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AN EXAMINATION OF THE ELECTRICITY ACT 2023: CATALYST FOR RENEWABLE ENERGY IN NIGERIA?

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Abstract

The electricity sector in Nigeria is glaringly fraught with challenges notwithstanding the huge amount spent by government. To this end, it is obvious that the commitment has not yielded any significant result premised on the fact that supply has regularly been erratic. By diverse observation, alternative reliance which has majorly been focused on use of fossil fuel (gas) has also failed several times. There is no doubt that Nigeria endowed with abundant renewable energy sources inclusive of solar, wind, biomass, hydro, and et-cetera has willingly lagged behind in sufficiency of production of electricity. Nigeria has only been able to harness hydro energy for production of electricity which has been grossly insufficient. Data available to authors show that the newly enacted Electricity Act 2023 has provided comprehensive provisions for consumption and utilization of the diverse sources of renewable energy in Nigeria. The paper therefore argued that the Electricity Regulatory Commission should be mandated to ensure that generators produce electricity from renewable energy sources potentially integrated into the national grid and that purchasers should be obligated to purchase renewable energy from the producers. The authors therefore maintained that rapid development of renewable energy sources should attract the political will of government as well as ensuring that the provisions of the Electricity Act be adhered to with concomitant quantum of social awareness.

Keywords: Electricity, renewable energy, hydro energy, fossil fuel, electricity commission.

1. Introduction

Electricity in Nigeria has been a major topical issue. This has been as a result of the incessant and erratic supply of electricity, which the Nigerian has been plunged into, notwithstanding the huge sum of monies that has been poured into this energy sector. The basic truth is that Nigerians have constantly suffered epileptic power supply.

As a matter of fact, electricity and energy are closely related but distinct concepts. Electricity is a form of energy. It is a secondary energy source. It is derived from other energy sources, such as coal, natural gas or solar power.[1] The generation and distribution of electricity plays a fundamental role in a country, to wit: it helps to provide necessities such as cooking, piped water, electricity light, primary health care services in terms of storage of vaccines, emergencies, operations and intensive care, educational support, communication and transportation.[2] The use of electricity also enhances productive activities such as commerce, manufacturing, industry, mining and agriculture.[3] The importance of electricity cannot be overemphasized as it is the determinant input into all production of goods and services. Generally speaking, electricity accelerates the economy.

Nigeria is endowed with abundance of natural gas, crude oil, coal and bitumen and still suffers from erratic electricity power supply. This has placed significant limitation on the economic and social wellbeing of the nation and its people. Chains of Nigerian youths have left Nigeria in droves due to the inability of government to sustain and stabilize electricity power supply necessary to generate both production of goods and services, and support domestic daily lives of the citizenry.

Nigeria is the largest economy in Africa (US$535.34billion) peopled by highest population.[4] In Nigeria, access to electricity as a percentage of population is 59.5%.[5] This means that about 40% lack access to electricity and most Nigerians and companies like banks rely on electricity generating sets utilizing diesel, petrol and gas to run their businesses.[6] Nigeria's energy sector is fundamental for economic growth, poverty reduction and for meeting basic services. Energy accessibility in Nigeria has led to the Federal Government taking steps to pass laws in order to boost power generation. It is to be noted that alternatives to gas and oil exist as Nigeria is endowed with an abundance of natural resources and can be relied on instead of relying on fossil fuels that are deleterious to the environment.

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[1] Anya Kingsley Anya, Scientific and Philosophical vagaries of energy, unpd, paper presented at Relevance of energy in a developing society, Abuja 2003 p. 21. Basically, electricity is a type of energy that is generated, transmitted, and used to power devices, machines, and, and systems. Better still, energy is the ability or capacity to do work, such as move an object, heat a substance, or power a device. Energy comes in various forms inclusive of kinetic energy (motion), potential energy (stored), thermal energy (heat), and etcetera.

