Much Ado About Renewable Energy: Roadmap Towards A Healthy Environment In Nigeria

Ivie Deborah Nwosu*
and
Sylvester Oriaifo**

Abstract

The future is equipped with green, sustainable, renewable, and reliable energy. It is expedient to tap into the copious available resources to build a green economy that will preserve society. This article seeks to promote renewable energy as a key to securing a healthy and climate friendly future for present and future generations. This is achievable through the instrumentality of laws. It examines the negative consequences of overdependence on fossil fuels and the prospects of energy generation through alternative renewable sources. Examples are solar, biomass, hydro, and wind. All of these are available in Nigeria. This paper argues that renewable energy development will promote sustainable development and guarantee a healthy and clean environment. This article posits that if the government and stakeholders took steps towards ensuring that policies on renewable energy generation are given adequate legal backing, it could encourage foreign investment in clean renewable energy in Nigeria. In conclusion, a formidable legal structure backed by stringent enforcement is needed to strengthen the rising potential of renewable energy. It is therefore recommended that intentional efforts be made to invest in renewable energy to meet the already high demands for energy.

Keywords: *Energy, Sustainable Development, Healthy Environment, Renewable Energy, Laws.*

Introduction

The need to balance demand for energy resources with shrinking resources is vital. Energy plays a pivotal role in the economic, socio-political, and environmental spheres of every country.[1] In Nigeria, energy generation largely depends on oil, gas, and coal. There are other alternative sources like hydro energy, solar energy, biomass, and wind energy.[2] Energy is essential in the production process. Everybody needs and uses energy on a daily basis.[3] Furthermore, energy is an essential component of a country's developmental process.[4] Firms depend on energy as a key factor of production.[5] Despite the usefulness of non-renewable energy to power vehicles, houses, and industrial units, the demand for renewable energy like sunlight and wind continues to increase. In 1931, when Thomas Edison met Henry Ford, he told the inventor of the gasoline powered car, "I'd put my money on the sun and solar energy, what a source of power! I hope we don't have to wait until oil runs out before we tackle that."[6] Eighty years later, precisely in 2010, global investment in renewable energy grew by 32 percent to a record of $211 billion.[7] Today, Thomas Edison's dream of renewable energy has become a reality.

Nigeria's decades long dependence on fossil fuels has made the economy susceptible to the instability of oil prices, supply disruptions, and market shocks.[8] The unrenewable energy path is not viable because it is at variance with sustainable development. Nigeria almost totally depends on oil for its energy needs and economic survival. This accounts for the majority of environmental crimes associated with crude oil exploitation procedures.[9] As Nigeria depends on crude oil for

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* Ivie Deborah Nwosu. LLB, BL, LLM, PhD, Lecturer, Department of Public Law. Faculty of Law, University of Benin, Benin City, Edo-State, Nigeria. Email: ivie.nwosu@uniben.edu Tel: 08057301382.
** Sylvester Oriaifo. M.B.B.S, MPHE, FMC (Paed). Lecturer, Department of Child Health, Edo State University, Uzairue, Edo State, Nigeria. Email: sylvesterjnr2000@yahoo.com. Tel: 09067335930.

[1] World Bank, Towards a Sustainable Energy Future for All Directions for the World Bank Group's Energy Sector available at <www.https://documents>. Worldbank.org accessed March 10th 2023.

[2] A Anbituumi et al, 'Analysis of Safety Environmental Regulations for Downstream Petroleum Industry operations in Nigeria: Problems and Prospect' (2014) 9 *Environmental Development Journal* 43-60.

[3] O Onyi-Ogelle, *The Delimitation of Federal & State Ownership and Control of Mineral Oil in Nigeria'* (Folmech Publishing 2011) 5.

[4] V Aigbokhaevo 'The Quest for Energy Revolution in Nigeria: The Clean Development Mechanism (CDM) as a Tool for Environmental Integrity,'(2013) 14 (1) *University of Benin Law Journal* 10.

[5] S Olayinka Oyedepo, "Energy and Sustainable Development in Nigeria: the way forward," available at <www.https://energysustainsoc.biomedcentral>, com, accessed March 10,th 2023.

[6] Heather Roger, Current Thinking, The New York Times, available at < https://www.nytime,com> accessed 11th March 2023.

[7] Bloomberg New Energy Finance and United Nations Environmental Programme, Global Trend in Renewable Energy Investment 2011: Analysis of trend and issues in the Financing of Renewable Energy, July 2011.

[8] BS Omotosho, 'Oil Price Shocks, Fuel Subsidies and Macroeconomics Instability in Nigeria,' [2019] 10 (2) *CBN Journal of Applied Statistics*.

[9] Ibid.

energy production, variations in its supply and costs will affect the economic, socio-political, and environmental health of the country.[10] The country has been unable to meet the Oil Producing and Exporting Countries (OPEC) oil production allocation for more than a year.[11] The time has come to keenly consider other means of energy production. This paper discusses renewable energy as an alternative source of energy. The position will be in opposition to Nigeria's heavy dependence on crude oil. Adopting the renewable energy option will not hamper energy production. Rather, it will provide the much-needed diversification models for the country's economy. According to Dr. Nonso Obiliki,[12] "if Nigeria has no fiscal buffers or significant foreign reserves, the impact of a fall in oil prices will be significant."[13] These buffers can be in the form of renewable energy supplies for energy generation. According to Gloria Rueben, "a transition to clean energy is about making an investment in the future." Renewable energy policies and development will drive economic growth by creating new industries and jobs.[14] Globally, there are more than 3.5 million direct jobs in the renewable energy industry. About half of them are in the biofuel industry.[15]

Conceptual Framework

a. Fossil fuel

This is formed by the decomposition of plants and animals that have been buried for millions of years.[16] Fossil fuel contains high percentages of carbon, and it includes petroleum, coal, and natural gas. Fossil fuel is produced from the decayed remains of pre-historic plants and animals.[17]

b. Energy

Energy is the ability to do work. Work is the transfer of energy from one form to another. In practical terms, energy is what we use to manipulate the world around us, whether by exerting our muscles, by using electricity, or by using mechanical devices such as automobiles.[18] Man needs energy for all types of functions, ranging from house heating to industrial and agricultural

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[10] A Adedapo et al, 'Crude Oil Exploration in Africa: Socio Economic Implications, Environmental Impacts and Mitigation Strategies' (2022) 42 (1) *National Library of Medicine* 26-50 available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8358551/> accessed March 12th 2023.

[11] Emmanuel Addeh, Expected Nigeria's Oil Production Rebound Falters as OPEC Output Falls in January,2023 <https://www.thisdaylive.com/index.php/2023/02/07/expected-nigerias-oil-production-rebound-falters-as-opec-output-falls-in-january/> accessed March 12th 2023.

[12] Director at Turgot Centre for Economics and Policy Research.

[13] https://www.theafricareport.com/23079/nigeria-dependence-on-oil-revenue-underlined-by-coronavirus/ accessed on the 12th March 2023.

[14] S Amelang and B Wehrmann, Quotes from the Berlin Energy Transition Dialogue; G20 & G7 International Renewables available at <www.cleanenergywire.org > accessed March 12th 2023.

[15] MT El-Ashry, 'National policies to Promote Renewable Energies' (2012) 14(2) *The Alternative Energy Future Journal* 105-110.

