Original Research Article

CONSTITUTIONAL AND INSTITUTIONAL GOVERNANCE OF ELECTRICITY SECTOR IN NIGERIA

Abstract

The extensive reform of Nigeria's power industry is focused on deregulation, restructuring, and privatisation. The government started a comprehensive economic reform programme in 1999, which includes this reform. The National Electric Power Policy (NEPP) of 2001 and the Electric Power Sector Reform (EPSR) Act of 2005 both first stated the need for privatising the electricity sector. The privatisation of the entire energy sector made considerable strides in 2013 with the transfer of ownership of six electricity production businesses and eleven electricity distribution companies.

With the passage of the Privatisation and Commercialization Act in 1988 and the subsequent creation of the Technical Committee for Privatisation and Commercialization (TCPC) in 1993, the reform process got underway. When civilian authority was restored in 1999, the government passed the Public Enterprises (Privatisation and Commercialization) Act, which established the National Council on Privatisation (NCP) as the top policy-making body on privatization-related matters. The Bureau for Public Enterprises (BPE) was created under the Act to serve as the government's technical operator and task manager for its public enterprise reform initiative.

The reform legislation calls for licencing liberalisation, the unbundling of the public monopoly utility, corporatization, and the commercialization of successor enterprises. The Power Holding Company of Nigeria (PHCN) was established as a holding company. To ensure a competitive electricity market, the law suggests selling generating and distributing enterprises to core investors.

Despite privatisation attempts, Nigeria's electrical supply reliability remains a serious difficulty, and regulation remains an urgent issue. Due to the inconsistent availability of energy, manufacturers continue to rely primarily on diesel generators. Power plant failures have resulted in significant electrical shortages, with daily power outages lasting several hours.

Conclusively, while the Nigerian power sector has undergone significant reforms, there is still a need for further improvements in regulation and electricity supply reliability to address the country's persistent energy challenges and support economic diversification beyond oil production and manufacturing sector collapse.

1.0 INTRODUCTION

The Nigerian power sector is currently undergoing one of the most ambitious, comprehensive, and bold reforms in the history of Africa.[1] The Nigerian energy sector has changed fundamentally in recent years. The Nigerian Government has made it clear that it seeks to

[1] Ogunleye, E.K., (2017), Political Economy of Nigerian Power Sector Reform, pp. 391-409.

deregulate and restructure the sector, with the goal to completely unbundle the oil and gas sector and to privatise the power sector.

The need for privatizing the electricity sector was originally articulated in the National Electric Power Policy (NEPP) 2001 and later incorporated in the Electric Power Sector Reform (EPSR) Act 2005. In November 2013, The country handed over ownership of six electricity generation companies and 11 electricity distribution companies to private firms.[2] This followed on the heels of contracting the country's transmission service provider to private management contractors.[3] The two exercises almost completed the full privatization of the entire electricity industry in Nigeria.[4] The privatization of the electricity industry is part of a larger economic reform programme of the government, which started in 1999 with President Obasanjo. The Obasanjo administration articulated the National Electric Power Policy (NEPP) in 2000 and followed it up during his second tenure with the enactment of the Electric Power Sector Reform (EPSR) Act, 2006.

The power sector reform follows after a largely successful reform of the telecommunications sector in the late 1990s and early 2000. The later effort to privatize the publicly owned Nigerian Telecommunication Limited (NITEL) was a huge failure.[5] As part of the independent regulation of the entire electricity industry, the policy further restricts the Ministry of Power (or any other nomenclature it may bear) to policy-making on electricity supply.[6]

Babangida began the reform with the Privatization and Commercialization Act of 1988 as a regulatory framework.[7] In 1993, the government established the Technical Committee for Privatization and Commercialization (TCPC) to coordinate the privatization and commercialization activities of the military government. Later on, with the return to civil rule in

[2] The six generating companies include two hydro stations that were sold as a concession to private firms. Those are Kanji Hydro Plant Station and Shiroro Hydro Plant Station.
[3] The country's transmission service provider – the Transmission Company of Nigeria (TCN) was contracted in 2012 to the Manitoba Hydro of Canada for managers preparatory to possible privatization. See Editorial, "Canadian firm wins USD24m Nigerian power deal" Biztech Africa (5 April 2012) accessed on Tuesday, 29 August 2017.
[4] The only exceptions are the 10 Nigerian Integrated Power Plants (NIPPs), which are awaiting completion of the privatization and a few power plants owned by some major oil companies in Nigeria.
[5] Ngozi Okonjo-Iweala, Reforming the Unreformable: Lessons from Nigeria (MIT Press, 2012) 43-45 for a brief discussion of the liberalization of the telecom sector and the privatization of NITEL and its mobile arm, MTEL.
[6] National Council on Privatization, National Electric Power Policy (Federal Republic of Nigeria, 2001) for the policy thrusts of the electricity sector reform in Nigeria.
[7] Privatization and Commercialization Act 1988, s. 3.

