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REGULATION OF RENEWABLE ENERGY: A FEASIBLE SOLUTION TO INSUFFICIENT POWER GENERATION IN THE NIGERIAN POWER SECTOR

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ABSTRACT

The access to clean energy is crucial for the socio-economic growth and poverty eradication of every nation. However, Nigeria's power sector has been plagued by issues such as inefficient generation and distribution of electricity, leading to a shortfall in meeting the energy demands of the populace. This has resulted in a decrease in the standard of living and limited the country's economic growth potential. Despite efforts to increase power access, progress has been limited. In light of these challenges, this study aims to provide an overview of renewable and sustainable energy's potential, regulation, development, and challenges that hinder its maximum utilization for increased power generation. Ultimately, this work seeks to provide solutions to the poor state of power in the country.

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1. INTRODUCTION

The demand for energy is increasing globally at a faster rate than the installed generation capacity.[1] This creates a significant need to generate adequate electricity to sustain business operations and reduce carbon emissions on a country and continent-wide scale.[2] The growing demand for energy is due to various factors, such as rapid population growth, technological advancements, and increased industrial activities.[3] However, deteriorating infrastructure, energy losses, energy theft, and non-cost reflective tariffs are among the major reasons for insufficient power supply.[4] Additionally, the Nigerian power sector faces challenges such as electricity policy enforcement, regulatory uncertainty, insufficient gas supply, transmission system constraints, and power sector planning shortfalls.[5] These issues hinder the sector's commercial viability, and the government has implemented several strategies to address them. These strategies include privatization and diversification of certain parts of the sector, promotion of energy efficiency, and empowering the Energy Commission of Nigeria to carry out programs that boost energy generation via renewable sources. Various policies have also been established to promote power generation through alternative sources.[6]

The increasing global demand for energy has surpassed the installed generation capacity, making it crucial to generate sufficient electricity to sustain business operations and reduce carbon footprint. The Nigerian

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[1]Adebowale Adeniyi and Olayinka Olaleye, ”Nigeria: Harnessing Renewable Energy For Growth And Development In Nigeria” at https://www.mondaq.com/nigeria/renewables/1172254/harnessing-renewable-energy-for-growth-and-development-in-nigeria **Accessed on October 15th,2022.**

[2]Femi Adekoya “Exploring renewable energy options to Nigeria’s electricity, production crisis “at https://guardian.ng/features/exploring-renewable-energy-options-to-nigerias-electricity-production-crisis/Accessed October 15th,2022.

[3]Adewale Adewuyi ”Challenges and prospects of renewable energy in Nigeria: A case of bioethanol and biodiesel production”, Energy Reports Volume 6 ,( ) 2020 .at https://www.sciencedirect.com/science/article/pii/S2352484719313137 Accessed May 15th,2022.1

[4]Chinedu Ndigwe ”Renewable Energy as Viable Solution to Nigeria’s Electricity Crisis”athttps://www.thisdaylive.com/index.php/2022/07/05/renewable-energy-as-viable-solution-to-nigerias-electricity-crisis/ Accessed on June 12th ,2022.

[5]USAID; Nigeria Power Africa Fact Sheet at https://www.usaid.gov/powerafrica/nigeria1

[6]ZubairuGatugelUsman,SerkanAbbasoglu,NeyreTekbiyikErsoy,MuratFahrioglu,Energy and Society Journal , “Transforming the Nigerian Power Sector for sustainable development” Energy Policy 87(2015)429-437

power sector has been bedevilled by inefficient generation and distribution of electricity, resulting in a fall in the standard of living and a constraint on economic growth potentials. The challenges facing the sector include infrastructure decay, energy losses, electricity theft, and non-cost reflective tariffs. To address these challenges, various strategies have been implemented, including privatization and diversification of the sector, promoting energy efficiency, and adopting alternative energy solutions to ensure energy security.

Renewable energy sources such as solar, wind, hydro, bioenergy, and geothermal are natural, infinite, and naturally replenished at a rate higher than they are consumed. In contrast, fossil fuels such as coal, crude oil, and natural gas take a very long time to form and are associated with great environmental hazards. An increase in renewable energy utilization is essential for reducing greenhouse gas emissions, addressing pollution, and reducing the impact of climate change. Encouraging the use of alternative energy solutions will guarantee energy security and efficiency.

This paper aims to explore the possibility of maximizing efforts towards harnessing the abundant renewable energy resources in Nigeria to increase electricity generation through well-formed policies and interventions. It will explore ways to utilize renewable energy resources to improve the current state of electricity supply and address the impact of power shortage on economic development and the standard of living. The paper will also consider the existing policies and laws governing renewable energy power generation and the challenges limiting its maximum exploitation. Ultimately, the paper will highlight the potential that renewable energy offers and how it can aid in resolving Nigeria's intractable power supply problem.

