

An Overview of the Legal and Regulatory Framework for Renewable Energy Projects in Nigeria: Challenges and Prospects

Oluwaseun Viyon Ojo*

ABSTRACT

This paper reviews the existing legal and regulatory framework for renewable energy projects in Nigeria. The paper further examines the key provisions of various extant legislations and policies on renewable energy existing in Nigeria, and highlights the key policy thrust in these legislative instruments. The paper also looks into the various challenges confronting the development of renewable energy project so far. With a view to developing the legal and regulatory environment, the author examines the United States Legal and regulatory environment in order to draw invaluable lessons from such examination for the benefit of the legal environment in Nigeria. This concludes with significant recommendations from such study which, it is hoped, should be taken seriously by the Nigerian government and the relevant regulatory authorities with a view to strengthening the rising potential of Nigeria as a Renewable Energy (RE) hub of Africa in the very near future.

1.0 INTRODUCTION

Energy has come to retain a very important place in the development of any country or region. Indeed, energy is fundamental to the fulfillment of basic individual and community needs such as lightning, transportation, provision of water, food, health and education. Since all these services are indices by which

* Oluwaseun Viyon Ojo is a Legal Practitioner based in Lagos and can be contacted through ojoviyon2010@yahoo.com and vojo@hoickandduke.com. He is an Associate with the Law firm of Hoick and Duke in Lagos. He holds a LLB (Hons) from the Lagos State University (LASU) and BL (Hons) from the Nigerian Law School. He has previously worked as a legal intern with Oando Plc and the top law firms of Alegeh and Co and Ajumogobia and Okeke.

a nation's progress and development are measured, it then follows that energy is the major determinant of every country's economic and social development.¹ As a matter of fact, the place of energy cannot be understated in any country or geographical area. The sad reality in Nigeria now is that about 60% to 70% of the Nigerian Population does not have access to electricity. There is no doubt that the present power crisis afflicting Nigeria will persist unless the government diversifies the energy sources in domestic, commercial and industrial sectors and adopts new technologies to reduce energy wastages and to save cost.² There is no doubt that Nigeria has an exceptionally rich portfolio of clean energy assets to enhance the speedy and sustainable development of the renewable energy sector in Nigeria. Over the years, the main source of energy globally has been the fossil-type energy resources consisting of; Crude oil,³ Natural Gas,⁴ Coal,⁵ Lignite⁶ and Tar Sands.⁷ This source of energy had been meeting

¹ T. Esan "Status of Renewable Energy Policy and Implementation in Nigeria" (2008) *Institute for Science and Society, University of Nottingham, United Kingdom*, available online at; www.gbengasesan.com/temidocs/REPStatusNigeria.pdf, (accessed 15th April, 2017)

² N.V Emodi and N.E Ebele "Policies Enhancing Renewable Energy Development and Implications for Nigeria", (2016) 4 *Journal of Sustainable Energy*, 7-16, available online at; <http://pubs.sciepub.com/rse/4/1/12>, (accessed 26 March, 2017)

³ Crude Oil is a naturally occurring, unrefined petroleum products composed of hydrocarbons deposits and other organic materials. Crude oil can be refined to produce usable products such as gasoline, diesel and various forms of petrochemicals. It is a non-renewable resource, also known as fossil fuel, which means that it cannot be replaced naturally at the rate we consume it and is therefore a limited resource. See; <http://www.investopedia.com/terms/c/crude-oil.asp>, (accessed on 26 March, 2017)

⁴ Natural gas is a fossil fuel used as a source of energy for heating, cooking, and electricity generation. It is also used as fuel for vehicles and as a chemical feedstock in the manufacture of plastics and other commercially important organic chemicals. It is a non-renewable resource.

⁵ Coal is a flammable black hard rock used as a solid fossil fuel. It is mainly made up of 65-95% carbon and also contains hydrogen, sulphur, oxygen and nitrogen. It is a sedimentary rock formed from peat, by the pressure of rocks laid down later on top.

⁶ Lignite is a dark brown to black combustible mineral formed over millions of years by the partial decomposition of plant mineral subject to increased

three-quarter of the total world energy needs. However, rising concerns about the security of energy supplies have led to a global search for alternative energy source.⁸ Sustainability, or long-term viability, energy security and the need to avoid the adverse environmental consequences of fossil-type energy resources have been key in the search for an alternative energy. Thus, the deployment of renewable energy sources in the power sector is a consequence of strong climate change, environmental and energy security policies and an attempt to resolve the classic energy trilemma facing the world-security, sustainability and economic prosperity⁹

In this respect, renewable energy has come to symbolize the opposite of the bleak prospects of fossil fuel's exhaustiveness and hope for mankind's unquenching thirst for energy. The global search for green sustainable energy is substantially driven by the following reasons-

- a) Increasing need for energy for industrial, manufacturing and domestic purposes,
- b) Exhaustive nature of fossil-fuel sources
- c) Collateral damage to the environment by the fossil fuel extraction and consumption value chain,
- d) Fluctuation in prices of oil and gas in the international oil market and consequentially, the adverse effect on the national and global economy.¹⁰

pressure and temperature in an airless atmosphere. In simple terms, lignite is coal. See; <https://www.lignite.com/about-lignite> , (accessed 25 March, 2017)

⁷ Tar Sands also referred to as oil sands are a combination of clay, sand, water and bitumen, a heavy black viscuous oil. Tar Sands can be mined and processed to extract the oil-rich bitumen, which is then refined into oil.