[2] Oluwatoyin Abidemi Somoye, "Energy Crisis and Renewable Potentials in Nigeria: A Review", Elsevier,<sciencedirect.com/science/article/abc/pii/S1364032123006512> accessed 1st February, 2024

[3] Ibid

[4] Somoye, supra puts the figure at 218.5 million people

[5] Ibid

[6] Ibid. it should be noted every banks and other financial institutions, Telephony companies such as the MTN, AIRTEL and Glo, rely heavily on the constant supply of electricity. See further writers such as E. Efurumbe, L. Asiegbu, A.D Onuu, et, al 'Renewable Energy and Prospects in Nigeria,' <https://www.scholarly-journals.com/SJRE > accessed 23rd March,2024

Consequent on the above, an examination will be undertaken of the provisions of the Electricity Act with particular focus on the provisions on renewable energy. A further examination will be made to explore the benefits of renewable energy sources and thereafter, consideration of how the electricity Act could be made effective, barring all odds associated with poor production of electricity light, in support of utilization of renewable energy sources in aid of production of steady electricity light.

2. Historical Evolution of Legislations on Electricity in Nigeria

The first public electricity supply is said to have commenced in 1896 with the installation of the first plant in Ijora Lagos. This plant was managed by the public works of the colonial government.[7] In 1950, the Electricity Commission of Nigeria[8] was created with powers to distribute public electricity. In 1962, the Niger Dam Authority[9] was established to optimize the huge hydro resources in Nigeria to generate more electricity for a growing population and a growing economy. The year 1972 saw the ECN and NDA merging to create Nigerian Electric Power Authority[10] as a vertically integrated public utility that had the sole power to generate and supply electricity in Nigeria.[11] This merger was reported to have been done to ensure a more effective utilization of the human, financial and other resources in the industry.[12] Consequent after that, efforts to create accessibility to electricity services failed as majority of Nigerian businesses and homes suffered from epileptic supply from NEPA. The Nigeria government during this period set numerous ambitious National Development Plans with a view to turning Nigeria into an industrial power, these plans however failed to meet the strategic objective with respect to power generation.[13]

The return to democratic government in 1999 embraced attempts to revive the issue of providing effective electricity supply to Nigerians in a strategic and comprehensive mode and the succeeding Obasanjo led administration articulated the National Electric Power Policy[14] issued by the National Council on Privatisation.[15] This led to the transfer of assets

[7] Sam Amadi, 'Improving Electricity Access through Policy Reform: A Theoretical Statement on Legal Reform in Nigeria's Power Sector,' in Yinka Omoregbe et al (ed.),*Ending Africa's Energy Deficit and the Law: Achieving Sustainable Energy for All in Africa*,(United Kingdom, Oxford University Press, 2018) p.345

[8] [Hereafter, The ECN]

[9] [Hereafter, The NDA]

[10] [Hereafter, The NEPA]

[11] Ibid

[12] Ibid

[13] Ibid

[14] [Hereafter, The NEPP]

[15] [Hereafter, The NCP] Federal Republic of Nigeria, National Electric Power Policy (NEPP)(Electric Power Implementation Committee 2000)

and liabilities to Power Holding Company of Nigerian.[16] This effort was re-enacted as the Electric Power Sector Reform Act. The policy main target is to unbundle the electricity sector to create and nurture a competitive electricity market. This led to the enactment of the Electric Power Sector Reform Act 2005,[17] which institutionalized the policies in the NEPP. The EPSR was focused on reforming the power sector by unbundling the then Power Holding Company of Nigeria into 18 successor companies comprising of six generators companies,[18] one Transmission company[19] and eleven distribution companies[20] and further established the Nigerian Electricity Regulatory Commission[21] vested with regulatory powers over the generation, transmission and distribution across Nigeria.[22] This period witnessed the creation of the Nigerian Electricity Regulatory Commission as the main regulatory body for the electricity power sector in Nigeria and was vested with the regulatory powers over generation, transmission and distribution of electricity in Nigeria.[23] Apart from the NERC, the defunct EPSRA established the Rural Electrification Agency and the Power Consumer Assistance Fund. Considering the articulation of the energy policy reform, it was expected that the legal and institutional framework will become a push drive for reviving electricity production in Nigeria. However, the reverse has been the case. It is noteworthy to state that despite these reforms, the entire country continued with incessant and abysmal power failure.[24] This is attributed to the fact that the performance of the EPSRA 2005 was not able to meet the expectations outlined in the National Electricity Power Policy 2001and the Road Map for Power Sector Reform 2010 and this created a huge gap between electricity demand and supply.[25] This was the background situation prior to the signing of the new Electricity Act.[26] The Act therefore replaced the erstwhile Electric Power Sector Reform Act of 2005. The enactment of the Act is hoped to achieve and enhance full integration of renewable technologies into the energy mix.