1999, the government enacted the Public Enterprises (Privatization and Commercialization) Act, which created the National Council on Privatization (NCP) as the highest policymaking organ of the government on privatization issues.[8] The Act also created the Bureau for Public Enterprises (BPE) to replace the TCPC as the technical operator and task manager of the public enterprises reform policy of the government.[9]

First, it stipulates liberalization through licensing, unbundling of the public monopoly utility, corporatization and commercialization of the successor companies and, later in the transitional stage, privatization of the now-corporatized successor companies. The law created a holding company, the Power Holding Company of Nigeria (PHCN), which is further separated into 18 different companies (6 electricity generation companies, 11 distribution companies and a national transmission company). Towards the end of the transitional period, the law recommends that the six generating companies and the 11 distribution companies be sold to core investors as a way of guaranteeing a competitive electricity market in Nigeria. The implementation of the electric reform policy was stalled between 2007 and 2009 under President Yar'Adua. In 2010 President Jonathan restarted implementation of the reform with a Presidential Roadmap for Power Sector Reform. [10]

Alarmed by the critical electricity supply situation the government privatized the electricity sector in 2013 with the aim to improve the reliability of electricity supply. Despite the privatisation in Nigeria, unfortunately, not much has changed and regulation remains a big issue. The business of electrical activity in the electricity sector in Nigeria includes the following: electricity generation; transmission; system operation; distribution and trading in electricity.[11]

The Nigerian economy still suffers from inadequate diversification in the wake of first commercial oil production in the late 1950's and the collapse of the nascent manufacturing sector from the mid-1980's onwards. The sporadic availability of electricity still forces manufacturers to deploy diesel generators for reliable electricity supply. The poor performance of the power

[8] Public Enterprises (Privatization and Commercialization) Act 1999, s. 9.
[9] ibid s. 12.
[10] Amadi, S., (2017), The Rule of Law Approach to Regulating Electricity Supply in Nigeria, p. 27.
[11] Jegede, O.J., Idiaru, W., (2021), Nigeria: Overview Of Electricity Law In Nigeria, Accessed on April 6, 2023 from https://www.mondaq.com/nigeria/oil-gas--electricity/1075234/overview-of-electricity-law-in-nigeria

plants has led to acute shortage of electricity across the country with power outages of several hours per day.[12]

2.0 NIGERIA AND ITS ENERGY SECTOR

The Federal Republic of Nigeria comprises thirty-six states and the Federal Capital Territory, Abuja. The country is located in West Africa and shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its Atlantic coast runs along the Gulf of Guinea, in the south. Since 1991, the capital city is Abuja. At its widest, Nigeria measures about 1,200 km from east to west and about 1,050 km from north to south. The country's topography ranges from lowlands along the coast and in the lower Niger Valley to high plateaus in the north and mountains along the eastern border. The country is bifurcated by two main rivers, the Niger and the Benue.

Temperatures across the country are relatively high, with very narrow variation in seasonal and diurnal ranges, and wide regional differences. There are two main seasons: the rainy season (usually April to October); and the dry season (November till March). The dry season commences with Harmattan winds, a dry chilly spell that lasts till February and is associated with lower temperatures and dust brought by the winds blowing from the Arabian Peninsula across the Sahara. The second half of the dry season, namely February till March, is the hottest period of the year (temperatures range from 33 to 38 °C and are at their highest, as is aridity, in the north). Given this climatological cycle and the size of the country, there is a considerable variation in total annual rainfall across the country, both from south to north and, in some regions, from east to west. The maximum total precipitation is generally in the southeast, along the coastal area of Bonny and east of Calabar, where mean annual rainfall is more than 4,000 millimeters.[13] These details are important especially in considering the hydro-electric power supply in Nigeria.

The power sector in Nigeria is seen by many analysts as the key constraint on economic development. Assessing the ease of getting electricity, the World Bank ranked Nigeria 187 of 189 countries in the 2015 edition of its Doing Business report. For a business in Lagos, to obtain

[12] Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), (2015), The Nigerian Energy Sector: An Overview with a Special Emphasis on Renewable Energy, *Energy Efficiency and Rural Electrification 2nd Edition.*
[13] Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), (2015), The Nigerian Energy Sector: An Overview with a Special Emphasis on Renewable Energy, *Energy Efficiency and Rural Electrification 2nd Edition.*

permanent electricity connection takes 260 days.[14] Once connected to the electricity provider, Nigerian businesses' biggest reported problem is the erratic power supply. About 83% of all managers surveyed considered electricity outages to be a serious problem – more than any other constraint. The average firm claims outage related losses equivalent to more than 4% of sales. No peer country experiences such severe business losses related to the power supply.