⁸ Supra note 1, at Page 2.

⁹ P.K Oniemola "Legal Response to support Renewable Energy in China" (2014) 32 *Journal of Energy, Environment and Natural resources (International Bar Association)*, 179

¹⁰ J. Onwubuariri, 'Reviewing the Legal Framework for Renewable Energy Projects in Nigeria' *Business Day Newspaper* 12 February, 2015 12

As such, the renewable energy has come to constitute a panacea of different sorts, offering solution to every problem posed by conventional energy sources. These sources are clean, safe, and inexhaustible, less damaging and even satisfy the criteria for sustainability prescribed by the United Nations, that is, the ability to meet the energy needs of the present generation without compromising the ability of the future generation to meet their own needs.

Further to the above, scientists have collectively concluded that the main renewable energy sources therefore include the solar energy,¹¹ wind energy,¹² biomass,¹³ hydro (water), geothermal energy¹⁴ and tidal energy.¹⁵

At this juncture, the need to define the term “renewable energy” therefore becomes apposite. It is thus defined as energy that comes from resources which are naturally replenished on human timescales such as sunlight, wind, rain, tides, waves and geothermal heat. Twidell and Weir define renewable energy as “energy obtained from the continuous and repetitive currents of

¹¹ Solar energy is radiant light and heat from the sun that is harnessed using a range of ever-evolving technologies such as solar heating, photovoltaic, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis.

¹² Wind energy is the process by which wind is used to generate electricity. It is the use of air flow through wind turbines to mechanically power generators for electric power. Wind power, as an alternative to burning fossil fuels, is plentiful, renewable, widely distributed, clean, produces no greenhouse gas emissions during operation, consumes no water, and uses little land.

¹³ Biomass is fuel that is developed from organic materials, a renewable and sustainable source of energy used to create electricity or other forms of power, see <http://www.reenergyholdings.com/renewable-energy/wha-is-biomass/> , (accessed 27 March, 2017)

¹⁴ Geothermal energy is the heat generated and stored in the earth. It is clean and sustainable. Resources of geothermal energy range from the shallow ground to hot water and hot rock found a few miles beneath the earth surface, and down even deeper to the extremely high temperatures of molten rock called magma.

¹⁵ Tidal energy is a form of hydropower that converts the energy obtained from tides into useful forms of power, mainly electricity. Although not yet widely used, tidal power or energy has potential for future electricity generation. Tides are more predictable than wind energy and solar power.

energy recurring on the natural environment.”¹⁶ Furthermore, TREIA offered an acceptable definition of the concept of renewable energy which has been adopted by the Texas Legislature and is as follows;

Renewable energy is any energy resource that is naturally regenerated over a short time scale and derived directly from the sun(such as thermal, photochemical, and photoelectric), indirectly from the sun(such as wind, hydropower, and photosynthetic energy stored in biomass), or from other natural movements and mechanisms of the environment(such as geothermal and tidal energy). Renewable energy does not include energy resources derived from fossil fuels, waste products from fossil sources or waste products from inorganic sources¹⁷

The definition notwithstanding, the concept of renewable energy remains the same. Thus, in contrast to fossil fuels, they are environment-friendly, ubiquitous, self-replenishing, infinite and consequently, considered as the way to the future.

Though accepted by many commentators, experts and policy analysts as the viable alternative to the conventional energy sources in Nigeria, the reality as at today is that renewable energy sources, apart from hydropower, hardly feature as part of the Nigeria’s energy mix, owing to an avalanche of challenges confronting the renewable energy subsector in Nigeria.¹⁸ However and quite fortunately, the Nigerian Government has shown ready commitment by way of legal and regulatory reforms

¹⁶ G. Boyle (ed) *Renewable Energy: Power for a Sustainable future*, 2 Ed, (Oxford: London, 2004) 10

¹⁷ Texas Renewable Energy Industries Alliance, Definition of Renewable Energy, available online at <http://www.treia.org/renewable-energy-defined/>, (accessed 26th March, 2017)

¹⁸ P.K Oniemola “Powering Nigeria through Renewable Electricity Investments: Legal Framework for Progressive Realisation” (2015) 6 *Afe Babalola University Journal of Sustainable Development Law and Policy*, 84. Available online at <https://www.ajol.info/index.php/jsdlp/article/view/128008/117558> , (accessed 27 March, 2017)

towards promoting renewable energy development in Nigeria, though there are still issues that must be looked into and addressed about the existing legal and regulatory framework with a view to integrating the Renewable Energy (RE) into the wider Nigerian Energy Value Chain, enhancing Energy Efficiency (EE) and entrenching Nigeria as a Renewable Energy (RE) Hub Center in Africa.