[16] Fossil Fuels is a natural fuel such as coal or gas, formed in the geological past available at <https://www.toppr.com, accessed 11th March 2023.

[17] Doubnut, Fossil fuels are obtained from the remains of plants and animals, available at https://www.doubnut.com,< accessed on March 12th 2023.

[18] Basics of Energy and its various Forms, available at <https://beeindia.gov.in/sites/default/files/1Ch2.pdf> accessed March 12th 2023.

processes.[19] It is power derived from the utilization of physical or chemical resources, especially to provide light and heat. Energy is a property of matter that can be converted into work, heat, or radiation. Energy can be grouped into two categories: kinetic energy and potential energy. Electrical, radiant, thermal, motion, and sound can be classified as kinetic energy, while gravitational, nuclear, and chemical energy come under potential energy.[20] Energy sources can be classified as renewable or non-renewable. [21]

c. **Renewable Energy**

Renewable energy is an alternative source of energy to conventional fossil fuels. It is energy collected from renewable sources. They can be naturally replenished on a human time scale. Examples are sunlight, wind, rain, tides, waves, and geothermal heat. They are generated from sources that occur naturally and repeatedly in the environment.[22] Renewable energy is not depleted when it is used. It is replaced by a natural process like power generated from the sun or wind. Renewable energy has helped to alleviate the problems of high emission rates from fossil fuels. It also helps to save costs and reduce fuel prices and consumption. Renewable electricity refers to electric power obtained from energy sources whose utilization does not result in the depletion of the earth's resources.[23] Renewable electricity includes energy sources and technologies that have minimal environmental impact, such as less intrusive hydro and certain biomass combustion. These sources of electricity normally include solar energy, wind, biomass, and hydrogen energy.[24] Globally, renewable energy is recognized as a better alternative to fossil fuels. For renewable energy to fully develop in Nigeria, it must be accorded a standard regulatory framework.[25] Furthermore, introduction of modern technologies to harness the huge potential of renewable energy in Nigeria should be made available, as non-availability could hamper the development of renewable energy.[26]

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[19] Food and Agriculture (FAO), Energy for Agriculture. available at , https://www.fao.org <accessed March 12th 2023.

[20] Lehigh University Environmental Initiative. Scientific Forms of Energy- Stored Energy, Kinetic Energy… available at https://ei.lehigh.edu>reading accessed on March 15th 2023.

[21] Energy Information Administration, Sources of Energy, available at <https://www.eia.gov>what is energy,> accessed March 13th 2023.

[22] R Thornton and S Beckwith, *Environmental Law* (7th edn, Sweet & Maxwell 2004) 67.

[23] Federal Ministry of Power and Steel (Federal Republic of Nigeria) Renewable Electricity Policy Guidelines) December 2006, (ICEED) Abuja.

[24]Ibid.

[25]L Atsegbua and E Erhagbe, 'Appropriate Legislation and Policy Framework for Renewable Energy Efficiency Integration into the National Energy Mix,' (2011) 1 (2) *University of Ibadan Law Journal* 58.

[26]Renewable energy in Nigeria is possible recent report from the International Renewable Energy Agency. <https://www.irena.org/News/pressreleases/2023/Jan/Renewables-Can-Provide-Nearly-60-Per-Cent-of-Nigerias-Energy-Demand-by-2050> accessed March 18th, 2023.

d. Sustainable Development

The Brundtland report defines sustainable development as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.[27] According to Mebratu[28] this definition contains two key concepts: (i) the concept of 'needs' particularly the essential needs of the world's poor, which should be given priority status; and (ii) the idea of limitations imposed by the state of technology and social organization on the ability of the environment to meet present and future needs. Among the seventeen (17) sustainable development goals, goal seven talks about ensuring access to affordable and clean energy. This is crucial to the development of agriculture, business, communications, education, healthcare, and transportation.[29] It plays an essential role in the economic growth, development, and poverty reduction of any nation. As economic growth rides on energy supply, the supply channels must be sustainable, viable, and environmentally friendly. A lack of access to energy, as is the case in remote villages, contributes to poverty, underdevelopment, and the deprivation of necessities and amenities. All these will impact the well-being of citizens.

A long-term ambition of Nigeria's electricity sector is the emission reduction target. It includes the Nationally Determined Contribution (NDC) under the Paris Agreement 2016. It is upheld by pledging a 20% reduction of Business as Usual (BAU) greenhouse gas emissions (GHGs) by 2030.[30] This laudable development has embedded in it, important plans for environmental protection. Sustainable development is a two-sided coin interested in environmental concerns of protection and preservation on the one hand and meeting economic development goals on the other. All these enhance people's standard of living. It is a pattern of social and structural economic transformation that optimizes the economic and other societal benefits available in the present without jeopardizing the likely potential for similar benefits in the future.[31]

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[27] World Commission on Environment and Development, 1987 World Commission on Environment and Development Our common future Oxford University Press, Oxford (1987) Also known as the Brundtland Report.

[28] Mebratu, 1998 D. Mebratu, 'Sustainability and sustainable development: historical and conceptual review,' (1998) 18 Environ. Impact Assess.pp. 493–520.

[29] United Nations, Sustainable Development Goals, available at <https://www.un.org>energy >accessed March 20th 2023.

[30] MY Roche et al, 'Achieving Sustainable Development Goals in Nigeria's Power Sector: Assessment of Transition Pathways, Climate Policy'. *Journal on Climate Policy* (2019) available at <www. https://tandfonline.com/doi/full/10.1080/14693062.2019.1661818> accessed March 20th 2023.

[31] Goodland et al, Neoclassical Economic and Principles of Sustainable development. Office of Environmental and Scientific Affairs, the World Bank, Washington DC, 1986.

Sustainability is a key word in every society and touches on every aspect that concerns development, it hinges on the need to protect, maintain, keep in good functional condition, keep going, to provide nourishment, to support and retaining its best quality. In relation to the environment, while all the jamboree of global trends to meet present demands are ongoing by exploiting the environment, stop and think approach should be applied to reason out the fate of the environment in the years to come. The question that readily comes to mind is should we continue in degradation that earth's grace may abound?

Theoretical Framework

The theories that support this article are the tragedy of the commons and environmental sustainability.