1.1 Methodology

This research utilized the doctrinal research methodology, which is also known as the theoretical (library) method, to gather data from various sources including previous research, literature review, and online sources. The data collected was analysed and used to identify the causes of insufficient power generation in Nigeria and to propose solutions to the problem. The sources used were carefully evaluated and analysed, with a focus on the subject matter of the research. As such, the explanations provided in this paper rely heavily on the work done by other researchers.

1.2 **Significanceof the Study**

The aim of this work is to address the current unreliable state of electricity in Nigeria by exploring and promoting the use of renewable energy resources for increased electricity generation[7]. The Nigerian government, through agencies such as the Nigerian Electricity Regulatory Commission, must take deliberate and urgent steps to harness and maximize the existing renewable energy resources to address the energy crisis. The study has both academic and practical significance. From an academic perspective, it seeks to enhance understanding of renewable energy, its legal and institutional frameworks, and challenges to its development, while proposing solutions for improvement. From a practical perspective, it aims to propose solutions for meeting Nigeria's minimum renewable energy target and improving the state of power supply in the country, in line with global best practices. It should be noted that a shift or increase in the utilization of renewable energy for electricity generation has significant environmental benefits in terms of reducing greenhouse gas emissions and supporting sustainable development[8].

1.3 Impact of Shortage of Electricity Supply

Nigeria is a nation blessed with abundant renewable and non-renewable energy resources, including vast natural gas reserve and a significant petroleum export industry. The country has enormous potential for hydro, wind, biomass, and solar energy sources. Despite having a current electric power generation potential of around 12,522MW, Nigeria can only dispatch about 4,000 MW, which is insufficient for its population of over 195 million people[9]. As a result, the majority of the population continues to suffer from inadequate and unreliable power supply, which has left the country significantly behind its peers across the continent and the world[10].

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[7]Adamu Sani, "When will Nigerians enjoy Stable Electricity", Vanguard, 31 July 2014, available at: https://www.vanguardngr.com/2014/07/will-nigerians-enjoy-stable-electricity/ (accessed 3 December 2020)

[8]Šajn, Nikolina, 'Electricity Prosumers', *European Parliamentary Research Service Briefing*, November 2016, p.1.

[9]USAID; Nigeria Power Africa Fact Sheet at https://www.usaid.gov/powerafrica/nigeria2.Accessed on 10th October,2022.

[10]Zubairu Gatugel Usman and others, , "Transforming the Nigerian Power Sector for sustainable development" Energy and Society Journal87(2015)429-437

Several factors have contributed to this wide energy gap between electricity demand and supply in Nigeria[11].Inconsistent policy making and implementation, obsolete equipment, inadequate generation and transmission capacities, and high technical and commercial losses are among the reasons for this underperformance. These challenges have been exacerbated by decades of neglect, mismanagement, corruption, and insufficient funding of the power sector[12]. The population has also grown significantly without a corresponding increase in electricity generation capacity, leaving a considerable percentage of the population without access to electricity[13]. This situation has had a severe impact on businesses, resulting in significant annual economic losses. The standard of living, for many people, and the per capita income of entrepreneurs have also been affected.

2. DEFINITIONS OF RENEWABLE ENERGY

In Nigerian legislation, there is no explicit definition for renewable energy. However, the Policy Guidelines on Renewable Energy 2006 and the National Renewable Energy and Energy Efficiency Policy (NREEEP) provide a definition of renewable energy as energy obtained from sources that do not deplete the earth's resources. The definition also includes technologies that have minimal environmental impact, such as less intrusive hydro and certain biomass combustion[14].

Renewable energy refers to energy derived from natural sources that are replenished at a faster rate than they are consumed. Sources such as sunlight and wind are constantly being replenished. On the other hand, non-renewable resources like fossils fuels, coal, oil and gas take hundreds of millions of years to form and when burned to produce energy, they emit harmful greenhouse gases such as carbon dioxide. It is important to note

[11]Adebowale Adeniyi and Olayinka Olaleye "Nigeria: Harnessing Renewable Energy For Growth And Development In Nigeria"athttps://www.mondaq.com/nigeria/renewables/1172254/harnessing-renewable-energy-for-growth-and-development-in-nigeria.Accessed on 8th November,2022.

[12]Ibid.