In the light of the above background information, Section 1.0 of this paper introduces the concept of renewable energy, section 2.0 perfunctorily analyses and briefly reviews the extant legislative framework for the deployment and development of renewable energy projects in Nigeria. Section 3.0 is devoted to analysing the present challenges and the available prospects for the renewable energy subsector in Nigeria while section 4.0 takes a brief excursion into the legal and regulatory framework in the United States in order to gain invaluable lessons for the Nigerian environment. Finally, the writer concludes this article in Section 5.0 of this paper by suggesting relevant recommendations for the development of the renewable energy subsector in Nigeria.

2.0 REVIEW OF THE EXISTING LEGISLATIVE FRAMEWORK FOR RENEWABLE ENERGY PROJECTS IN NIGERIA

A comprehensive and coherent legal framework is essential in guiding a country towards efficient utilisation of its energy resources. Although, the existence of this clear legal structure does not guarantee responsible management of the country's energy resources. The fact remains that the Nigerian power sector is so inadequate as it constitutes a major roadblock to economic progress and social well-being, access to cost effective and sustainable energy services is critical to re-launching the Nigerian economy and meeting SDGs¹⁹ and NEEDS²⁰ targets.

¹⁹ SDGs refer to the Sustainable Development Goals

Several tools would be instrumental to achieving a vibrant and secure energy future for the country, one of which is a viable legal and regulatory framework. As such, the Nigerian government must be committed to entrenching the right and conducive legal environment for the enhancement and development of renewable energy projects with the objective of attracting continuously Foreign Direct Investment (FDI) into this important subsector, improving the state of energy security and supplies in the country and ultimately imparting positively the electricity/power sector in Nigeria.

Therefore, the existing legal framework for the promotion of renewable energy projects in Nigeria will be reviewed by the writer in this section of this paper. In doing this, the writer will briefly highlight the key objectives and policy thrusts of all the existing policies, legislations, master plans, regulations, guidelines, strategies and incentives of the Nigerian Energy Policy and point out their relevance to the renewable energy subsector of the Nigerian Economy.

Before delving into an analysis of all the relevant laws and policies, it is apposite to state that the Nigerian Renewable Energy Policy is fundamentally target based, seeking ambitious achievements relating to increasing Renewable Energy generation and distribution and reducing overdependence on traditional energy sources. However, the policy is not standard-centric but complementary, that is, it is not proposed as a stand-alone solution to Nigeria's Energy needs nor as a wholesale replacement of traditional or conventional energy sources.²¹

2.1 National Energy Policy 2003

Before the approval of the National Energy Policy in Nigeria in 2003, there was no comprehensive energy policy in Nigeria.

²⁰ NEEDS refers to National Economic Empowerment and Development Strategy

²¹ Supra note 10.

However, the Energy Commission of Nigeria released the policy in April 2003 to espouse the government's policy on the development and exploitation of all Nigeria's energy resources, addressing environmental issues, energy utilisation, efficiency, financing and policy implementation. It further sets out government policy on the production, supply and consumption of energy reflecting the perspective of its overall needs and options. The main goal of the policy is to create energy security through a robust energy supply mix by diversifying the energy supply and energy carriers based on the principle of "an energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout Nigeria, thus contributing to sustainable development and energy conservation."²²

With particular regard to the renewable energy, the National Energy Policy sets out the following relevant principles and policies as follows;

- a) Identification of nuclear, biomass, wind, solar, hydro and hydrogen as viable energy sources to be harnessed by the nation in an environmentally sustainable manner.
- b) Local research, development and exploitation of the foregoing energy potentials to be commercially undertaken through public, private and indigenous participation.
- c) Non-renewable energy sources are to be used conservatively while Nigeria makes a steady and reliable availability of power at all times to at least 75% of the population by the year 2020 at economic rates for social, industrial and economic activities, and

²² See National Energy Policy (NEP) (2003). Energy Commission of Nigeria (ECN). Abuja: Federal Republic Of Nigeria, Available online at www.energy.gov.ng, (accessed 28 January, 2017).

- d) An integrated energy planning system to be developed, involving energy related programs and activities of other sectors.²³

As it appears, the policy lacks neither legislative backing nor force of law, and does not impose particular statutory obligations on either the government or the investors, private or institutional. This invariably implies that the relevant stakeholders in the energy sector, most especially the government, cannot be compelled by way of a Court order or injunction to implement and execute the key objectives of the policy. This definitely will not augur well with the development of the renewable energy sub-sector which requires consistent, committed, unrelenting and pragmatic efforts towards its implementation.