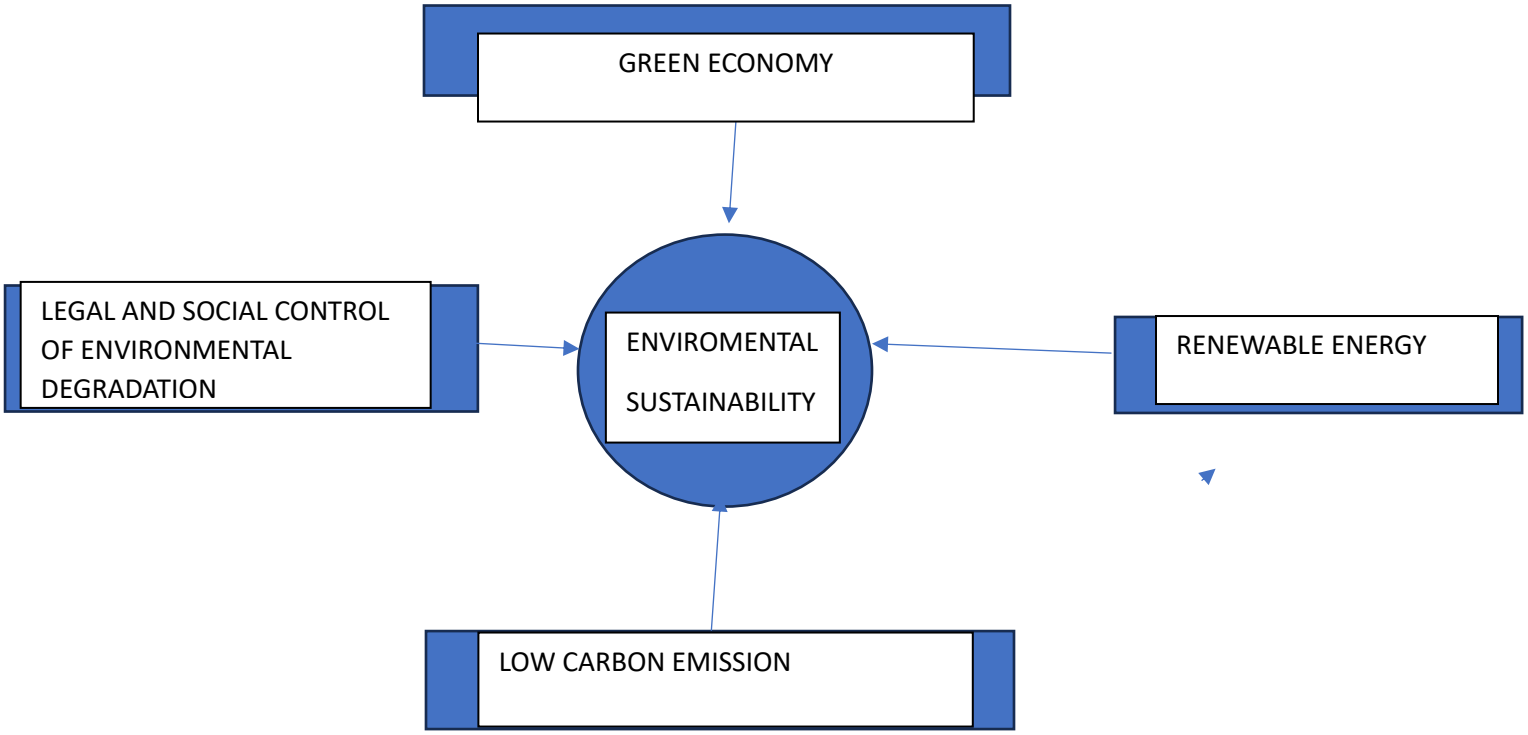
a. Tragedy of the Commons

It emphasizes the need to halt the negative use of the environment, which is common to all and subject to none. It describes a situation where shared environmental resources are overused, exploited, and eventually depleted, thereby posing risks to everyone involved.[32] The theory addresses the attitude of members of society towards public goods, especially natural resources. People deplete environmental resources for their personal gains at the expense of the public. This was first conceptualized by Williams Forster Lloyd, a British writer, before it was propounded by Garret Hardin.[33] Today, overexploitation of fossil fuels for energy generation at the expense of environmental sustainability and protection is prevalent. People should start having a sustainable mindset towards a viable environment by switching to natural resources for energy generation. This theory explains people's tendencies to make decisions based on their personal needs, regardless of the negative impact they may have on others and the environment. More specifically, this phrase means that an increase in the human population creates an increased strain on limited resources, thereby jeopardizing sustainability. This theory is fundamental to this article as it depicts the state of the natural environment, which has been degraded in search of fossil fuels. This, regrettably, is at the expense of the populace. This is the experience of the people of the Niger Delta region of Nigeria. This paper advocates for a shift from the use of fossil fuels to the utilization of renewable energy. This approach will reduce the plight of the common man.

[32] D Robinson, Explainer: What is the Tragedy of the Commons? 2021, available at <earth. Org//what-is-tragedy=of-the-commons> accessed March 21st 2023.

[33] Essays by ecologist, Garret Hardin's in 1968.

b. Environmental Sustainability



Going green has become imperative, as there is no substitute planet. Environmental sustainability involves making decisions about what benefits should be sustained over a period of time with certain resources, the prevention of degradation, and the ability to sustain the environment and its resources. Humans rely on the natural environment, and the rate of deterioration, on account of their activities, is high. All these undertakings put the planet at risk. To achieve environmental sustainability in Nigeria, this paper recommends embracing renewable energy as the roadmap to a healthy and clean environment. Environmental sustainability was founded on the World Commission on Environment and Development (WCED) theory in 1987. It was initiated on an urgent call basis by the general assembly of the United Nations. It aimed to propose a long-term environmental strategy for achieving sustainable development beyond the year 2000. These theories on environmental sustainability attempt to prioritize and integrate social responses to environmental and cultural problems.[34] A decent survival must be maintained irrespective of the gains from explorative activities on the environment. Brian Barry argues that the preservation of some opportunities for future generations requires the enduring existence of particular ecological goods. For example, the opportunity to decide whether or not old-growth forests are required for

[34] United Nations Environmental Programme (UNEP), Innovative Solutions for Environmental Challenges and Sustainable Consumption and Production available at https://wedocs.unep.org accessed March 21st 2023.

a decent human life depends on their preserved existence. This approach effectively proposes that we must sustain conditions for the ongoing debate over sustainability.[35] Another theory proposed by Crustzen and Stoermer, suggests a 'perfect storm' of converging environmental threats associated with Anthropocene epoch (the age of the human).[36] This epoch represents the consequences of a persistent failure to address the environmental threats caused by man's activities. Burning fossil fuels is an example of these practices. Therefore, since man's activities are identified as the drivers of environmental troubles, he ought to channel his energy towards the utilization of alternative sources of energy. All these theories suggest that man is at the center of environmental degradation in his quest for growth and technological advancement. He craves innovation and discovery at the expense of his own life and the environment in which he lives. This theory on environmental sustainability is necessary for the foundation of this paper. It creates the basis for a shift from the use of fossil fuels to the use of renewable energy. This will facilitate the preservation of the environment for present and future generations.

Renewable Energy in Nigeria

Explorative and environmentally degrading activities are on the increase in Nigeria because fossil fuel consumption is at an all-time high. Nigeria's oil production has risen by 1.9 percent from 1.235 million barrels per day recorded in December 2022 to 1.258 million barrels per day in January 2023.[37] This figure excludes condensate. The emission rate from fossil fuels has significantly increased in the last couple of years. Palmer and Burtraw asserted that enhanced use of fossil fuels for electricity generation will lead to harmful emissions due to the high use of utilities. This will create more pollution beyond the shores of a State.[38] The Emission Gap Report 2022 indicates that the world, to avoid a global catastrophe, should reduce emission rates by 45%. The world appears not to be on track to meet the Paris Agreement goals. World temperatures, if not controlled, may reach 2.8^{oc} by the turn of the century. This is why Nigeria and the rest of the world must take diversification efforts from fossil fuels to renewable energy more seriously.[39] Renewable energies are now available to displace 'dirty fuels' in the power sector while offering the benefit of lower emissions of carbon and other pollutants. It accounts for more than 12% of US energy generation. Nigeria can use renewable energy resources as an alternative