[13]Adam Abu-bashal "60% of Nigerians lack access to electricity: Expert" at https://www.aa.com.tr/en/africa/60-of-nigerians-lack-access-to-electricity-expert/2481210.Accessed on 7th November,2022.

[14] Kashimana Tsumba, L Chidi Ilogu and Paul Adetipe "the legal framework for renewable energy in Nigeria"athttps://www.lexology.com/library/detail.aspx?g=5124a28d-a5d7-435f-ac70-a5aa4e8bdcd4#:~:text=The%20Energy%20Commission%20of%20Nigeria,2050%E2%80%932070%20net%20zero%20target.Accessedon 6th December,2022.

that generating renewable energy creates far fewer emissions compared to burning fossil fuels[15].

3. LEGAL, REGULATORY AND INSTITUTIONAL FRAMEWORK GOVERNING RENEWABLE ENERGY IN THE NIGERIAN POWER SECTOR

3.1 Renewable Energy Laws and Policies

Policies and regulations for renewable energy in Nigeria have been put in place to provide a legal and theoretical framework for the implementation of renewable energy. The Nigerian government has implemented various policies to promote the growth of renewable energy in the country, starting with the National Electric Power Implementation Policy in 2001, which aimed to provide sustainable power with a focus on efficient distribution and utilization. The National Energy Policy of 2013 re-emphasized the same goals of sustainable energy implementation, while the Renewable Energy Master Plan of 2005 outlined the strategy for the implementation of renewable energy. The Renewable Energy Policy Guidelines of 2006 provided a strategy for the cost-effective administration of the Renewable Electricity Trust Fund and incentives for the utilization of renewable energy.

Other policies include the Captive Energy Generation Regulations of 2008, which licenses and regulates captive generation of electricity for private use, and the National Renewable Energy Efficiency Policy of 2013, which consolidated the stipulations of the existing energy laws and aimed to overcome all barriers to sustainable use of energy. The National Energy Efficiency Action Plans of 2015-2030 provides a strategic outlook on the situation in Nigeria, with a focus on effective energy, emission reduction, efficient lighting, monitoring, distribution, and enforcement of standards for materials, homes, buildings, and industries. The Order on the Mandatory Dispatch of Hydropower Plants in 2019 requires the offtake of hydro-generated power before the offtake from gas-powered plants. The Mass Rural Electrification Programme of 2020 and the National Climate Change Policy of 2021-2030 are also important policies that aim to promote sustainable economic development and a low-carbon environment in Nigeria.

[15]United Nations Climate Action ”What is Renewable Energy?” https://www.un.org>climatechange. 8/5/2023 2:50pm.Accessed on 5th January,2022.

It is important to note that there is no single legislation that specifically governs renewable energy in Nigeria. The Electric Power Sector Reform Act of 2005 is the major legislation that governs the development, financing, operation, and sale of electricity in Nigeria. The Act liberalized the power sector by allowing private sector participation in the entire value chain of electricity generation, distribution, and allied services[16].

3.2 Institutional Framework Governing Renewable Energy in the Nigerian Power Sector

In addition to the policies mentioned earlier, it is important to highlight that there is no single ministry responsible for overseeing all aspects related to Nigeria's energy sector. Instead, there are various regulatory and consenting bodies, such as ministries, departments, and agencies, that perform different roles[17]. One such agency is the Energy Commission of Nigeria, which is tasked with coordinating the orderly development of Nigeria's diverse energy sources, including renewable energy. Other notable bodies include the Nigerian Electricity Regulatory Commission, the Federal Ministry of Power, the Federal Ministry of Environment, and the National Environmental Standards and Regulations Enforcement Agency, among others[18].

4. DEVELOPMENT OF RENEWABLE ENERGY IN THE NIGERIAN POWER SECTOR

Generating power from renewable sources has become a common practice in Nigeria[19], with hydropower being a core source of electricity production for the national grid since the 1960s. In recent years, the Kainji and Jebba

[16]Kashimana Tsumba, L Chidillogu and Paul Adetipe "the legal framework for renewable energy in Nigeria"athttps://www.lexology.com/library/detail.aspx?g=5124a28d-a5d7-435f-ac70-a5aa4e8bdcd4#:~:text=The%20Energy%20Commission%20of%20Nigeria,2050%E2%80%932070%20net%20zero%20target.Accessed on 6th December,2022.

[17]Report of the Energy Commission of Nigeria "Policy and Regulatory Framework for Energy in Nigeria" at https://energypedia.info/wiki/Policy_and_Regulatory_Framework_for_Energy_in_Nigeria.Acessed on 15th Janauary,2023.