2.2. Electric Power Sector Reform Act (EPSRA) 2005

The Act was enacted by the National Assembly in 2005 in the wake of the need for far reaching reforms in the power sector. It provided a strong and viable basis and legislative platform for the strategic and phased implementation of the power sector reforms in Nigeria until an optimal capacity generation and fully competitive market is achieved, that is, a transition from a vertically integrated, government owned, monopolistic market to a completely liberalized and privatized electricity market which will accordingly attract private direct investment by both foreign and local investors. The Act primarily aims at unbundling the electricity market along the three functional and jurisdictional lines –Generation, Transmission and the Distribution lines, though in phased and strategic process and created room for the incorporation of artificial entities to take over. To ensure compliance with all the rules, regulations and procedures laid out in the Act, the Act establishes the National Electricity Regulatory Commission(NERC) as the principal regulatory institution in Nigeria in charge of the activities of the generation, transmission

²³ *Ibid.*

and distribution companies and the granting of licences for electricity generation, transmission, distribution, system operation and trading.²⁴

More importantly, the Act provides a platform for private electricity producers to make commercial arrangements with the now privatized distributors or even the end user for the sale of power generated by the private producers and licensing of electricity generation, including renewable electricity, exceeding 1MW. Any renewable electricity generation, distribution or transmission project will therefore be carried out only under the appropriate licence granted by the commission.

Unlike the other existing policies and rules, the EPSRA is a legislative instrument that carries with it the force and bindingness of the law and can be enforced in any Court of law in Nigeria. Thus, the government or any relevant stakeholder in the industry can be taken to the Court of law for the enforcement of the various rights and obligations entrenched in the Act from time to time, without any inhibition whatsoever. The enforceability of the Act presents a beacon of hope for the development of the renewable energy subsector in Nigeria, and is the right legislative instrument in the right direction.

2.3 Energy Commission of Nigeria Act (ECA)

The Act was first promulgated in 1979 and later amended in 1988 and 1989 and accordingly established the Energy Commission of Nigeria (hereinafter referred to as the Commission). The Act confers on the Commission the responsibility of coordinating and general surveillance of the systematic development of the various energy resources in Nigeria.²⁵ The Technical Advisory Committee²⁶ of the Commission is mandated by the Act to carry

²⁴ See Section 32, 33 and 62 of the Electric Power Sector Reform Act 2005, CAP E7, LFN 2010.

²⁵ See The Preamble to the Energy Commission of Nigeria Act, CAP E10, LFN 2010

²⁶ S.3 Of the Energy Commission of Nigeria Act provides that;

out the following functions, including but not limited to the following;

- a) Gather and disseminate information regarding Government's policy on energy development.
- b) Serve as a trouble-shooting centre for technical issues in energy development.
- c) Advise state and federal government on energy development issues, including funding for energy research and development; and
- d) Prepare master plans and policies for energy development, exploitation, utilisation, project execution, project financing, incentives and recommendations to government
- e) Liaise with all international organisations in energy matters such as the International Atomic Energy Agency, World Energy Conference and other similar organisations.²⁷

The Act sought to align the policy of the Government on developing, harnessing and distributing renewable energy and protecting the environment from the harmful effects of fossil fuel. Though no specific reference is made to the renewable energy development in the Act, the Commission, pursuant to this mandate, has developed the National Energy Master Plan and the Renewable Energy Master Plan which provides for detailed policies towards meeting Renewable Energy Targets, which would be discussed much later in this paper.

2.4 Nigeria Renewable Energy Master Plan 2005 and 2012 (NREMP)

The overall policy objective of the plan is to articulate Nigeria's vision and targets for addressing key development challenges through the accelerated development and exploitation of the

There shall be established a technical arm of the commission to be known as the Technical Advisory Committee which shall consist of the Director-General of the Commission as chairman

²⁷ See Section 5 of the *Energy Commission of Nigeria Act, CAP E10, LFN 2010*

Renewable Energy. The Master Plan released in 2006 was the collaborative effort of the Energy Commission of Nigeria (ECN) and the United Nations Development Program. The Master Plan is based on certain economic and social assumptions.

The Master Plan provides a regulatory framework for achieving these objectives and targets such as creating a level playing ground, maintaining a renewable portfolio standard, creating fiscal and market incentives, integration of Renewable Energy into Non-Energy Sector policies, establishment and reinforcement of regulatory institutions and also, standardisation of Renewable Energy Products.²⁸

2.5 Renewable Electricity Policy Guidelines 2006

These policy guidelines were released by the Federal Ministry of Power and Steel in 2006 to direct the government's vision, policies and objectives for promoting renewable energy in Nigeria's power sector. It mandates the government on the expansion of electricity generation from renewables to at least 5% of the total electricity generated and a minimum of 5 TWH of electricity generation in the country.²⁹

2.6 Captive Energy Generation Regulations(CEGR)

These regulations were issued by the National Electricity Regulatory Commission (NERC) in 2008 as a complement to the EPSRA. The Act makes no comprehensive provisions for the regulations of small scale energy generation for private or commercial use. It however empowers the commission to make regulations regarding such captive generation.³⁰