Nigeria is a part of the West African Power Pool (WAPP), a specialized institution of ECOWAS. The target of WAPP is to ensure regional power system integration and realization of a regional electricity market. It covers public and private generation, transmission and distribution companies

3.0 PRIVATISATION OF NIGERIAN ELECTRICITY

In 2013, Nigeria took the deep plunge into privatisation. With the transfer of government shares in 17 electricity generation and distribution companies in November 2013, Nigeria crossed the Rubicon in the privatisation process.[15] generally believed to be one of the largest single privatization exercises in the world.[16] This was not entirely new as it had been a long time coming. This process began in earnest in 2003 with the liberalization of the telecom sector as part of a strategic reform to improve efficiency in these utility sectors.

The ultimate aim is to privatize all power assets with a view to ending the country's chronic power shortages and long-standing monopoly of the sector by the state-owned power entity. The reform is based on the 2005 Electric Power Sector Reform Act, 2010 Roadmap for Power Sector Reform, and subsequently the 2013 Roadmap for Power Sector Reform Revision 1, among

[14] data.worldbank.org/indicator/EG.USE.COMM.GD.PP.KD Energy use (kg of oil equivalent) per $1,000 GDP (constant 2011 PPP).
[15] Amadi, S., THE RULE OF LAW APPROACH TO REGULATING ELECTRICITY SUPPLY IN NIGERIA
[16] The need for privatizing the electricity sector was originally articulated in the National Electric Power Policy (NEPP) 2001 and later incorporated in the Electric Power Sector Reform (EPSR) Act 2005.

several other policy documents. While the Act provides a legal backing for the reform, the roadmaps serve as instruments for fast-tracking the proposed fundamental changes to the ownership, control, and regulation of the sector as envisaged in the Act and ensure these are achieved and realized, especially for the ultimate benefit of electricity users.[17]The steps taken till date will now be examined.

Prior to the enactment of the Electricity Power Sector Reform Act (EPSRA, 2005), the Federal Government of Nigeria (FGN) was responsible for policy formulation, regulation, operation, and investment in the Nigerian power sector. Regulation of the sector was conducted by the Federal Ministry of Power (FMP) with operations handled by the National Electric Power Authority (NEPA), a wholly state-owned entity responsible for power generation, transmission and distribution. From 1972 to 2005, NEPA controlled about 94% of the generation capacity and 100% of the transmission and distribution sector of the industry.

The reform was planned in three phases.[18] Five activities were scheduled for the first phase. These are unbundling and privatization of the long-lasting government-owned monopoly power company, National Electric Power Authority (NEPA) subsequently known as Power Holding Company of Nigeria (PHCN), creation of an independent power sector regulator (NERC) to ensure sanity in the market and carry out other standard regulatory functions, incorporation of the Power Holding Company of Nigeria (PHCN) successor generation and distribution companies, creation of a multi-purpose entity that would have the function of procuring electricity from the independent power producers and newly created generation companies for subsequent sale to the distribution companies, and establishment of the training institute, National Power Training Institute of Nigeria (NAPTIN).

The second phase, which has a medium-term horizon, involves developing a cost-effective electricity tariff to ensure competitive pricing that would attract private sector participation in the sector. The third phase, which is the long-term phase, focuses on achieving a completely competitive power sector.

The FGN amended the then prevailing laws (Electricity and NEPA Acts) in 1998 to remove NEPA's monopoly and encourage private sector participation. The National Electric Power

[17] Ogunleye, E. K. (2016). 'Political Economy of Nigerian Power Sector Reform'. WIDER Working Paper 2016/9.
[18] Ogunleye, E.K., (2017), Political Economy of Nigerian Power Sector Reform, pp. 391-409.

Policy, 2001, specified the reform agenda, while EPSRA provided the legal basis for the unbundling of NEPA. NEPA was restructured and transformed into the Power Holding Company of Nigeria (PHCN). From 2007 until September 2013 PHCN acted as the state-owned agency responsible for generating, transmitting and distributing electricity for the entire country. Meanwhile the FGN sought to sell-off much of the state-owned stake in the electricity services industry, only retaining the transmission grid as a public entity.

As a first step the government-owned generating companies (GENCOs) were put up for sale in two forms: The thermal power stations were to be sold outright and the hydropower stations were dropped as concessions. Moreover, distribution was unbundled into 11 successor distribution companies (DISCOs). The privatisation was undertaken in form of a competitive bidding process and was completed in November 2013 with the handover of asset to the 6 private generation and 11 distribution companies. FGN retained control of the transmission and system operation under the Transmission Company of Nigeria (TCN), which has a system and a market operator division. The transmission lines and generators are interconnected in a common grid, with a single control centre at Oshogbo.