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[16] [Hereafter, The PHCN]
[17] [Hereafter, The EPSR]
[18] [Hereafter, The GENCOS]
[19] [Hereafter, The TCN]
[20] [Hereafter, The DISCOS]
[21] [Hereafter, The NERC]
[22] Gabriel Onojason, Ngozi Chinwe Ola &Lynd Ugochinyere Ezike, Nigeria: The Electricity Act 2023 and The Constitutional Amendment Act 2023:Implications For The Power Sector <mondaq.com/Nigeria/renewables/1363558/the-electricity-act-2023-and-the-Constitutional-amendment-act-2023-Implications-for-the-power-sector > accessed 3rd March, 2024
[23] Yemi Oke, Nigerian Electricity Law and Regulation,(Lagos: LawLords Publications, 2013) p.1
[24] Sam Amadi, supra at p. 341
[25] Mary Izuaka, 'Nigeria Electricity Market Operators Begin Performance Review' <premiumtimesng.com> accessed 5th February 2024
[26] See the Electricity Act of 9th June 2023

3. Examination of the Electricity Act 2023

The Electricity Act 2023 became operational on the 9th of June, 2023 and has 234 sections which are in chapters, from Parts I to XXIII with five schedules attached.

The Act is said to be a significant development as it is empowered to consolidate the laws relating to the Nigerian electricity supply industry; provide a comprehensive legal and institutional framework for the power sector in Nigeria in relation to the regimes of electricity generation, transmission, system operation, distribution, supply, and trading; the enforcement of consumer rights and obligations as well as providing for a holistic integrated resource plan and policy that recognizes all sources for the generation, transmission and distribution of electricity including the integration of renewable energy to Nigeria's energy mix and attract investments.[27]

There are several objectives of the Act, some of which include the provision of an ideal legal and institutional framework to leverage on the modest gains of the privatisation phase of the electric power sector in Nigeria to accelerate growth in the power generation capacity and improve utilization of generated power through increased investments in new and efficient power generation technology, promote the development of a competitive market, provide a framework to stimulate development and utilization of renewable energy sources and create an enabling environment to attract investment in renewable energy sources in order to increase the contribution of renewable energy to the energy mix.[28]

Section 2 validates laws that are passed by the House of Assembly of States with respect to all aspects of generation, transmission, system operation, distribution, supply and retail of electricity within the states. This is a major highlight which has been applauded by the general public as it has formally opened the space for states to generate and supply electricity in their states. This in the long run would help take a lot of burden from the Federal Government.

The Act makes provisions for the Ministry responsible for power to within one year initiate the process for the preparation and publication in the federal government gazette, an integrated National Electricity Policy and Strategic Implementation Plan with the relevant stakeholders to guide the overall development of the electric power sector.[29] One of the objectives is to see to the development of electric power sector based on optimal utilisation of resources like coal, natural gas, nuclear substances and materials as well as

[27] This is the explanatory memorandum of the Electricity Act.
[28] Part 1,preliminary page of the Act
[29] Part II, S. 3 of the Act.

renewable energy sources such as solar, wind, hydro, hydrogen and other renewable energy sources of energy.[30]

To supervise the Ministry responsible for power, the Act states that Minister that is appointed will have supervisory powers over the Ministry and shall advise the Federal government on all matters relating to electric power stations in Nigeria and shall be responsible among other functions to issue policy directives on cross border electricity trading in conjunction with the Commission and other relevant Ministries.[31]

The Act puts in place provisions for the development of a competitive national electricity market as it recognized and gives legal validation to it.[32]The Act also creates the Nigerian Electricity Regulatory Commission which shall be an independent body to regulate the NESI.[33] Among its various functions, section 34 provides that the Commission shall create, promote, and preserve efficient electric industry and market structures and to ensure the optimal utilization of resources for the provision of electricity services.