²⁸ See Renewable Energy Master Plan (REMP) 2005 AND 2012, available online at www.energy.gov.ng (accessed 18th April, 2017)

²⁹ Renewable Electricity Policy Guidelines, available online at www.energy.gov.ng (accessed 18th April, 2017)

³⁰ The Regulations by section 2 thereof define Captive Power Generation as generation of electricity exceeding 1MW for the purpose of consumption by the generator, and which is consumed by the generator itself, and not sold to a

Though the regulations are not renewable energy-specific, it applies to renewable energy generation project that is captive in nature. Principally, the regulations provide for the procedure for the application, renewal and cancellation of the captive generation permit, including the supply of power by a captive permit holder to an off taker in excess of 1MW; and the provisions of data to the commission by captive generators.

2.7 National Biofuels Policy and Incentives 2007

The policy was approved by the Federal Executive Council on the 20th of June 2007. The key thrust of the policy was to develop and promote the domestic fuel ethanol industry through the utilisation of agricultural products. This was in line with the government's directive on an Automotive Biomass Programme for Nigeria in August 2005. The NNPC was mandated to create an environment for the take-off of the ethanol industry. The policy further aimed at the gradual reduction of the nation's dependence on imported gasoline, reduction in environmental pollution, while at the same time, creating a commercially viable industry that can precipitate sustainable domestic jobs.³¹ The benefits of the policy was to create additional tax revenue, provision of jobs to reduce poverty, boost economic development and empower those in the rural areas, improve agricultural activities, energy and environmental benefits through the reduction of fossil fuel related GHGs in the transport sector.

The input of the policy to the renewable energy regulatory environment includes the establishment of a Biofuels Commission, issuance of a biofuels regulation by the Minister of Petroleum

third party" see the *Captive Energy Generation Regulations*, available online at www.nercng.org/nercdocs/Regulation-for-Captive-Power-Generation.pdf (accessed 18th April, 2017)

³¹ See P.K Oniemola and G. Sanusi "The Nigerian Biofuels Policy and Incentives(2007): A Need to Follow the Brazilian Pathway", (2009) *International Association of Energy Economics*, 35, Available online at <https://www.iaee.org/en/publications/newsletterdl.aspx?id=88> (accessed 20 April, 2017)

Resources, establishment of a biofuels research agency, funding of research and development in biofuels development and incentives scheme for participants in the biofuels development subsector.³²

2.8 National Renewable Energy and Efficiency Policy 2015

The policy was endorsed as a policy document on April 20, 2015 by the Federal Executive Council (FEC). It is the first and only co-ordinated tool to drive renewable energy development and improve energy efficiency in Nigeria. The policy identifies and accepts that the National Grid is limited in reach, and so sees RE as the best solution to bridge the gap. It mandates that the National Renewable Energy Action Plan (NREAP) and the National Energy Efficiency Action Plan (NEEAP) be set up and the implementation timeline agreed.

The policy further makes it mandatory for the Ministry of Power to facilitate the development of an Integrated Resource Plan (IRP) and ensure the continuous monitoring and review of the implementation and effectiveness of the action plans agreed. It facilitates the establishment of a framework for sustainable financing of renewable energy and energy efficiency projects and programmes in Nigeria. It is uniquely focused on hydropower, biomass, solar, wind, geothermal, wave and tidal energy power generations.

The policy projects a national generation profile of 6,156MW and 12,801MW of hydropower, 3.4MW and 11,7MW of biomass power, 1,343MW and 6,831MW of solar power and 631MW and 3,211mw of wind energy by 2020 and 2030. It finally mandates government to provide guarantees and financial frameworks to

³² See generally Nigerian National Petroleum Corporation (NNPC) Draft Nigerian Bio-fuel Policy and Incentives, Nigerian National Petroleum Corporation, Abuja 2007

stimulate the expansion of Nigeria's renewable electricity market.³³

3.0 CHALLENGES OF RENEWABLE ENERGY DEVELOPMENT IN NIGERIA

Presently, there are many obstacles inhibiting the development of renewable energy projects in Nigeria. Although, they presently appear to be obstacles, they could, in the long run, open up opportunities for long-term investment by both foreign and local investors whilst reaping the long-term benefits of investing in the development of the renewable energy projects in the face of the apparent multifaceted challenges confronting the speedy and rapid development of this important area of the energy sector which serves as a viable alternative to the present fossil-fuel generated energy. The fossil fuel has been empirically proven not to satisfy the essential indices of sustainable development and clean power.

Here, the writer will briefly highlight and analyse the various obstacles observed by policy analysts, commentators and energy experts as constituting the clog in the wheel of progress in the development of the renewable energy projects. They therefore include the following;

3.1 Policy and Regulatory Barriers

It has been observed that there is an absence of a clear institutional framework for renewable energy projects in Nigeria.³⁴ It has further been observed that there is an overlapping duplication of the roles and functions of the various regulatory bodies and institutions in charge of the power sector in Nigeria viz, Nigerian Electricity Regulatory Commission (NERC), Energy Commission of Nigeria (ECN) and Federal Ministry of Power. It

³³ See National Renewable Energy and Energy Efficiency Policy for Nigeria 2015, available online at www.energy.gov.ng (accessed 18th April, 2017).