As a second step, the FGN founded a regulator (NERC) and a bulk trader (Nigerian Bulk Electricity Trading Plc, NBET), whereby the latter shall only exist until such a time as the electricity market is fully privatised, after which the power purchase agreements it has signed will be passed on to the DISCOs. It also established the Operator of the Nigerian Electricity Market (ONEM) within TCN which acts as wholesale market and settlement operator. It therefore manages the metering system among generation, transmission and distribution companies.

As a third step, the FGN put all ten new National Integrated Power Project (NIPP) power stations up for sale (with a combined capacity of 5,455 MW they were owned by the Niger Delta Power Holding Co. (NDPHC) and scheduled for completion in 2014). FGN has assigned NGN 50 billion (US$ 312.5 million) to escrow accounts to cushion losses that the GENCOs may suffer (be it from power transmission or due to a shortfall in supplies) and has also obtained a partial risk guarantee from the World Bank to the same end. The Nigerian Bulk Electricity Trading Plc

(NBET) manages buying the electricity from the GENCOs and selling it to the DISCOs in the interim.[19]

In May 2015 the Nigerian Government has begun to unbundle TCN by creating a state-controlled Independent System Operator (which includes the functions of the previous system and market operator divisions) and an eventually privatized Transmission Service Provider.

Within the Nigerian electrical power system four basic power generation options are to be differentiated. These power generation options include:

i. transmission based on-grid generation,
ii. embedded generation,
iii. off-grid generation and
iv. captive generation.

While licenses are needed to operate a generator according to options i) to iii), captive generation only requires a permit by the NERC.[20]

4.0 RELEVANT PROVISIONS ON ELECTRICITY IN NIGERIA

Many have opined that most Nigeria's problems persist not for lack of legislations but of enforcement. Similarly, the power sector in Nigeria has quite a number of legislation. This article will be examining some of them.[21]

1. **The Electric Power Sector Reform Act**[22]

[19] African Development Bank http://nigeria.opendataforafrica.org/
[20] www.nercng.org/index.php/document-library/func-download/312/chk,d6b1bfbe4d840a2d18d6206c31798caa/no_html,1/ Market rules - For Transitional and Medium Term Stages of the Nigerian Electricity Supply Industry
[21] Jegede, O.J., Idiaru, W., (2021), Nigeria: Overview Of Electricity Law In Nigeria, Accessed on April 6, 2023 from https://www.mondaq.com/nigeria/oil-gas--electricity/1075234/overview-of-electricity-law-in-nigeria
[22] 2005, CAP E7, Laws of the Federation of Nigeria 2004 (EPSRA).

This is a major law that governs the Nigerian electricity industry, which includes electricity generation, transmission, distribution, supply, and trading. The Act is established to provide for the formation of companies to take over the functions, assets, liabilities, and staff of the National Electric Power Authority, to develop competitive electricity markets, to establish the Nigerian Electricity Regulatory Commission (NERC) as an independent regulatory body charged with the responsibility of licensing and regulating persons engaged in the generation, transmission, system operation, distribution and trading of electricity in Nigeria.

The purpose of the Act is also to enforce performance standards, consumer rights protection, and to provide for the determination of tariffs among other matters connected with electricity generation, transmission and distribution.

The Act provides for the licensing requirements to operate in the electricity sector of the Nigerian economy. ***Section 62*** of the Act states that *"no person except in accordance with a license issued pursuant to this Act shall construct, own or operate an undertaking other than an undertaking specified in subsection 2 of this Section, or in any way engage in the business of;*

a. electricity generation, excluding captive generation;

b. electricity transmission;

c. system operation;

d. electricity distribution; or

e. trading in electricity".

It also provides for the procedure for the application for a license under **Section 70.**

In addition, the Act empowers NERC under ***Section 96*** "*to make regulations prescribing all matters required or permitted to be prescribed to which in the option of the Commission are necessary or convenient to be prescribed for carrying out or giving effect to the Act"*. The NERC in performing this function has issued several regulations to give effect to the provisions of the Act. Some of these regulations are:

a. **NERC Regulations for Independent Electricity Distribution Networks (IEDN Regulations) 2012**: The objective of this Regulation is to provide standard rules for the

issuance of distribution licenses to qualified operators and licensees to engage in electricity distribution, independent of distribution system operated by the Distribution Company of Nigeria. It is applicable to all independent electricity distribution systems, owners, operators, and users in Nigeria.

b. **Regulations for the Investment in Electricity Networks 2015**: The Regulation makes provision of the procedure for investing in electricity networks in Nigeria. The objective of the Regulation is to create strong incentives to encourage the transmission company of Nigeria (TCN) and the distribution companies (DISCOs) to make a sustainable investment in capacity expansion, to ensure the delivery of capacity at levels already projected in the revenue requirement for the sector. It also includes helping to take up potential penalty costs that may be associated with the inability of relevant utilities to deliver under the current price control. The Regulation also aims toward consumer protection.