With respect to renewable energy, Part VII, section 80 makes provision for the generation of electricity from renewable energy. The Act states that The Commission and ISO shall have a continuing obligation to promote the generation of electricity from renewable energy sources.[34] The Act further empowers the Commission in the issuance of licences, to promote embedded generation, hybridised generation, co-generation and the generation of electricity from renewable sources such as solar energy, wind, small hydro biomass and such other renewable sources.[35]

Part VIII established the National Hydroelectric Power Producing Areas Development Commission[36] which states that any state where hydroelectric power is generated shall be a member state of the N-HYPPADEC of which member states comprise of Benue, Gombe, Kaduna, Kebbi, Kogi, Kwara, Nasarawa, Niger, Plateau, Taraba and any other state affected by the activities of hydro-electric power generated on Rivers Benue or any inland water ways.[37] Among its many functions, the Commission is empowered to identify factors inhibiting the development of the hydroelectric power producing areas and assist

[30] S. 3 (2)
[31] S. 5
[32] Part III, Sec.6
[33] Part V, S. 33 (1) (2) & (3)
[34] Part VII S. 80
[35] Sec. 80 (2)
[36] [Hereafter, The N-HYPPADEC]
[37] Part VIII Ss.82and 84

states in the formulation and implementation of policies to ensure a sound and efficient management of the resources of the hydroelectric power producing areas.[38]

The Act establishes the Rural Electrification Agency which has among its objectives the provision of framework to support the development and utilization of renewable energy sources and create an enabling environment to attract investment in rural areas, promote the productive use of renewable energy and improve access to electricity through the use of various rural electrification and renewable technology sources. It shall also carry out public education for rural electrification and renewable energy production and consumption and the deployment of bio-energy technology for rural electrification.[39]

Part XVII provides for renewable energy and energy efficiency. The Commission is empowered to support the development and utilization of renewable energy and take measures to increase the contribution of renewable energy to Nigeria's energy mix, make provisions for the provision of embedded renewable energy electricity generation regulations including the review of extant standards for solar PV, wind turbines and regulation for biomass electricity, mini-grid regulations on renewable energy to cater for the installation metering, billing and other requirements for renewable mini-grid systems.[40]

The Electricity Act is said to be very innovative as it allows providers of energy from renewable energy such as solar, wind or water to receive a price for what they produce as the Act mandates the Nigerian Electricity Regulatory Commission to prepare and provide feed-in tariff rates for electricity generated from renewable energy sources as a way of encouraging investment in renewable energy power generation.[41]

Another highlight is that States have the mandate to issue licenses to private investors who have the capability to operate mini-grids and power plants that will be operational within the state. This aligns with the constitutional amendment made by the Federal Government where the devolution of powers with respect to the national grid clarifies the powers of the federal government and states to generate, transmit and distribute electricity respectively.[42] The Act also encourages and prioritizes the development and utilization of renewable energies which is crucial for addressing energy security, reducing green hose gas emissions and to enhance economic development of the country**.**

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[38] S. 89
[39] Part XVI, Secs. 127& 128 of the Act
[40] Part XVIII, S. 164(a-u)
[41] Isaac Anyaogu 'New Electricity Act Game Changer for Renewable Energy' <https://businessday.ng> accessed 7th March 2024
[42] See for instance, the Edo state power generation and distribution electricity company situate at Ossiomo.

4. The Electricity Act and Renewable Energy sources in Nigeria

Nigeria has an abundance of renewable energy however it is yet to sufficiently tap into the benefit of these sources for socio-economic development. It has been stated that conventional sources are not sustainable as they are perishable and not renewable.[43] Renewable energy have been firmly rooted in some countries in Africa for instance, Kenya has obligated itself in making a national priority on virtually every national development policy agenda by ensuring the wide spread introduction and adoption of renewable technologies.[44] Ghana has also enacted its Renewable Energy Law in 2011.[45] Prior to the Electricity Act, the National Energy Policy merely advocated and encouraged renewable energy and was not accorded national priority. This perhaps explained the slow development of renewable energy sources as only few private individuals who had the means are able to install them as government failed to play its role in encouraging its development. Consequent on the above, there is need for consideration of the types of renewable energy in Nigeria.