³⁴ S.O Oyedepo "Towards achieving Energy for Sustainable Development in Nigeria" (2014) 34 *Renewable and Sustainable Energy Review* 255, 269.

appears from the regulatory perspectives that these bodies share similar and often the same sphere of roles to play in the management and development of the renewable energy subsector in Nigeria. Absence of clearly distinct and separate roles amongst the regulators inevitably portends that the investors and active players in this industry would have to deal with a host of governmental institutions and agencies which will undoubtedly create ambiguity and misconception in the eyes of the investors. Justice is not served when there are many regulators. It is better to have a single regulator which is up and doing in its grandiose and categorical responsibility of overseeing the affairs of the subsector than have many regulatory bodies having their different pie of regulatory roles with its attendant regulatory duplications. The absence of a clear co-ordination of the institutions for the development of renewable energy in Nigeria has negatively impacted on its growth.³⁵ Thus, redefining the legal and regulatory duties of the institutions may be desirable so that potential investors are not confused in any way.

3.2 Financing and investment barriers

Amongst the experts and policy makers, it has been widely accepted that renewable energy projects are very costly and capital-intensive. Such projects require and demand a huge capital outlay and financial resources for their effective implementation and execution. This therefore means that absence of a regular cash flow and consistent financing options for such investment projects constitute a barrier to the development of the renewable energy projects. It is a known fact that financing is a huge clog to the progress of this subsector in Nigeria and will continue to be unless appropriate and sustainable financing options are put in

³⁵E.I. Efurumibe “Barriers to the Development of Renewable Energy in Nigeria” (2013) 2(1) *Scholarly Journal of Biotechnology* 11, 12.

place. For this challenge to be successfully tackled and confronted, it will take a ready commitment from the government to leverage on the Public Private Partnerships (PPPs) for the financing of these projects across the energy value chain.

3.3 Technological barriers:

Renewable energy requires up-to-date technologies which is capital in nature. Since such projects involve tapping energy from non-conventional and non-traditional sources, it therefore requires new and novel technologies which; in most instances, are not cheap and cost-effective. The non-availability of these modern technologies in harnessing the huge potential of renewable energy in Nigeria has invariably constituted a clog in the wheel of the development of renewable energy projects in Nigeria.

3.4 Limited Public Awareness of the Potential of Renewable Energy and Electricity

Most Nigerians are still accustomed to the conventional energy sources and there is little or limited public knowledge about the huge inherent potentials of renewable energy projects in Nigeria. Inadequate awareness of the immense potential of this project has meant that there is little effort geared towards tapping its huge potentials. This lack of information and awareness creates a market gap that results in higher risk perception for potential renewable energy projects.

3.5 Poorly established standard and quality control of locally manufactured and imported technologies

This challenge obviously affects the quality standards of the technologies adopted in Nigeria. The local competence and capacity to determine the right quality and standards for renewable energy in Nigeria is almost absent which has resulted in

the poorly established standards for quality control of renewable energy technologies. This will continue to be so unless and until the appropriate steps are taken by the government.

3.6 Grid Access

Very few people have access to the National Grid. The rural areas or communities are totally not connected to the National Grid. As at today, not so many people have access to electricity and experience incessant power outages time and again. Statistics show that about 15.3m Nigerian households lack access to grid electricity, even those connected to the grid enjoy very unreliable electricity supply.³⁶ This almost negatively affected the development of the renewable energy sector in Nigeria.

3.7 Poor Legal Enforcement Mechanisms

The problem with any legal system is the absence of a strong, viable and effective legal enforcement machinery. Ineffective enforcement and implementation, in my view, is equal to non-existence of the legal regime. Interestingly and as it appears above, there exists a host of laws, rules, regulations, policies and master plans of renewable energy projects but this extensive legal regime will amount to a toothless bulldog if there is no effective legal enforcement machinery. In this sense, the poor legal enforcement by the existing regulatory bodies has inhibited the development of renewable energy projects in Nigeria and has almost made nonsense the existing legal framework.

4.0 LESSONS FROM THE UNITED STATES LEGAL AND REGULATORY FRAMEWORK AND PROSPECTS FOR THE NIGERIAN RENEWABLE ENERGY SUBSECTOR

³⁶ “15.3m Nigeria households lack access to grid electricity –group” *Premium Times* December 15, 2012, available online at <http://www.premiumtimesng.com/news/111301-15-3m-nigerian-households-lack-access-to-grid-electricity-group.html>, (accessed 17 April, 2017)

The United States jurisdiction most often serves as a model jurisdiction for all other jurisdictions to copy from and adapt to their own jurisdiction with proper modifications, having particular regard to their peculiar local conditions and idiosyncrasies. On this basis, this paper will attempt to examine the existing legal and regulatory framework for Renewable Energy Subsector in the United States and then draw lessons from them. The writer will undertake an excursion into the jurisdiction of the United States to draw invaluable lessons which will be helpful for the Nigerian Renewable Energy Subsector.