c. **Regulations on National Content Development for Power Sector 2014:** This Regulation aims to promote the deliberate utilisation of Nigerian human and material resources, goods, services, and works in the industry. Also, to open the Nigerian electric supply industry at all levels of its complexity to involve Nigerian people and expertise, to build capabilities in Nigeria to support increased investment in the industry, and to leverage existing and future investment to stimulate the growth of Nigerian-located enterprise.

d. **The Nigerian Electricity Health and Safety Standards Manual:** It was made by NERC to address occupational health and safety issues in the Nigerian electricity supply industry. NERC seeks to ensure that employers and their designated corporate representatives have both moral and legal obligations to ensure that both their workers and the public at large are kept insulated from the hazards associated with the industry sector.

e. **NERC (Embedded Generation) Regulation 2012:** The Regulation is made by NERC to provide standard rules for embedded generation and distribution of electricity to ensure safe, secure, and efficient electricity supply. It is applicable to users of distribution networks, embedded generation licensees, applications for embedded generation licenses processed by the Commission, and prospective embedded generation licensees.

f. **NERC License and Operating Fees Regulation 2010:** The Regulation provides for the processing fees for applications. That every application for a license made to the Commission shall be accompanied by a non-refundable application processing fee as contained in the Schedule of Fees. The fees payable shall be paid by means of bank draft or cheque drawn in favour of NERC. Also, all fees received by the Commission shall be acknowledged by the issuance of the Commission's official receipt.

g. **NERC Regulation for Mini-Grid 2016**: The purpose of the Regulation is to provide for the procedure, licensing and operation of mini-grids in Nigeria. The Regulation stipulates the condition and obligations for operating mini-grids.

h. **NERC MAP Regulation 2018**: The purport of this Regulation is to provide a framework for Meter Asset Provider. Prior to this Regulation, most Distribution Companies have been failing in their duties to provide meters for their customers. By virtue of this Regulation, NERC allowed third parties MAP's companies to fill the vacuum and provide meters for electricity users in Nigeria.

i. **NERC Eligible Customer Regulation 2017**: The objectives of the Regulation are to facilitate competition in the supply of electricity, promote the rapid expansion of generation capacity. Other objectives include allowing third-party access to transmission and distribution infrastructure to aid full retail competition in the Nigerian electric sector. The Regulation also allows the licensed generation companies with the uncontracted capacity to access unserved and underserved customers.

2. **The Nigerian Electricity Management Service Agency Act (NEMSA Act)**

The Act establishes the Nigerian Electricity Management Service Agency (NEMSA) as the regulatory body responsible for the enforcement of technical standards, inspections, testing, and certification of all categories of electrical installations, electricity meters and instruments to ensure efficient production and delivery of safe, reliable and sustainable electric power supply and to guarantee the safety of lives and property in the electricity supply industry.

3. **Environmental Impact Assessment Act 1992**

The objective of the Act is to establish before a decision is taken by any person, authority, corporate body including the Federal Government, State or Local Government intending to

undertake or authorise the undertaking of any activity those matters that may be likely to a significant extent affect the environment or have an environmental effect on those activities.

Finally, the Nigerian electricity law encompasses the body of law, which regulates the generation, transmission, distribution and trading of electricity. The supervising government agency regulating electricity in Nigeria is the Nigerian Electricity Regulatory Commission, established by virtue of the Electric Power Sector Reform Act 2005.

5.0 THE DIFFERENT ERAS IN THE NIGERIAN POWER SECTOR

The different eras that the Nigerian energy sector has gone through will be examined even prior to the advent of the colonialists.[23] During the decade of 1960-1970, Nigeria transitioned from coal (black triangles) and diesel (red diamonds) to hydroelectricity (blue squares). The independence of Nigeria marks this period. Furthermore, there was a change from hydro to gas-fueled thermoelectricity (gray circles) from 1970 to 1980, following Nigeria's inclusion in OPEC (Organization of the Petroleum Exporting Countries), and finally, a consolidation of a gas-fueled installed capacity domain after 2005, and the intensification of liberal economic reform.

Nigeria's electricity history began at the end of the 19th century with thermal experiences guided by the British Metropole's interests in exploiting coal and other natural resources.[24] The colonizers were responsible for deploying the human, economic and technical capital necessary to structure an electricity industry in Nigerian territory. Oil basins (natural capital) were discovered at the beginning of the 20th century but have not shown economic viability, mainly because oil prices were meager. On the other hand, the metropole was interested in exploring and exporting coal and other natural resources, partly due to the proximity of those natural stocks to the ocean ports. The lack of metropole interest in oil and the focus on coal exploitation[25] guided the preference for thermal coal generation during this period.

[23] Pavanelli, J. M., et al, (2023), An Institutional Framework for Energy Transitions: Lessons from The Nigerian Electricity Industry History Pre Print.

