium and long term objectives spanning the period of 2005-2025 to realise the renewable master plan Nigeria is on course about. This study made the following findings:

i) The development of renewable and energy efficient energy sources are hampered by legal regulatory and policy barriers due to non implementation of coherent laws, regulations and policies in the sector.
ii) The absence of local or indigenous research on adaptive technology for renewable, efficient energy solutions and solar conversion technologies in Nigeria.
iii) Access to funding is a barrier for investments in renewable energy projects and capacity building for local learning opportunities, development of skilled work force and basic infrastructure for the sector.
iv) Lack of investments in the sector is a stumbling block to the provision of funding for reliable, clean and environmentally sustainable energy solutions.

In the light of the above, the following measures are recommended:
i) The constitution of the Federal Republic of Nigeria, 1999 should be amended or altered, specifically sections 16, 20 and to the second schedule thereof, to make the economic and environment objectives justifiable rights and to expand the power of the state and local government and even private investments in the renewable energy sector.
ii) The Rural Electrification Agency, National Electricity Regulatory Commission (NERC) should make regulations and policies for integration and funding of feed-in-tariffs and embedded renewable energy as it is in Germany.
iii) Regulatory agencies should enforce, implement and regulate research and technological development to support local manufacturing of solar conversion technologies and applications. This will lead to the training of skilled workforce for engineering infrastructure, production and operations of renewable energy options as the case in Denmark, United Kingdom and China.
iv) Regulatory agencies should enforce, and promote, investments in the renewable sector investment through FDI and local investment to boost the economy and environmental sustainability of Nigeria.

[109] ibid
[110] Kenyan Energy Regulations, 2012
[111] OJ Olujobi, 'Legal framework for combating Corruption in Nigeria-The Upstream Petroleum Sector in Perspective' Journal of Advanced Research in Law and Economics (JARLE), (2017) 8 (5), 956-970
[112] Nigeria Energy, 'Why Invest in Nigeria's' Energy Future? Opportunities and Challenges in Nigeria' (Inform markets) 2024 P7
[113] ibid
[114] ibid
[115] UB Akuru & OI Okoro, 'Renewable Energy Investment in Nigeria: A Review of the Renewable Energy Plan.' *Journal of Energy in Southern Africa* Vol 25 No3, August, (2014) P.69