[35] Brain Barry, Sustainability Theory (1997) available at https://www,berkshirepublishing.com<accesed on the 21st of March 2023.
[36] Christian Williams and Andrew Mitchell, 'Environmental Sustainability and Management theory development: Post-paradigm insights from the Anthropocene,' (2000) *Journal of The European Academy Management.*
[37] Udeme Akpan, Nigeria's Oil Production Rises from 1.9% to 1.258 mb/d-OPEC, vanguardngr. com/2023/02/nigerias-oil-production-rises-1.9 to 1.258-mb-d-opec 15th February 2023, accessed 22nd March 2023.
[38] Pollution extends beyond national borders and the need to regulate the conduct of states and their responsibility for energy pollution control was first recognized in Stockholm; the Convention observed the interrelationship between energy and the environment.
[39] UNEP, Emissions Gap Report 2022, < available at www.http/unep.org/resources/emission-gap-report-2022> accessed 22nd of March 2023.

to fossil fuel.[40] Renewable energy is cheaper. Energy from renewable sources could provide 65% of the world's total electricity supply by 2023. It could also decarbonize 90% of the power sector by 2050. Massively cutting carbon emissions will help mitigate climate change.[41] These statistics offer the possibility of a healthier and cleaner environment through the utilization of renewable energy to decarbonize our environment. Potential renewable energy sources include: solar energy, hydropower energy, wind energy, and biomass.[42] Renewable energy can be made more lucrative when subsidies for fossil fuels are removed. This step, recently taken in Nigeria, has motivated the citizens to look for alternative sources of energy.

Benefits and Challenges of Renewable Energy.

Some of the key benefits of renewable energy sources in Nigeria include the fact that they are sustainable and can be replenished. When carbon emissions are lower, air pollution reduces. Renewable energy technologies will open new international markets and inform the establishment of new domestic industries. More jobs will be created. It is safe, abundant, and clean to use when compared to fossil fuels.[43] However, the problems associated with the use of renewable energy cannot be ruled out. They include, but are not limited to, the following:

- Lack of coherent planning and tangible policies, regulations, and statutes around innovative technologies for renewable energy.
- The slow transition of renewable energy into competitive markets in Nigeria.
- Lack of well-established research centers for renewable energy infrastructure.
- Lack of local manufacturing industry for solar and wind developers. Most of the mechanical and electrical equipment are imported.
- The average Nigerian lacks the technical skills to keep up with modern trends in renewable energy technology. This is a big challenge, especially in the areas of inadequate and inaccurate resource data.[44]

Paradigm Shift from Dependence on Fossils for Energy

Fossil fuel is a finite resource, and its production cannot be sustained in the long term. It is therefore imperative for nations to consider a smooth transition to a cleaner and healthier source of energy. In this context, renewable energy is a viable alternative.[45] Energy experts envisage that the oil supply will progressively decrease and be exhausted. Some estimate that the world reserve will

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[40] Lora Shinn, 'Renewable Energy: The Clean Facts,'< available at https/ nrdc.org/stories/renewable energy-clean facts June 2022, accessed March 23rd 2023.

[41] United Nations, Renewable Energy: Powering a safe future, <available at https/UN.org/en/climate change/renewable-energy, accessed March 23rd, 2023.

[42] Other sources include, renewable energy which can be obtained from the continuous or repetitive current of energy which exists in the natural environment, include compressed natural gas, tidal powers, wave power, radiant energy. They are replenished at the same rate as they are used, while having minimal or no negative effect on the environment.

[43] BA Olanupekun, 'Assessment of Renewable Energy in Nigeria: Challenges and Benefit,' (2020) 68 (1) *International Journal of Engineering Trends and Technology* 20.

[44] Kenneth Okedu et al, 'Renewable Energy in Nigeria: The Challenges and Opportunities in Mountainous and Riverine Regions,' (2015) 5 (1) *International Journal of Renewable Energy*, 224.

[45] L Atsegbua et al '*Environmental Law in Nigeria Theory and Practice'* (Ambik Press, 2004) 290.

last for 63 to 95 years. Hence, attention is now being drawn to renewable energy.[46] Industries in Nigeria consume a lot of energy for mining, milling, and smelting. It is also used for manufacturing purposes. As such, the role of energy cannot be overemphasized. The option of a better and cleaner means of energy production is beneficial to the country. To be free from dependence on fossil fuels, Nigeria needs to promote renewable energy alternatives and energy efficiency. This requires political will at local, state, and federal levels, as well as legal backing for effectiveness. Nigeria undoubtedly has vast untapped energy resources like petroleum, coal, natural gas, and limestone. The nation stands to lose a great deal if it depends on these natural resources for its energy production. The extraction of these fossil fuels has posed numerous environmental challenges. One of them is the high emission of greenhouse gases (GHG). Using cleaner sources of energy helps curtail greenhouse gas emissions to acceptable levels.[47] Climate change is impacted by the reduction of air, water, and land pollution.[48] The quest for clean energy in Nigeria is in line with the endorsement of the Paris Agreement on Climate Change.[49] The Federal Government of Nigeria, in a bid to combat climate change, launched a $200million renewable energy project to light up 500,000 homes and provide reliable energy to 20,000 micro, small, and medium enterprises (MSMEs). It also seeks to halt 1.69 million tons of carbon emissions into the environment.[50] Nigeria is also committed to protecting the environment by preventing air pollution and encouraging the use of clean or renewable energy.[51] Countries such as the United States and China are investing in wind, hydro, solar, and biofuels. They have an estimated 7.7 million jobs associated with renewable energy companies and industries.[52] This has the potential to lead economies on the path of sustainable development. Potential exists for renewable energy in Nigeria.

Financing renewable energy in Nigeria has been viewed by practitioners and commentators as the single largest barrier to the expansion and improved uptake of renewable energy.[53] Notwithstanding, other countries have addressed the challenges and produced positive results. Embracing renewable energy options will provide the platform for Nigeria to be at the forefront of sustainable industrialization.

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[46] L Atsegbua '*Oil and Gas Law in Nigeria Theory and Practice*' (2nd ed, New Era Publication 2004) 3.
[47] Ann Arbor, investing in energy storage for solar, wind power could greatly reduce green gas emissions, University of Michigan News available at https://www.news.unimich,edu>investing> accessed on the 24th of March 2023.
[48] Ibid.
[49] United Nations Framework Convention on Climate Change, available at https://unfccc.int>the-paris-agrement, accessed on the 24th of March 2023.
[50] T Adebulu, 'Federal Government launches $200m renewable energy project,' <available at https://www.cable-ng.cdn.am.project.org acessed 25th March 2023.
[51] Ibid.
[52] O Kehinde et al, 'Renewable Energy in Nigeria: A Review,' (2018) *International Journal of Mechanical Engineering and Technology* (2018) 1089.
[53] Ibid.