A. Wind Energy

Wind energy is generated from the conversion of the force of moving air into energy and the wind flow patterns are modified by the earth's terrain, bodies of water and vegetative cover which is harvested by modern wind turbines. Nigeria has wind energy resources and is available at an annual average wind speed of 10m height and varies from 3m/s in the coastal areas to 7m/s in the far North which has less vegetation.[46]

Nigeria had a few number of stand-alone wind power plants that were used for pumping water in the 1950s in 5 Northern states.[47] The first wind farm siting in Nigeria was commissioned to commence operation in 2021, however reports as at March, 2023 indicated that the Katsina 10MW wind farm currently operates below full capacity and this is as a result of several issues ranging from poor maintenance to insecurity and under investment.[48]

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[43] Yemi Oke, *Nigerian Energy and Petroleum Industry Law: Oil and Gas-Cases, Practice and Theories* (Lagos: Princeton Associate Publishing Co. Ltd. 2023)p.715
[44] Ibid
[45] B. Hanner, 'Renewable Energy Policy Review, Identification of Gaps and Solutions in Ghana: Final Report,' <https://www.energycom.gov.gh/filesRenewable%20Energy%20Policy%20and%20Regulatory%20Gap%20%Gap%20%20%20%20%20Analysis%20Final>accessed23rd March 2024
[46] T. T. Onifade., 'Energy in Nigeria: A peep into Science, A Conclusion on Policy,'<http://www.wwhsdc.org/ijisbt/articles/> accessed 20th March, 2024
[47] Ibid
[48]Gbubemi Kevin Akporhonor, Smith Orode Otuagoma and Temisan Arnold Akporhonor, 'Nigeria Wind Energy Status,' <https://journals.sagepub.com> accessed 25th March, 2024

Despite the potential for wind energy, Nigeria experiences low interest in wind energy in comparison to other renewable energy sources and it is hoped that the Electricity Act 2023 would help address by encouraging huge investment.[49]

B. Solar Energy

Solar energy is gotten from sun and is used by humanity on a daily basis. It is in abundance in Nigeria as the country is squarely located in the tropics with its land mass stretching between latitudes 5 degrees south and 15 degrees north of the equator. Benefits from solar include community pumping water, enhanced health care delivery in rural villages and remote villages.[50] Solar electricity is very suitable for rural electrification due to inability to connect to the national power grid as a result of the peculiarity of each community where for instance, there are hilly and rocky terrains. This can be a challenge for such communities to be connected to the national grid.[51] A major challenge here is the high cost of panels and installation cost which is quite high and out of the reach of most Nigerians. It is therefore hoped that government will take concrete measures to make solar energy accessible to all.

C. Biomass Energy

Biomass consists of all the living materials which include plants, algae, micro-organisms, food and animal wastes. These materials contain carbon, oxygen, nitrogen and sulphur with significant amounts of free energy in the form of chemical bonds which can be released by breaking the molecule to generate heat that can be converted to mechanical work, electricity and transport fuel.[52] Biomass can be utilized directly as bio-power or converted into energy products like bio-fuel.[53] Biomass is said to be a sustainable fuel that can deliver a significant reduction in net carbon emissions when compared with fossil fuels. In Nigeria, biomass is used traditionally in the rural areas where wood is the cheapest and easily accessible to households. The benefits of biomass are numerous and include creation of job opportunities, reduction of dependence on fossil fuel and guarantee local supply if properly integrated.

D. Hydro energy

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[49] Ibid
[50] Yemi Oke, supra.
[51] Boyo Adenike., 'Development of Solar Energy in Lagos State Nigeria' <http://www.wcpd.org.posters/environment/Boyo_Adenike_2.pdf> accessed 26th February,2024
[52] A. S. Aliyu et al, 'Current Status and Future Prospects of Renewable Energy in Nigeria' <https://www.dx.doi.org/10.1016/j.rser.205.03.098> accessed 2nd February 2024
[53] Yemi Oke, supra

Nigeria has an abundant supply of rainfalls, dams, rivers and streams distributed across the country. Hydro-power is a major source of electricity for industrial and domestic utilization, and provides about 30% of the nation's electricity and are generated by three dams that are fully functional which are Kainji, Jebba and Shiroro dams.[54] In addition, the Federal is also investing to boost generation through hydrostatic power plants of varying size and include the Mambilla, Zungeru, Gurara, Lokoja, Markudi dams among others. To meet the population needs, Nigeria is expected to generate substantial generation if it is to meet the energy demands by 2030.[55]

There are also other forms of renewable sources like geothermal which is got from the earth's interior which comes from the radioactive decay of certain heavier elements. Nigeria has not yet developed this renewable source as it is available on a constant basis.[56]It is speculated that potentials exist for geo-pressured systems and hydro thermal systems in Basins like Benue through the Niger Delta.[57] It is suggested that intense research be made for its discovery. The benefits of utilizing geothermal includes the following namely, that it has great potential for providing steam, heat and electricity and does not have any negative combustion effects of fossil fuel.