[24] O.J. Ayamolowo, E. Buraimoh, A.O. Salau, J.O. Dada, Nigeria Electricity Power Supply System: The Past, Present and the Future, IEEE PES/IAS Power Africa Conference: Power Economics and Energy Innovation in Africa, Power Africa 2019. (2019) 64–69. https://doi.org/10.1109/PowerAfrica.2019.8928767.

[25] M.T. Ladan, Overview of Recent Development in Energy Resources Law in Nigeria, SSRN Electronic Journal. (2014) 26. https://doi.org/10.2139/ssrn.2404337.

Those initial thermal experiences with coal-fueled power plants were also deployed for public lighting, government buildings, and hospital services. The metropole endowed the regulated state monopoly (PWD – Public Work Department)[26] with financial, relational, human, and technological types of capital. PWD also deployed the infrastructure necessary to exploit the local natural capital according to British interests. During this initial period, the Nigerian electricity industry aggregated the generation, transmission, and distribution under the control of PWD.[27] By 1922,[28] NESCO (Nigerian Electricity Supply Corporation) incorporated PWD and became responsible for "developing electrical energy supply (generation) infrastructure" and for regulatory functions. NESCO maintained the Metropole's interests, and it was created to consolidate and centralize the efforts of electricity generation for natural capital exploitation and export.

By 1956, Shell D'Arcy had discovered oil reserves of suitable commercial quality and large quantity at Oloibiri, near the shore (72km west of Port Harcourt) at the beginning of the 20th century.[29] However, at that time, Shell's technical and financial capitals were insufficient to trigger the exploitation of the oil reserves (natural capital). Even with the impetus for changing the trains' engines in the middle of the 1950s, the metropole remained more interested in coal exploitation.[30] It kept the domain in the arena due to its larger endowments of relational, human, and cultural capital compared to the incipient local elites and Shell. Until 1960, the metropole accumulated enough social and economic endowments to prevent Nigeria's local elites' or other international agents from influencing the outcomes of the action arenas.

The independence from the Metropole was followed by a civil war that settled a military government, which centralized the infrastructure of the electricity industry under state

[26] K. Oladipo, A.A. Felix, O. Bango, O. Chukwuemeka, Power Sector Reform in Nigeria: Challenges and Solutions Power Sector Reform in Nigeria: Challenges and Solutions, (2018). https://doi.org/10.1088/1757-899X/413/1/012037.

[27] P. Akpen, Electricity Regulatory Institutions in Nigeria: From Colonial to Post Colonial Periods, Ovidius University Press, 2017.

[28] N. Edomah, C. Foulds, A. Jones, The Role of Policy Makers and Institutions in the Energy Sector: The Case of Energy Infrastructure Governance in Nigeria, (2016). https://doi.org/10.3390/su8080829.

[29] P. Steyn, Oil exploration in colonial Nigeria, c. 1903-58, Journal of Imperial and Commonwealth History. 37 (2009) 249–274. https://doi.org/10.1080/03086530903010376.

[30] N. Edomah, the governance of energy transition: lessons from the Nigerian electricity sector, Energy Sustain Soc. 11 (2021) 40. https://doi.org/10.1186/s13705-021-00317-1. Also, M.O. Oseni, An analysis of the power sector performance in Nigeria, Renewable and Sustainable Energy Reviews. 15 (2011) 4765–4774.

monopolies.[31] Consequently, the industry lost human capital once British planners and managers returned to Britain, and the emerging military elites decided to shift the electricity generation source. Therefore, in 1962, the Federal Government established the Niger Dam Authority (NDA) to run hydroelectric power plants and transmission lines.[32] Those changes in the institutional scenario resulted in the Kainji Dam Hydroelectric, with 720 MW of installed capacity in the Niger River in central Nigeria.

The availability of oil reserves, discovered in 1955, was insufficient to prevent the shift towards hydroelectricity, at least in the early moment.[33] Although diesel-fueled power plants showed an increase in installed capacity during this period, the Kainji Dam and the creation of the NDA represented substantive drivers (built capital and rules-in-use, respectively) for hydro dominance by the end of the 1960s. As a result, oil was again underused (considering the availability of the resource) for electricity generation in Nigeria. The civil war in this period may have aggravated the lack of financial resources to expand the electricity industry. Like most developing countries, Nigeria relied on the World Bank and the IMF (International Monetary Fund) to provide investments and loans for expanding the generation capacity, including constructing the Kenji Dam.