Renewable Energy as an Emerging Bridge Between a Degraded Environment and a Healthy Environment

Three concepts stand out in the literature review of energy sources. They are non-renewable, traditional-renewable, and modern-renewable sources of energy.[54] Non-renewable energy sources include fossil fuels such as coal, gas, and oil. They are not considered eco-friendly. The renewable energy sources are grouped into traditional renewable energy sources such as solid biofuel and charcoal and modern renewable sources such as liquid biofuels, hydro, solar, biogas, geothermal, and wind.[55] As the saying goes, "health is wealth." Ecological health and regeneration can take place when there are fewer emissions of GHGs. These emissions can cause a variety of diseases. What are the benefits to be derived from the use of fossil fuels given that they may rob people of their means of livelihood, health, and lives? The necessity of balancing economic gains and wealth production with environmental protection and sustainability cannot be overemphasized. Studies show that non-renewable sources of energy lead to various environmental problems. Fossil fuels, according to the United Nations, cause air pollution and a climate crisis. They have a negative effect on public health.[56] The burning of fossil fuels releases carbon dioxide. This is a greenhouse gas, which traps heat and increases global warming. Higher temperatures cause extreme weather conditions with all their attendant health challenges. Research shows that air pollution from burning fossil fuels is responsible for 1 in 5 deaths worldwide.[57] Fatmi and Coggon discovered that cooking with solid fuels may be a risk factor for the development of coronary heart disease.[58] The study by Liu et al shows that solid fuel use increases the risk of chronic lung disease.[59] It has also been discovered that there is an increased susceptibility to cardiovascular disease. Symptoms like coughing, eye irritation, and shortness of breath are reported among users of biomass fuel.[60] With these statistics, it would be irresponsible to continue on the path of visible destruction when

[54]J Goldemberg et al, Renewable Energy: Traditional Biomass vs. Modern Biomass. 'United Kingdom Energy Policy.32 (2004), < https://doi.org/10.1016/S0301-4215(02)00340-3>accessed March 25th 2023

[55] A Cristina Gonçalves et al, 'Solid Biomass from Forest Trees to Energy: A Review,' (2019) Resource Biorefineries, <available at 10.5772/intechopen.79303> accessed March 25th 2023.

[56] United Nations, 'The Sustainable Development Goals Report" (2021). <https://unstats.un.org/sdgs/report/2021/The-Sustainable-Development-Goals-Report-2021.pdf >accessed 26th March 2023/.

[57] Karn Vohra et al, 'Global Mortality from Outdoor Fire Particle Pollution generated by Fossil Fuel Combustion: Results from GEOS-Chem. Environmental Research.195(2021).110754, ISSN 0013-9351<.https://doi.org/10.1016/j.envres.2021.110754> accessed 26th March 2023.

[58] Fatmi, Z., & Coggon, D, 'Coronary heart disease and household air pollution from use of solid fuel: a systematic review,' (2016) 118 (1) *British medical bulletin,* 91–109. <https://doi.org/10.1093/bmb/ldw015>accessed 26th March 2023.

[59] Liu J et al, 'Solid Fuel use for Cooking and its Health Effects on the Elderly in Rural China,' 25 (4) *Environmental Science and Pollution Research International Journal*, 3669–3680. https://doi.org/10.1007/s11356-017-0720-9> accessed 26th March 2023.

[60] Chakraborty D et al, 'Hypertensive and Toxicological Health Risk among Women exposed to Biomass Smoke: A Rural Indian Scenario,' (2018) 161 *Ecotoxicology and environmental safety*, 706–714. https://doi.org/10.1016/j.ecoenv.2018.06.024 accessed 26th March 2023.

a more healthy and reliable alternative source of energy production is available. Such alternative sources of energy guarantee a healthy existence and have little or no negative impact on the human system. These renewable energy sources provide an alternative, cleaner source of energy that helps negate the effects of certain forms of pollution.[61] The 2030 new approach Agenda for Sustainable Development calls for a new approach to health, environment, and equity. This will be achieved by interlinking socio-economic development with environmental protection, health, and well-being. It promotes healthy choices in our lifestyles and the use of the environment when using resources.[62] Clean, renewable, and sustainable energy can improve the environment and social health. It can assist in promoting environmental health and excellence.[63] Countries like the United States of America promote a clean and healthy environment. Apart from placing an economy-wide tax on carbon, they have an array of greenhouse mitigation policies, where they mandate that a certain amount of electricity generation should come from renewable energy. The Canadian government has launched the Ontario FIT Program for clean energy development by encouraging the development of renewable energy production. Today, Canada has become a clean leader in renewable energy generation and GHG reduction.[64] Wind and solar electricity generation are subsidized. Mandatory blending of bio-fuels into the surface transportation fuel supply is used to restrict fossil fuel extraction.[65] Generating electricity from clean renewable sources can reduce carbon footprints.[66] This can reduce air pollution caused by chemicals derived from crude oil. The emission of these chemicals could cause cardiovascular diseases and other heart complications. The groups of people exposed to these crude-oil derived products are refinery workers, petrol station attendants, wax pressers, asphalt composition makers, diesel drivers, and the urban population inhaling the gas from industrial power plants and asphalted, tarred, and oil roads. Renewable electricity projects and energy efficiency will improve health and reduce air pollution by lowering the emission of harmful gases like nitrogen oxide, sulfur dioxide, and carbon dioxide. The resultant effects of these are a reduction in premature death, heart attacks, asthma attacks, and hospitalization for cardiovascular or respiratory issues.[67] Apart from health implications and challenges, health costs increase when fossil fuels are used compared to when renewable energies are used. These empirical findings reveal that health spending and CO2 emissions have a favorable

[61] O Ebeiemere, 'The Impact of Renewable Energy on Sustainable Investment Environment' *Journal of Jurisprudence and Contemporary Issues* [2017] 9(1) 153.
[62]WHO, Global Strategy on Health, Environment and Climate Change-< https://apps.who-int-global-strategy-on-health, environment-cli mate>. accessed March 26,th 2023.
[63] Kirishna Kumar Jaiswal et al, Renewable and Sustainable Clean Energy Development and Impact on Social economic and environmental Health. Science direct,com/science/article/pil/52772427/22000687.
[64] Ontario's FIT/micro–FIT Programs, < available at https://www.canada.ca>acessed March 26th 2023.
[65] Kenneth Gillingham and James H. Stock, 'The cost of Reducing Greenhouse Gas Emissions,' 32 (2)*The Journal of Economic Perspectives*, 53-72.
[66] EPA, Local Renewable Energy Benefits and Resources. (epa.gov/states/local energy/ local-renewable-energy-benefits-and -resources United States Environmental Protection Agency.
[67] Chan TH, Clean Energy & Health Centre for Climate, Health, and the Global Environment, (hsph.havard.edu/change/subtopic/cleans energy-health) accessed March 26th 2023.

bidirectional link, increased energy consumption and production affect pollution, and higher CO2 emission increase health care cost.[68] Renewable energy ensures a better environment with a low concentration of PM 2.5 in the atmosphere. It is essential for individuals' better health and future economies.