[18]Israel Aye, Funmilayo Odude, Immaculate Odekina and Ini Iheonye "The Renewable Energy Law Review: Nigeria" Commercial and Energy Law Practice 26 July 2022 at https://thelawreviews.co.uk/title/the-renewable-energy-law-review/nigeria Accessed on 30th January,2022.

[19]Femi Adekoya " Exploring renewable energy options to Nigeria's electricity, production crisis" at https://guardian.ng/features/exploring-renewable-energy-options-to-nigerias-electricity-production-crisis/.Accessed on 12th November,2022.2

Dams have accounted for around 50% of the country's stable power supply. While renewable energy has always been a part of Nigeria's energy mix, with about 12.5% of grid-sourced energy derived from hydropower, the global trend towards decentralizing the power sector to accommodate alternative energy sources has become more pronounced due to the need to mitigate the harmful effects of greenhouse gas emissions and promote sustainable development[20].

Nigeria, like other major players in the world, has shifted its focus to renewable energy as a means of addressing its power deficit, promoting economic growth, and reducing environmental pollution. To encourage the financing of renewable energy projects, such as solar and wind, the government has introduced policies to incentivize investment in the sector[21]. Renewable energy has also been used to provide electricity to rural areas that are not connected to the national grid, through the development of solar mini-grids. This has been made possible by government policies and regulations that support the growth of renewable energy[22].

To further promote renewable energy development, the Nigerian government has introduced various policies and regulatory frameworks, including the Renewable Energy and Energy Efficiency Policy. In collaboration with organizations such as USAID and Power Africa, Nigeria has carried out several renewable energy projects, including the Solar Power Naija Project, among other initiatives[23].

5. POTENTIAL FOR RENEWABLE ENERGY DEVELOPMENT IN THE NIGERIAN POWER SECTOR

It is essential to adopt renewable energy as a complementary source of domestic and commercial energy because Nigeria has a high potential for renewable energy that, if properly utilized, could bridge the significant energy gap. The renewable energy potential is more extensive than what

[20]Orie Erimma Gloria.,"The legal perspective to the role of the Prosumer in Nigeria's Energy sector". National Open University of Nigeria International Journal of Private & Property Law (NIJPPL),(2019) 2.
[21]Wolemi Esan, Joba Akinola, Dare Onakoya, Georgette Monnou "Renewable energy in Nigeria: law, regulation, trends and opportunities" at https://www.ibanet.org/renewable-energy-nigeria Accessed on 20th June,2022.
[22]Ibid.
[23]Israel Aye, Funmilayo Odude, Immaculate Odekina and Ini Iheonye." The Renewable Energy Law Review: Nigeria" at https://thelawreviews.co.uk/title/the-renewable-energy-law-review/nigeria. Accessed on 26 July,2022

policymakers had previously thought and could be harnessed with the emergence of available grid technologies such as concentrated solar power. For instance, Nigeria's solar thermal power potential is over 427,000MW, while the current power generation is only around 4000MW, meeting only a fraction of the demand. Properly harnessing renewable energy could play an escalating and transformational role in addressing Nigeria's energy needs[24].

To achieve this, the existing structure for deploying renewable energy must be heightened, and government intervention is necessary to encourage the utilization of renewable energy technologies at individual and household levels[25]. Providing incentives for both the supply and demand of renewable energy in the country will augment the government's effort to address erratic power supply. Moreover, a well-thought-out policy and comprehensive regulation are required to increase access to energy by promoting investment in renewable energy, which will complement existing plans to generate and distribute more electricity from conventional energy sources. This, in turn, will provide businesses with available, stable, and affordable power for greater productivity, leading to more employment opportunities.

Increasing the adoption of renewable energy is a necessary intervention that will significantly improve the generation capacity of electricity and supply while proffering a lasting solution to environmental degradation and other climate change issues. This will ultimately help Nigeria attain its commitment to the recently signed Climate Change Act and its target of net-zero greenhouse gas emissions. Encouraging financing models such as grants, long-term equity, debt financing, result-based financing, and NGO financing can assist in advancing and actualizing energy projects in Nigeria[26].

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[24]The Sungas Project ”Renewable Energy Potential in Nigeria Low-carbon approaches to tackling Nigeria’s energy poverty”athttps://www.stakeholderdemocracy.org/portfolio/renewable-energy-potential-in-nigeria/?gclid=EAIaIQobChMI3bqknYLA-wIVmPdRCh0F3w9eEAAYASAAEgIgEfD_BwE.Accessed on 13th November,2022

[25]Adebowale Adeniyi ,Olayinka Olaleye “Nigeria: Harnessing Renewable Energy For Growth And Development In Nigeria”athttps://www.mondaq.com/nigeria/renewables/1172254/harnessing-renewable-energy-for-growth-and-development-in-nigeria.Accessed on 3rd November,2022.