The Renewable Policy in the US has been largely driven by supply security concerns on the federal level, and economic activity and Greenhouse Gas Emissions concerns on the state levels. The United States Energy Strategy is therefore divided alongside the federal and state level and has been classified as an “all-of-the-above-strategy”. Both the Federal and State governments have a strong policy framework expanding many forms of renewable power generation in recent years. The policy thrust at the federal level is to reduce dependence on oil import while leveraging on the potential of the renewables. Innovation is emphasised to achieve cost reductions and increase the renewable share.³⁷

The relevant federal legislations to promote the sustainable development of the renewable energy in the United States include the following

4.1 Public Utility Regulatory Policy Act 1978

The Act was enacted principally to promote energy conservation (reduce demand) and promote greater use of domestic energy and renewable energy (increase supply). In respect of renewable energy, the Act established the first production tax credits. The

³⁷ International Renewable Energy Agency, “Renewable Energy Prospects: United States of America” Remap 2030 A Renewable Energy Roadmap, January 2015 at Page 28, available at: www.irena.org/REmap/IRENA_REmap_USA_report_2015.pdf, (accessed 20th April, 2017)

essence of the production tax credit is to motivate the RE owners to ensure an effective operation of the power plant whilst reducing operational inefficiencies. The Act also allows for open access to the electrical transmissions grid for independent power producers to deploy renewable energy at the utility-scale.

4.2 Energy Policy Act of 1992

The Act sets goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. It sets out the various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy and promotes energy conservation in buildings. It liberalized the electricity market, established a program for providing federal support on a competitive basis for renewable energy technologies and specifically authorised tax incentives and marketing strategies for renewable energy technologies in an effort to encourage commercial sales and production.

4.3 Energy Policy Act 2005 and 2007

The Act supports renewable electricity and biofuels. It currently enables eighteen states to offer consumers the right to choose their energy provider.

4.4 Energy Independence and Security Act 2007

The Act was signed by President Bush on 19th December, 2007 and it aims to move the United States toward greater energy independence and security, increase the production of clean renewable fuels, protect consumers, promote research on and deploy greenhouse gas capture and storage options, and increase U.S energy security, develop renewable fuel production and improve vehicle fuel economy.

4.5 Blueprint for America's Energy Future (2011)

It contains goals to double energy productivity by 2030. It built on the blueprint targets and broad goals, its main approach is to deploy American assets, innovation and technology in order to safely and responsibly to develop more energy here at home and be a leader in the global energy economy”

The backdrop of the federal policy approaches that support renewable energy is based on these broad initiatives and they include the following;

- a) Staying on the Cutting Edge through Clean Energy R & D
- b) Promoting Renewable Electricity in Rural America
- c) Siting Record-Breaking Renewables Projects on Public Lands
- d) Opening a new Frontier for Atlantic Offshore Wind Development
- e) Expanding and Modernizing the Grid to integrate renewables and increase reliability
- f) New Standard for Clean Energy
- g) Double the share of clean electricity over the next 25 years from 40 to 80 in 2035
- h) Investing in Smart Grid Innovation and deploying smart grids
- i) Investing in DOE’s Advanced Research Project Agency Energy
- j) Syncing R&D Investments and Clean Energy Technology Deployment
- k) Eliminating Fossils Fuels Subsidies to help support Clean Energy
- l) Doubling the Number of Energy Innovation Hubs to focus on Key Energy Challenges.³⁸

The US federal policy is principally supportive of the renewable power generation capacity deployment. The Supportive policies already in place include the Production Tax Credits(created under

³⁸ *Ibid* 29

the EP Act in 1992), Investment Tax Credit, Renewable Portfolio Standards(renewable energy targets for utilities for generation mix), Feed-in tariffs, Research and Development Subsidies, Funding and guidelines for industrial co-generation and a North-American Smart Grid interoperability to co-ordinate and accelerate standards harmonization.³⁹

At the state level in the United States, the states, counties and cities have a wide variety of initiatives to support renewable energy development. In addition to the federal policies' renewable portfolio standards, there exist various other states level tax credits and grants regarding the increased use of different bioenergy commodities. Financial incentives are typically used to support feedstock demand, supply and lower costs of capital and they are not limited to bioenergy necessarily, but cover other renewable energy source as well. Furthermore, various states adopted the Regional Greenhouse Gas Initiative (RGGI) aimed at reducing greenhouse gas emissions from power plants through a cap and trade program. There is also a large number of other state and local programs designed to promote a wide variety of renewables.

Generally, renewables policy in the US, both at the federal and states level, has been largely driven by supply security concerns, greenhouse gas mitigation and economic activity concerns, and have gone a long way in developing and supporting the development and growth of the renewable energy sector in the United States.