Enhancing Existing Legal Frameworks for Renewable Energy Projects in Nigeria

An enabling policy and functional regulatory framework in the area of renewable energy is a prerequisite to addressing investment risks and ensuring long-term and reliable operations[69]. There has been a global concern for the security of energy supplies and the reduction of the environmental impact of fossil type energy. In this regard, sustainability has been the driving force behind the exploration of alternative energy. The Nigerian government must be committed to entrenching the right and conducive legal environment for the enhancement of renewable energy projects.The power sector in Nigeria leverages renewable energy sources in an attempt to enhance electricity production. Renewable energy is not limited to electricity production alone. It can be deployed in other sectors of the country. The deployment of renewable energy sources in the power sector serves to mitigate the effects of climate change. Environmental and energy security policies are attempts to resolve the classic energy trilemma facing world security, sustainability, and economic prosperity.[70] Renewable mini-grids- using technology to harness energy from solar, hydro biogas and biomass are being explored. These mini-grids are expected to play an important role in bridging the electricity access deficit. It is estimated that between 2016 and 2030, renewable energy sources will power around 60% of new access connections. Forty percent of them will be through mini-grids.[71] Therefore, it is proposed that to secure a sustainable energy future for Nigeria, a robust and viable legal and regulatory framework is needed. Such a legal framework would be significantly instrumental to the attainment of a secure energy future for Nigeria. Poor policy implementation and the non-availability of a proper legal framework are major obstacles to the effective promotion of renewable energy. Sound and effective legislative and institutional frameworks are fundamental to the successful promotion and development of renewable energy in Nigeria.[72] As such, the federal government should be committed to supporting the platform as well as the rights of its people in the area of renewable energy. This will make the sector attractive to foreign investors.

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[68] Majed Alharthi, 'Impacts of Environmental Pollution on Health and Financial Status of Households in MENA Countries: Future of using renewable Energy to eliminate environmental pollution,' (2020) 190 *Renewable Energy Journal* 338-346.

[69] IRENA Mini Grid Policy, <available at https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Oct/IRENA_mini-grid_policies_2018.pdf>

[70] PK Oniemola, 'Legal Response to Support Renewable Energy in China,' (2014) 32 *International Bar Association Journal of Energy, Environment and Natural Resources*.

[71] IRENA (International Renewable Energy Agency) Policies and Regulations for Renewable Energy Mini grid.

[72] Kenechukwu Mbajiorgu, 'Reviewing the Legislative Framework for Renewable Energy in Nigeria,' (2016) 4 *Nigeria Institute of Advanced Legal Studies Journal* (NIALS) 247.

Existing Legislative Framework for Renewable Energy Projects in Nigeria

Renewable energy policies and projections are the main drivers of renewable energy growth. Energy policies affect the price, availability, and advancement of new technologies. They determine how quickly we can reach the point where consumers can choose electricity generated by wind and sun or purchase more efficient lighting appliances and automobiles.[73] The Electricity Power Sector Reform (EPSRA) Act 2005 is the principal law that governs the Nigerian power sector. It also establishes the Nigerian Electricity Regulatory Commission (NERC), the principal regulator of the power sector in Nigeria. The NERC, in performing its functions, has established several policies and regulations, like the NERC Mini-Grid Regulation 2016, the NERC Renewable Energy Feed-In Tariff Regulations 2015, and recently, the Independent Electricity Distribution Network (IEDN) license. Aside from laws and policies, the Federal Government of Nigeria (FGN) has put incentives like the VAT (Modification Order) 2020 in place. This exempts specified renewable energy equipment from the application of VAT with respect to the importation or in-country sale of the equipment.[74]

a. **Renewable Energy Master Plan (REMP)[75]**

This is a policy being implemented by Nigeria's federal ministry of environment. It aims to increase the contribution of renewable electricity from 13% of electricity generation mainly met by large hydroelectric projects in 2015, to 23% in 2025 and 36% by 2030. The master plan provides a regulatory framework to help achieve its objectives and targets, which include maintaining a renewable portfolio standard, creating fiscal and market incentives, integrating renewable energy into non-energy sector policies, and standardizing of renewable energy products.[76]

b. **National Renewable Energy and Efficiency Policy[77]**

This policy was endorsed in April 2015 by the Federal Executive Council (FEC) to drive renewable energy development and improve energy efficiency in Nigeria. The purpose of this policy was to set out a framework to address the Nigerian challenge of inclusive access to modern and clean energy resources, improved energy security, and climate objectives; set national targets for achievements in electricity from renewable energy and energy efficiency capacity addition, amongst others. It is uniquely focused on hydropower, biomass, solar, wind, geothermal, wave, and tidal energy power generation, projecting a national generation profile of 6,156MW and 12,801MW of hydropower, 3.4MW and 117 MW of biomass power, 1,343MW and 6,831MW of

[73] T Mohammed and EL Ashry, 'National Policies to Promote Renewable Energy.' 141(2) 105-110.
[74] Collins Okeke, 'Case for investment in the Renewable Energy Sector' 2023, *The Guardian Newspaper* <https://guardian.ng/opinion/columnists/case-for-investments-in-nigerias-renewable-energy/> accessed March 27th 2023.
[75] Renewable Energy Master Plan 2012.
[76] See Renewable Energy Master Plan https://www.iea.org/policies/4967-renewable-energy-master-plan accessed on the 30th March 2023.
[77] National Renewable Energy and Efficiency Policy 2015.

solar power, and 631MW and 3,211MW of wind energy between 2020 and 2030. Mandating the government to provide guarantees and financial frameworks to facilitate the expansion of Nigeria's renewable electricity market[78]

c. **National Energy Policy (NEP)[79]**

The policy does not support Nigeria's overdependence on oil, which has slowed down the use of alternative sources of energy. The goal of the policy is to create energy security through an energy supply mix. This will be achieved by diversifying the energy supply and energy carriers based on the principle of "an energy economy where modern renewable energy increases its share of energy consumed, as well as providing affordable access to energy throughout Nigeria. Energy conservation, which is intended to broaden the renewable energy options for generating electricity, is improved as a result of this.[80] The policy sets out some principles and policies, as follows:

- Non-renewable energy sources are to be used sparingly, while Nigeria sets out to make steady and reliable power available to at least 75% of the population by the year 2020.
- Identification of nuclear, biomass, wind, solar hydro, and hydrogen as viable energy sources to be used by the country in an environmentally sustainable manner.
- Local research, developing and exploiting energy potentials to be commercially undertaken through private, public, and indigenous participation.
- The integrated energy planning system, which involves energy-related programs and activities of other sectors, would be developed.[81] These policies do not appear to have legal backing or force of law and cannot impose a statutory obligation on the government, private or public sector. These obligations can still be infused into the policy for more strength and enforceability.
- Intensification of research, development, and training in alternative sources of energy for the generation of electricity.
- Policies are articulated for solar, biomass, and wind energy encouragement in exploitation while keeping abreast of worldwide development in renewable energy.

d. **National Biofuel Policy and Incentive[82]**

It was initiated by the Nigerian National Petroleum Corporation (NNPC) and approved by the Federal Government of Nigeria. The objective of the program is to firmly establish a thriving fuel ethanol industry by utilizing agricultural products as a means of improving the quality of automotive fossil-based fuels in Nigeria. The policy shall link the agricultural and energy sectors,

[78] National Renewable Energy and Energy Efficiency Policy for Nigeria 2015, available online at www.energy.gov.ng accessed 2nd April 2023.
[79] National Energy Policy 2013.
[80] See National Energy Policy (NEP) 2003.Energy commission of Nigeria (ECN) Abuja Federal Republic of Nigeria. <available at www.energy.gov,ng.>acessed 4th April 2023.
[81] Ibid.
[82] National Biofuel Policy and Incentive 2007.