Nuclear energy is categorized as renewable energy sources as it does not produce carbon dioxide. Nigeria has large deposit of uranium mineral in more than sixteen states.[58] The Nuclear Safety and Radiation Act provides for nuclear energy in Nigeria.

4.1 Examination of renewable energy policies

Nigerian electricity mix is dominated by use of gas to generate electricity. This is seen in the current percentage of renewable energy usage in Nigeria's energy mix which is approximately 17% with a combination of hydro, solar, wind, bioenergy and geothermal accounting for 2,206 GWh of the country's total energy production in 2021while non-renewable energy sources like fossil fuel, nuclear and others account for 11,015GWh. This shows that renewable energy sources still have a relatively low share in Nigeria's energy mix. Nigeria has several policies relating to renewable energy and they include the following;

i. The Renewable Energy Master Plan (REMP)

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[54] O. S. Ohunakin.,, 'Energy Utilisation and Renewable Energy Sources in Nigeria,' *Journal of Engineering and Applied Sciences,* Vol.5,Issue 2(2010) pp.171-177

[55] International Trade Administration, 'Electricity Power Systems and Renewable Energy: Nigeria-Country Commercial Guide,' <https://www.trade.gov> accessed 8th March 2024

[56] T. T. Onifade., Supra at p.56

[57] S. Musa., D. A Idris,, I. Abdulkarim,., et al 'Power and Energy Law in Nigeria: The Journey so far,' Being a paper presented at the Annual Conference of the Nigerian Association of Law Teachers held at the Ebonyi State University, Abakaliki, 2nd -6th June,2014, P.31

[58] Ibid

The National Energy Master Plan was created in 2007 and revised in 2014 and covers all energy sources, energy consumption, capacity development, energy database and financing. It also sets targets for the share of renewable energy in the national energy sector to increase from 0.7% in the short-term (2006-2009) to 3.3% in the medium term (2010-2015) and 10.6% in the long term (2016-2030). The REMP is geared towards increasing renewable electricity from 13% in 2015 to23% in 2025 and 36% by 2030 which should account for 10% of the total energy consumption by 2025. It includes installed capacity targets for small hydro, solar PV, biomass-based power plants and wind.

ii. National Renewable Energy policy 2005 (NRP)

The National Renewable Energy was developed in 2005 and revised in 2012. It sets out a road map for increasing the national deployment of renewable energy with a view to promoting sustainable development. The Road map states that the renewable energy capacity target for the national power sector are 10% for 2015, 18% for 2020 and 20% for 2030.

iii. Renewable Energy Efficiency Policy 2014 (NREEP)

The National Renewable Energy Efficiency Policy was created in 2014 and provides a general legislative framework for renewable energy and efficiency and recognizes the importance of an enabling framework that encourages private investment in renewable energy and energy efficiency.

iv. National Nuclear Programme Strategic Plan SP-2015

National Nuclear Programme Strategic Plan SP-2015 was developed by the National Atomic Energy Commission. The goal of the plan is ensure the deployment of 1000 megawatts (MW) of nuclear power in Nigeria by 2025 and 4,800 by 2035. Notwithstanding the several policies, laws and plans of the Nigerian government for renewable energy, Nigeria energy generation mix is still dominated by fossil fuel that is non-renewable. Presently, the on-grid energy mix in Nigerian is dominated by thermal gas which is 80%while hydro represents 20% of the power generating sources while the other sources like solar and biomass are heavily deployed for the electrification of rural and semi-urban areas which are not adequate enough. The current situation of epileptic supply of electricity and the inability of the electricity laws to ensure stability in the sector must have encouraged the passing of the electricity Act 2023 and it is hoped that the challenges will be overcome with the integration of renewable energy.

4.2 The implication of the Electricity Act on Renewable energy

The Electricity Act 2023 has significant implications for the power sector especially in the area of renewable energy as aims to promote the development and integration of renewable technologies into the existing grid system.