In 1971 Nigeria became a member of OPEC (Organization of the Petroleum Exporting Countries).[34] In 1979, the ECN (Energy Commission of Nigeria) became responsible for coordinating and general surveillance of the energy resources in Nigeria. In 1977, NEPA (National Electricity Power Authority) and NNPC (Nigerian National Petroleum Corporation) were created as regulatory agencies for the electricity, oil, and gas sectors. Besides its regulatory power, NEPA was also the owner of almost all electricity industry assets until the 1990's liberal reforms. The joint creation of NNPC and NEPA suggests that oil exploitation and electricity were planned under common interests in this period. By 1985, the electricity industry was still a

[31] N. Edomah, Historical Drivers Drivers of Energy Infrastructure Change in Nigeria (1800 – 2015), in: S. Gokten, G. Kucukkocaoglu (Eds.), Energy Management for Sustainable Development, 1st ed., Intech Open, London, UK, 2018. https://doi.org/10.5772/intechopen.74002.

[32] J.M.M. Pavanelli, C.E. Oliveira, A.T. Igari, O desafio das mudanças institucionais da economia ecológica: um framework a partir do IAD de Ostrom, Revista Iberoamericana de Economia Ecológica. 35 (2022) 36–55. https://redibec.org/ojs/index.php/revibec/article/view/vol35-1-3.

[33] A.S. Aliyu, A.T. Ramli, M.A. Saleh, Nigeria electricity crisis: Power generation capacity expansion and environmental ramifications, Energy. 61 (2013) 354–367. https://doi.org/10.1016/j.energy.2013.09.011.

[34] M.T. Ladan, Overview of Recent Development in Energy Resources Law in Nigeria, SSRN Electronic Journal. (2014) 26. https://doi.org/10.2139/ssrn.2404337.

state monopoly. However, instead of the British Metropolis or NDA, it was regulated and owned by NEPA. Military elites in the government maintained the electricity industry's expansion by accelerating industrialization and fossil fuels exploitation, with less care for social development,[35] financed by the World Bank and with OPEC's safeguard. The military elites centralized their interests around oil and gas exploitation and had shown enough social and economic endowments to dominate the rule crafting. NEPA and NNPC increased the installed capacity for gas-fueled power plants by 1980.

By 1986, following a global trend of liberalization in electricity industries,[36] the Nigerian Federal Government shifted its preferences towards privatization, keeping with the State the planning and regulatory prerogatives. The electricity industry was unbundled into the generation, transmission, and distribution sectors. This unbundling pathway has roots in the liberal directives of the World Bank[37] for industries and sectors, imposed as constraints on the financed countries. Those meta-constitutional constraints induced a similar liberalization process in England, Brazil, South Africa, Chile, and other countries.[38] As a result, electricity industry regulation and asset ownership, which until that moment were centered at NEPA, began to be privatized. These liberal interests were materialized in Nigeria as the SAP (Structural Adjustment Program), which sponsored and coordinated the commercialization and privatization of public utilities.

In 1988, the NGC (Nigerian Gas Company) was created to develop policies for the transmission, distribution, marketing, and pricing of natural gas.[39] By 1990, the Federal Government issued a decree offering fiscal incentives to investors in gas projects. In 1995, the Oil and Gas Pipeline Regulations were implemented to provide pipeline design, construction, inspection, testing,

[35] P. Akpen, Electricity Regulatory Institutions in Nigeria: From Colonial to Post Colonial Periods, Ovidius University Press, 2017.
[36] H.Q.P. Junior, edmar fagundes de Almeida, josé vitor Bomtempo, M. Iootty, R.G. Bicalho, Economia da Indústria Elétrica, in: Economia Da Energia, 4a tiragem, Campus Elsevier, São Paulo, 2007: p. 343.
[37] K. Oladipo, A.A. Felix, O. Bango, O. Chukwuemeka, Power Sector Reform in Nigeria: Challenges and Solutions Power Sector Reform in Nigeria: Challenges and Solutions, (2018). https://doi.org/10.1088/1757-899X/413/1/012037.
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environmental protection, operation, and maintenance.[40] Those are materializations, at the constitutional level, of gas preferences to supply electricity.

The intensification of the privatization reforms in Nigeria occurred from 2000 onwards. Both private agents and the World Bank influenced the electricity industry expansion. The political elites began to express concern with the environmental pressures from international multilateral agreements such as the COPs (Conference of the Parties) on the UN Climate Change Convention (meta-constitutional arena). Along with the FME, created in 1999, we identified the emergence of two entities responsible for climate change issues: the Special Unit of Climate Change (SUCC) and the Special Unit on Renewable Energy (SURE).[41] We observed in this period concerns about climate change and the exhaustion of reserves regarding electricity expansion strategies. However, natural gas-fueled electricity generation remained expanding,

In 2001 the National Electric Power Policy (NEPP) was created and became responsible for executing reforms. In 2004, the National Integrated Power Project (NIPP) was conceived to boost electricity generation capacity by expanding gas power plants. Finally, in 2005 a series of structural reforms were undertaken by the Federal Government, enacted as The Reform Act (Electric Power Sector Reform Act - EPSRA), which transferred the control and operations of the industry from the public to the private holders.[42] Those private holders were acknowledged as Independent Power Producers who would be able to sell electricity to NBET (Nigerian Bulk Electricity Trading).[43] Also, in 2005 the Nigerian Electricity Regulatory Commission (NERC) was created as the regulatory body, with the responsibility of regulating new private agents in the electricity industry according to Federal Government directives. Complementarily, the Power Holding Company of Nigeria (PHCN) began to operate, responsible for the privatization contracts of eleven distribution companies. This reform ended with the current configuration of