with the underlying aim of stimulating development in the agricultural sector.[83] It also aims to reduce the nation's dependence on imported gasoline and environmental pollution while creating a commercially viable industry that can create sustainable domestic jobs. The input of the policy to the renewable energy regulatory environment includes the establishment of a Biofuels Commission, the issuance of biofuels regulations by the Minister of Petroleum Resources, the establishment of a biofuels research agency, funding of research and development in biofuels development, and incentives scheme for participants in the biofuels development subsector.[84]The Renewable Energy Division (RED) was mandated to champion the implementation of the program. Charged with the responsibility of developing the biofuel industry in Nigeria,[85] RED shall provide a consistent and steady supply of alternative fuel to the utmost satisfaction of customers and continuously seek to improve the quality of its management systems. Crops with biofuel potential in Nigeria include sorghum, cassava, sugarcane, and *jatropha*, a non-edible plant.

e. **Energy Commission of Nigeria Act[86]**

It was first established as Act No. 62 of 1979 and was later amended to Acts No. 32 of 1988 and No. 19 of 1989, respectively. It held the statutory mandate for the strategic planning and coordination of national policies in the field of energy and other areas.[87] This includes introducing new and alternative energy sources like solar, wind, biomass, and nuclear energy. The commission has the responsibility for overall coordination and surveillance of the systematic development of the various energy sources in Nigeria.[88]The commission has the mandate to develop, harness, and distribute renewable energy to protect the environment from the harmful effects of fossil fuels. It has developed the National Energy and Renewable Energy Master Plans. These provide detailed policies for meeting renewable energy targets.

a. Climate Change Act 2021

Section 1(a)–(i) of the Act sets the years 2050-2070 as the target time frame to achieve net zero carbon emissions. To achieve this aim, the act sets out the prioritization of climate change adaption finance, national climate resilience, and focus on other climate change combating policies. The Act mandates the Ministry of Environment to, among other things, set a carbon budget to keep the average increase in global temperature within 2^0c and pursue efforts to limit temperature increase to 1.5^{o}c above pre-industry levels.

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[83] Section 2(1).
[84] Nigerian National Petroleum Corporation (NNPC) Draft Nigerian Bio-fuel Policy and Incentives, Nigerian National Petroleum Corporation, Abuja 2007.
[85] Africa's first Ethanol Refinery flagged off in Ekiti. "Available.
at http://www.tribune.com.ng/16092008/biznes.html> accessed 7th April 2023.
[86] Energy Commission Act 1989.
[87] Energy Commission of Nigeria available at< https://www.devex.com/organizations/energy-commission-of-nigeria-ecn-150225>accessed April 8th 2023.
[88] Available at< http://www.energy.gov.ng>accessed 8th April 2023.

It also provides for the approval of the formulation of a National Climate Change Action Plan every five-years cycle to ensure that the national emission profile is consistent with the carbon budget goals and prescribes measures for identifying actions for climate adaptation and mitigation.[89] The aim of the Act is to provide a framework for achieving low greenhouse gas (GHG) emissions and achieve long-term social and economic sustainability and resilience. This shows that the development and integration of renewable energy as the main source of energy is a task for all. Reducing GHG is to be preferred since renewable energy is environmentally friendly.

Highlights of COP 28 in Dubai 2023:

- A common language was agreed to be used in finding sustainable solutions to fossil fuel problems. Also, agreement was reached to phase down the unabated use of coal.
- The approval of the climate disaster loss and damage fund. This was meant to support vulnerable communities and developing nations struggling to cope with the impact of disasters.
- The progress of the Paris Agreement was discussed. Some of the topics considered were more robust climate plans, and multilateral climate change mitigation projects, among others.

f. **National Renewable Energy Action Plans[90]**

The overall objective of the National Renewable Action Plan is to advance the development of renewable energies in Nigeria. The plan was developed to achieve a minimum production of 30,000MW of power by the year 2030, with at least 30% renewable energy in the electricity mix. The electricity vision of 30:30:30 was vigorously pursued in a three-prong stage of attaining incremental, stable, and uninterrupted power supply in Nigeria. Nigeria needs to increase its use of renewable energy; with which it has been blessed. Exploiting available renewable resources will make a lasting contribution to the country's energy needs. This will make the country less dependent on conventional and internationally traded energy resources. The security of energy supplies in the country will receive a boost. It will at the same time help to address climate change threats by employing a wide range of levers to decarbonize the country. Nigeria will therefore be better placed to play its part in the regional efforts to reduce the production of harmful greenhouse gases.[91]

[89] MT ladan- A review of Nigeria's 2021 climate change Act: Potential for increased climate litigation (2022) www.iucn.org >news>a review- Nigeria.
[90] National Renewable Action Plan (NREAP 2015-2030).
[91] National Renewable Energy Action Plans, adopted by the Inter-Ministerial Committee on Renewable Energy and Energy Efficiency (ICREEE). Approved by the National Council on Power (NACOP). July 14, 2016.

g. **Renewable Electricity Policy Guidelines**

The Policy Guidelines set out the Federal Government's vision, policies, and objectives for promoting renewable energy in the power sector. The policy guidelines are primarily drawn from the Constitution of the Federal Republic of Nigeria (1999), the National Energy Policy (2003), the National Electric Power Policy (2001), the Electric Power Sector Reform Act (2005), the Renewable Energy Master Plan (2005), the draft Rural Electrification Policy, and the National Economic Empowerment and Development Strategy (NEEDS). Renewable energy is crucial to the government's overall effort to expand access to electricity services nationwide. The policy enables the government to align and mainstream renewable energy development in the country with broader national development aspirations. The Federal Government of Nigeria's vision of employing renewable energy in the power sector will help to attain sustainable development through an increased share of renewable electric power in the national electricity supply. Non-conventional or renewable energy is a key element in the overall strategy of the Federal Government to expand access to electricity services in the country. The overall objective of this policy guideline is to expand the role of renewable electricity in sustainable development through effective promotional and regulatory instruments. Other Nigerian energy policies and strategies that provide insight into the scenario of renewable energy policies include[92] the National Electrical Power Policy (NEPP) of 2001, Renewable Electricity Policy Guidelines (NEPG) of 2006, Renewable Electricity Action Programme (REAP) of2006, Electrical Power Sector Reform Act of 2005 (EPSRA), Captive Energy Generation Regulation (CEGR), and Environmental Impact Assessment Act 1992. These brilliant and innovative policies are good for the country. Giving them more specific legislative backing will make them more appropriate and efficient in the country. Now that these alternative sources and the potential they hold are well known. International diversification of energy sources to these sources can revamp the economy. It will, at the same time, create more jobs. This has precedence in other countries. On a global scale, data shows that renewable energy accounted for 12.7 million jobs in 2021. In 2020, there were 12 million jobs created. Close to two-thirds of all the jobs are in Asia. China alone accounts for 42% of the global total. It is followed by the European Union and Brazil with 10% each, and the United States and India with 7% each.[93] In addition to job creation, it provides energy security by increasing the much-needed energy efficiency for maximum productivity while reducing environmental and health impairments.

Having perused some of the legal instruments that support and enhance the drive for renewable energy in Nigeria, it is noteworthy that Nigeria is on the roadmap to a clean and healthy

[92] NV Emordi and NE Ebele, 'Policies Promoting Renewable Energy Development and Implications for Nigeria,' (2016) 6 (1) *British Journal of Environment and Climate Change* 3-5.

[93] IRENA, Renewable Energy and Jobs Annual Review 2022, <https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_856649.pdf>accessed 12th of April 2023.

environment. Without a doubt, investments in the renewable energy sector will promote a sustainable, clean, and healthy environment.