5.0. CONCLUSION AND RECOMMENDATIONS

Notwithstanding the multifarious challenges facing the development of the renewable energy subsector in Nigeria, there is a high tendency that the subsector will continue to develop and expand in the near future and ultimately contribute its part to the National Grid and the entire Energy value Chain in Nigeria

³⁹ Supra note 38

provided the right and conducive technical, financial and legal environment is put in place and continues to be supportive of sustainable renewable energy development. As examined in this paper, the Nigerian government and policymakers should take a cue and learn invaluable lessons from the United States' legal and regulatory environment for the development of the Renewable Energy Subsector. The paper therefore recommends the following to promote the inclusive and sustainable growth of renewable energy technologies in Nigeria;

- a) Tax Incentives in the form of Production Tax Incentives and Investment Tax Credits must be put in place in the renewable energy sector. With these fiscal incentives, the companies in this sector will be able to reduce their annual tax bills in their formative years of operation whilst also entrenching operational efficiencies. This will help the country to expand its renewable energy capacity with the presence of technologically efficient companies in Nigeria, ready to invest and take advantage of these fiscal benefits.
- b) The Federal Government must also support the growth of the sector by providing subsidies to support Research and Development (R&D) in the sector. This will support innovation and technological efficiency considering the fact that the sector is such an innovation-driven and technologically-intensive and will also ease the technological barriers currently facing the system.
- c) The Renewable Energy Policy Framework should be structured to accommodate both the federal and state Government participation in the promotion and development of the renewable energy as obtainable in the United States. This would allow the state governments to have a co-ordinated variety of initiatives to support renewable energy development within their states whilst tapping the rich renewable energy potentials in these states. This will enable the states to promote the development of home-grown, autochthonous policies to

support renewable energy development in their states in addition to the already existing federal policies in Nigeria.

- d) The regulatory bodies must be up and doing in their responsibilities in providing the right regulatory atmosphere for continuous and sustainable foreign investment in the sector. It is suggested that there should be effective collaboration and co-operation between the existing regulators to avoid duplication of functions thereby scaring away the potential investors who are willing to import capital and technology for the sector. This is also to avoid the situation of killing the foetus in the umbilical cord before conception.
- e) The government will have to reduce environmental stresses arising from high carbon emissions by enacting carbon emissions reduction and energy-efficiency regulations with a view to reducing the greenhouse gas emissions, promoting energy efficiency and ameliorating the harmful spillover effects of high-carbon economic growth.
- f) The government must play a critical role in the dissemination of information on renewable energy resource availability, benefits and opportunity to the general public in order to raise public awareness and generate activities in the area. Such process is paramount to building public confidence and acceptance of renewable energy technology, providing information to selected stakeholders groups like the investors and can help in the mobilisation of financial resources needed to promote renewable energy technology projects in Nigeria.
- g) Competitive bidding which serves as a mechanism for the reduction of the price of RE technologies through market-based pricing should be adopted. However, the perceived risks of unsustainable price bids and extreme low price of energy/electricity must be taken into account by the Nigerian government to ensure the successful implementation of the bidding system.

- h) Ultimately, the Nigerian Renewable Policy Framework must be structured to focus on a mix of policies and investments that will boost diversity and strengthen resilience with a view to ensuring a brighter future for us all

It is noteworthy to state at this juncture that the World Bank Report on the policy and regulatory support to provide citizens' access to sustainable energy placed Nigeria far below in doing enough in giving her people sustainable electricity and easy energy access. Based on the three cardinal indicators of access to modern energy, energy efficiency and renewable energy; Nigeria was scored an abysmal 10.58% out of a possible 100% in energy efficiency, and more specifically on renewable energy. The report shows that the government has no action plan on how to reach the target of 18,508 megawatts from the renewable energy sources neither has it published special research findings on the viability of solar, wind and hydro systems in certain areas.⁴⁰ This is no good news for the renewable energy sector in Nigeria. In view of this, it is therefore hoped that significant efforts and concrete steps would be taken by the government and its various parastatals in charge of the energy investment and resources, to diversify the energy sector from being entirely dependent or based on the fossil-type or non-renewable energy resources to the abundant renewable energy resources present in Nigeria. This is to ensure a sustainable access to energy supply and security for both the present and future generation, whilst putting the above recommendations into consideration. This will most definitely open up the window for continuous and unimpeded investment in the subsector, which presently have not been fully tapped into and have contributed very little to the entire energy value chain in Nigeria. With this in place, this will go a long way in improving the

⁴⁰ Off grid Nigeria "World Bank report indicates Nigeria is doing far less to expand energy access", March 10, 2017 available online at <http://www.offgridnigeria.com/wbank-report-indicates-nigeria-far-less-expand-energy-access/>, (accessed 17 April, 2017)

current position of Nigeria in rating of World Bank in energy efficiency and the contribution of the renewable energy to the National Energy Grid for the good of all and sundry.