Mechanisms have also been introduced to attract investment in renewable projects like feed-in-tariffs, the award of licenses for mini-grid concessions to renewable energy companies. These provisions were visibly lacking in the EPSRA due to glaring limitations which were unable to be integrated into the generation mix of renewable energy. Under the present government, the national grid has collapsed nine times in less than one year. Assuming that renewable sources such as solar, wind and biomass were developed to complement electricity light, it would have gone a long way to support and boost electricity supply to Nigerians so that businesses can continue to thrive and thereafter support the economy. The Act also created a level playing ground by introducing the integration of renewables into the market.

Furthermore, the Act addressed the challenge of accommodating intermittent renewable energy in the national grid, for instance, the provision on renewable energy purchase obligation imposes an obligation on bulk buyers of electricity to ensure that they buy a certain percentage of their electricity from renewable sources. This will help in the reduction of greenhouse gas emissions; remove energy insecurity; and total reliance on fossil fuel sources.

Of great importance is the role that the Nigerian Electricity Regulatory Commission (NERC) will be playing in the Electricity Act, 2023. The NERC is seen as the main regulator of the Nigerian Electricity Supply Industry (NESI) and has the overriding power to promote the development and utilization of renewable energy in order to increase its contribution to increase the optimal development of the renewable electricity sector. This particular function was not so explicitly stated under the EPSRA.

A detailed examination has been undertaken of the electricity Act and what it portends for renewable energy sources in Nigeria. Findings show that if these provisions are properly implemented by all stakeholders, there would be a great production and distribution improvement.

5. Benefits of Renewable Energy Sources

The benefits of renewable are numerous and are summarized as follows;

a. It will help in the diversity of sources of generation of electricity which will bring about sustainable development in Nigeria.

b. Renewable energy avoids environmental effects as no negative emission emanates its use. Research shows that utilization of renewable energy contributes to the reduction of greenhouse gas by 90% reduction for sulphur oxide emission, 20% for hydrocarbons, 50% reduction in soot and 39% for particulate matters.[59]

c. Unlike fossil fuel that is exhaustible, utilization of renewable energy is not a finite resource s its use replenishes easily and generate less maintenance.

d. Renewable energy enhances the health and well- being of rural communities as well as aid the growth of small and medium businesses[60]

e. It provides opportunities to create green jobs, enhance energy efficiency which allows for easy access to energy particularly in rural areas where the national grid cannot reach.

Over the years, there has been a clarion call for the integration of renewable energy sources to be integrated into the energy mix and this has led to several policies.

6. Conclusion

It is agreed that the changes introduced by Act will usher an improved threshold in-respect of the electricity production/generation, distribution and marketing. It is a sincere hope that renewable energy sources that are provided for in the Act will be rapidly developed so that everyone particularly industries will benefit immensely from its use. The use of renewable energy has numerous benefits as it is clean without negative impacts which can help reduce the emission of greenhouse gases that has brought about climate change.

It is further hoped that government would go all out to ensure that the provisions for renewable energy are followed so as to renew hope in Nigerians that the days of epileptic supply are over.

In the light of the above, it is recommended for effective implementation of the integration of renewable energy sources in order to achieve the following:

A. The Government must exercise political will in seeing to the effective implementation of the Electricity Act with respect to integrating renewable energy sources into the national grid as this will enhance the rapid development of these sources.
B. Awareness and sensitization of the benefits of renewable energy sources must be carried at all levels of government particularly to the

[59] C. K. Ogueri., 'Renewable Energy Sources: Its Benefits, Potentials and Challenges in Nigeria,' *Journal of Energy Technologies and Policy*, Vol. 5 No.9 2015 p. 22
[60] K. Uduma., and T. Ariciszewski., 'Sustainable Energy Development: The Key to a Stable Nigeria,' <https://www.mdpi.com/journal/sustainability> accessed 5th January 2024

rural areas so as to enable the populace embrace these sources as alternative sources of electricity generation.

C. It is suggested that a renewable energy agency be created for the development of renewable energy sources just like the nuclear energy commission has been created solely for the development of nuclear energy and to work in collaboration with the NERC to help in harnessing and integration of renewable sources into national grid.

D. Deliberate and intentional steps must be undertaken by both governments (federal and state governments) to ensure that electricity is gotten from renewable energy and incentives be given to generators of renewable energy.

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