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the Nigerian electricity industry, with 18 independent companies distributed between public and private agents.[44]

6.0 THE PROBLEMS OF THE ELECTRICITY SECTOR AND RECOMMENDATIONS

Indeed, 60 per cent of the time, there is no access to electricity in Nigeria.[45] A few studies have attempted to assess the energy sector reform in Nigeria.[46] Some have focused on the investment opportunities and pitfalls associated with the reform,[47] others have assessed the impact of the reform.[48] Yet others have looked at it from consumer perspective.[49] Generally, most of these studies have focused mainly on the challenges and opportunities offered by the reform without paying particular attention to the political economy of the reform process. Political Interference remains the most visible and challenging political economy issue facing the power sector reform. This issue is what the privatization ought to solve however with the constant bail outs, this problem still exists. To permanently solve this the sector has to be fully private and merely public regulated. This will ensure productivity, minimal interference and better service.

The transmission segment of the power sector is the weakest link in the Nigerian electricity value chain.[50] Transmission lines are notorious for being very old and weak. Some of the cables are compromised and can no longer withstand the pressures of carrying power lines. Worse still is

[44] O.P. Agboola, Independent power producer (IPP) participation: Solution to Nigeria power generation problem, in: Proceedings of the World Congress on Engineering 2011, WCE 2011, London, England, 2011: pp. 2084–2087.
[45] Aliyu, A., A. Ramli, and M. Saleh (2013). 'Nigeria Electricity Crisis: Power Generation Capacity Expansion and Environmental Ramifications'. Energy, 61(8): 354–67.
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[50] Ogunleye, E.K., (2017), Political Economy of Nigerian Power Sector Reform, pp. 391-409.

the fact that the transmission lines are limited in scope and coverage of the country. The sector has to utilize world's best practices as these are not just ineffective but also dangerous.

Corruption is one of the key reasons for the collapse of the Nigerian electricity sector and was, therefore, the main rationale adduced for its reform. Yet the reform has been embroiled in corruption allegations from the beginning. First, there were claims that the US$16 billion invested in the National Integrated Power Project (NIPP) under the President Obasanjo administration was largely mismanaged. In fact, the two-year gap in funding NIPP projects under President Yar'adua was due to the intensive legal, political, and financial scrutiny these projects were subjected to with a view to correcting the alleged corruption. Several senior officials of the Rural Electrication Agency and key members of the House of Representatives Committee on Power were arraigned by the Economic and Financial Crimes Commission for alleged embezzlement of NGN6 billion funds belonging to the Rural Electrication Agency. For a long time during the privatization process that involved reaching a settlement with the erstwhile staff of PHCN, there were allegations that the workers' pension fund of around NGN88 billion, accruing from the 7.5 per cent deductions from their salaries, was misappropriated.

There was an inherent structural weakness in the institutional framework for the power sector reform. These institutional weaknesses emanate from obvious gaps, overlaps, confusion, and connects in the mandates and interactive relationships among these institutions as provided for in their enabling laws. In many cases, the issue of what institution is responsible for playing coordination and leadership role in the power sector is obscure. For example, NAPTIN, a power sector capacity-building institution is also mandated to oversee effective monitoring of and compliance with the technical and operating standards. Yet, this mandate is also given to the Standards Organization of Nigeria and the National Environmental Standards and Regulations Enforcement Agency, thus revealing a connect of mandate among these institutions.

The government should focus on continuously evolving an effective institutional framework that guarantees sustainability of the reform efforts. High priority needs to be given to the regulatory, institutional, and human capacity framework for managing post-privatization challenges. The plethora of policy pronouncements, documents, committees, commissions, and other frameworks for the power sector reform should be reviewed and properly aligned to suit and reflect current realities. Continued development of the power sector through laws and regulations, and

enforcement of compliance with these is also necessary. There is also a need for increased investment in clean and renewable power generation to help the country achieve an optimal mix of energy sources.[51]

7.0 CONCLUSION

This article has critically analysed the Nigerian electrical sector carefully highlighting the institutional framework as well as the legislations governing the sector. It also analysed the history and development of the sector till date as well as the issues plaguing it with ways of solving most of them. This article also looked into the merits and demerits of the privatisation and how effective or useful it has been to the average Nigerian and the Nigerian government.

Bearing this in mind, this article submits that there is still much left to do from all players in the sector and if there is to be any improvement, there is the need for a thorough overhauling of the entire sector and not merely privatization.

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