Electricity Act 2023 and its Precepts for Viable Renewable Energy Production

The primary objective of the 2023 Electricity Act is to provide a comprehensive legal and institutional framework to guide the operation of the power sector in Nigeria. Section 1(1) of the Act provides a framework to stimulate the development and utilization of renewable energy sources. This will create an enabling environment to attract investments in renewable energy sources in order to increase the contribution of renewable energy to the energy mix; others include:

- Providing a framework for improved access to electricity in rural, unserved, undeserved, peri-urban, and urban areas with the use of conventional sources and renewable energy off-grid and mini-grid solutions.
- Promote indigenous capacity in technology for renewable energy sources through a framework of local content in the Nigerian electricity supply industry.
- Promote public education on renewable energy production and consumption to increase the generation and consumption of electricity from renewable sources.

Section 113(1), without prejudice to the provisions of Section 68 of this act, states that the commission and the Independent System Operator (ISO) shall have the continuing obligation to promote the distribution or supply of electricity from renewable energy sources. Section 165 provides for commercial activities in the renewable energy sector like generation, distribution, sales, and installation. Section 166 provides for renewable energy incentives and standards to enhance implementation of renewable energy project in Nigeria.

The new Electricity Act mandates the Nigerian Electricity Regulatory Commission (NERC) to prepare and provide feed-in tariff rates for electricity generated from renewable energy sources to encourage investment in renewable energy power generation. Under the new law, electricity generation licensees are obligated to meet renewable generation obligations as may be prescribed by the NERC. "To have a viable state electricity market, the importance of regulatory synergy between the NERC and the regulatory agencies that will be established by states to oversee state-focused electricity matters cannot be overstated," [94] The new electricity bill of the National Assembly was signed by President 'Bola Ahmed Tinubu on June 9, 2023. It seeks to repeal the Electricity and Power Sector Reform Act of 2005. Renewable energy provides an opportunity to quickly ramp up energy access, especially in underserved areas. This law provides a framework for renewable energy in Nigeria and has given a boost to the sector, making it more attractive and lucrative.

[94] https://businessday.ng/energy/power/article/new-electricity-act-game-changer-for-renewable-energy/#google_vignette.

Towards a New Legal Regime

An enabling policy and functional regulatory framework in the area of renewable energy is a prerequisite to addressing environmental problems and risks, while ensuring long-term and reliable operations.[95] Hope was renewed by the recently signed Electricity Act on 9th June 2023. It was a stepping stone for more robust specific renewable energy regulations. There is global concern for the security of energy supplies and the reduction of the environmental impact of fossil-type energy. In this connection, sustainability has been the driving force behind the exploration of alternative energy. The Nigerian government must be committed to entrenching the right and conducive legal environment for the enhancement of renewable energy projects. The power sector in Nigeria is exploring renewable energy sources in an attempt to enhance electricity production in Nigeria. Deployment of renewable energy sources in the power and other sectors is a response to climate change and environmental problems. Also, these energy security policies are attempts to resolve the classic energy trilemma facing world security, sustainability, and economic prosperity.[96] Renewable mini-grids-which engage technology to harness energy from solar, hydro biogas, and biomass are being explored. These mini-grids are expected to play an important role in bridging the electricity access deficit in the near future. It is estimated that between 2016 and 2030, renewable energy sources will power around 60% of new access connections, out of which 40% will be through mini-grids.[97] Therefore, it is proposed that to secure an energy future for Nigeria, a robust and viable legal and regulatory explicit renewable framework is needed. Such a legal framework would be significantly instrumental to the attainment of a secure energy future for Nigeria. Poor policy implementation and the non-availability of proper legal frameworks are major obstacles to the effective promotion of renewable energy. Apart from renewable energy prospects being part of other legislative frameworks like the Electricity Act, a sound, committed, effective, and enforceable legislative and institutional framework on renewable energy is the fundamental driving force for the successful promotion and development of renewable energy in Nigeria.[98] The federal government must be committed to supporting the platform as well as the rights of its people regarding renewable energy. This would also make the sector attractive to the international community. There is a need for consumers to be educated on rudimentary operation skills in the area of renewable energy. Operators' trainings should cover capacity regulation trainings that can help consumers efficiently regulate their routine energy consumption. This

[95] IRENA Mini Grid Policy, <available at https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Oct/IRENA_mini-grid_policies_2018.pdf.
[96] PK Oniemola 'Legal Response to Support Renewable Energy in China,'.(2014) *32 International Bar Association Journal of Energy, Environment and Natural Resources.*
[97] IRENA (International Renewable Energy Agency) Policies and Regulations for Renewable Energy mini-grid.
[98] Kenechukwu Mbajiorgu, 'Reviewing the Legislative Framework for Renewable Energy in Nigeria,' (2016) 4 *Nigeria Institute of Advanced Legal Studies Journal* (NIALS) 247.

exercise will eliminate the necessity for copious energy storage facilities for renewable energy systems in Nigeria.[99]

Conclusion

Renewable energy is not a new phenomenon in Nigeria or around the world. What is new is Nigeria's increasing interest in harnessing renewable energy resources. Other countries have seen remarkable growth in their renewable energy sectors. Other factors include unwillingness to invest sufficient finances in it, lackadaisical approach to change, and heavy dependence on fossil fuels. Such an adamant position causes innocent citizens, who hardly benefit from the proceeds of crude oil, irreparable health issues. The government is gradually investing in cleaner energy packages. In 2020, the government launched the solar power Naija project. It rolled out five-million solar-based connections for the provision of electricity. Former president, Muhammadu Buhari, at the Copenghan conference, pledged to reach a zero-emission target by the year 2060. He however, stated that Nigeria would need technical and financial support to meet this goal. In 2023, President Ahmed Bola Tinubu signed the electricity bill into law. The bill makes provision for renewable energy promotion.

As the diversion towards renewable energy from regular fossil fuels continues, the pathways towards a healthy environment become less hazy, and the narrow gates of cleaner energy and greening begin to broaden. There is a gradual phasing out of the use of fossil fuels.

Recommendations

- Carrying out careful and systematic policy research and financial support for the development of the renewable energy sector.
- Expansion of capital financing for renewable energy production in Nigeria and utilization of public funds (taxes) to incentivize large scale development in renewable energy.
- Enlightenment and sensitization of the public to improve their choice of consumption, gearing interest towards renewable energy, and eradicating existing biases against the industry.
- Collaboration between policymakers and renewable-energy developers on the best ways to provide tangible services. Rural communities should be developed in order to stir interest in renewable energy.

[99] Olujobi Joshua et al, 'The Legal Regime on Renewable Energy as Alternative Sources of energy in Nigeria's Power Sector: The Impacts and the Potentials,' [*2020]* 19(3) *Academy of Strategic Management Journal.*

- Advocating for the adoption of the Paris Agreement in Nigeria will support clean energy production, thereby encouraging the use of alternative cleaner sources such as renewable energy.
- Mobilization of domestic banks to support renewable energy and prioritizing market entry for investors.
- It is imperative that for any future renewable energy to be successful, commitment to the domestic production industry must be provided.
- The Ministry of Energy (MoE) should provide a comprehensive action plan for the promotion of renewable energy. The action plan should be prepared in consultation with all stakeholders and backed up by concrete timelines.