[26]Pius Ogundiran ”Renewable energy as alternative source of power and funding of renewable energy inNigeria”,athttps://www.google.com/search?q=Renewable+energy+as+alternative+source+of+power+and+funding+of+renewable+energy+in+Nigeria&oq=Renewable+energy+as+alternative+source+of+power+and+funding+of+renewable+energy+in+Nigeria&aqs=chrome..69i57.15466j0j4&sourceid=chrome&ie=UTF-8.Accessed 10th December,2022.

Nigeria has an abundance of adequate renewable energy sources, which can effectively and efficiently balance the persistent problem of electricity deficit and address the environmental issues of climate change[27].

6. CHALLENGES TO THE RAPID DEVELOPMENT OF RENEWABLE ENERGY IN THE NIGERIAN POWER SECTOR

Despite Nigeria's abundance of renewable energy resources, access to sustainable energy in the country remains a challenge, making the achievement of affordable and clean energy a major goal[28]. Nigeria has not fully harnessed the potential of its renewable energy sources, largely due to the absence of an effective legal framework specifically for renewable energy utilization[29]. Although there are several policies and guidelines promoting the use of renewable energy, they are disparate and insufficient in maximizing the potential of renewable energy. Therefore, a robust legal regime is needed to regulate and promote the rapid development and utilization of renewable energy[30].

Nigeria heavily relies on natural gas for power generation due to its abundant gas reserves, which has reduced the drive of some gas-rich countries to invest in renewable energy[31].To maximize the benefits of the abundant renewable energy potential, there is a need to increase the share of renewable energy in the national energy mix. Developing an effective legal framework on renewable energy will be key to achieving this goal[32].

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[27]Adebowale Adeniyi ,Olayinka Olaleye "Nigeria: Harnessing Renewable Energy For Growth And Development In Nigeria"athttps://www.mondaq.com/nigeria/renewables/1172254/d.Accessed on 10th February,2022.

[28]Adewale Adewuyi "Challenges and prospects of renewable energy in Nigeria: A case of bioethanol and biodiesel production", Energy Reports Volume 6 ,supplement 4 ,February 2020 ,pages 77-88,at https://www.sciencedirect.com/science/article/pii/S2352484719313137 Accessed 15th,2022

[29]Chitzi C. Ogbumgbada ,"Developing an effective legal framework for renewable energy utilization in Nigeria"(Renewable Energy Law and Policy) athttps://www.researchgate.net/publication/328541807.Volume 8, No.3(April 2018) Accessed on 5th September,2022.

[30]Israel Aye, Funmilayo Odude, Immaculate Odekina and Ini Iheonye,"The Renewable Energy Law Review: Nigeria" Commercial and Energy Law Practice 26 July 2022 at https://thelawreviews.co.uk/title/the-renewable-energy-law-review/nigeria.Accessed on 2nd March,2022.

[31]Chitzi C. Ogbumgbada, "Developing an effective legal framework for renewable energy utilization in Nigeria"(Renewable Energy Law and Policy) athttps://www.researchgate.net/publication/328541807.Volume 8, No.3(April 2018)pp.45-52. Accessed on 5th September,2022

[32]Ibid

The Nigerian renewable energy industry is facing challenges in terms of increasing access to innovative financial solutions to promote wider adoption of renewable energy solutions. The off-grid solar and renewable energy space in the country needs to be revolutionized through innovative solutions that facilitate a seamless transition to clean and renewable energy[33]. This requires a holistic approach that involves the government and all stakeholders working together to bring about change. However, the lack of advanced technology to fully utilize available renewable resources and a lack of well-framed governmental policies are major setbacks.

Despite the government's efforts to create awareness and enlightenment on the use of renewable energy resources and the development of policies, incentives, and regulatory environment necessary to encourage more participation in renewable energy and power generation, the sector still faces challenges[34]. The collection and technical losses, lack of fully cost-reflective tariffs, and location of renewable projects in rural areas with low-income consumers all pose significant concerns to investors.

The Nigerian renewable energy sector is progressing slowly despite the urgent need to boost power generation and balance the existing power deficit in the country. The absence of comprehensive applicable laws and inadequate technical capability are major obstacles to the exploitation of renewable energy in Nigeria. There is also a deficiency of data on resources, low quality of products, and a lack of human and manufacturing capabilities to maintain modern trends in renewable energy technologies.

Inadequate access to capital and other investment support, inappropriate and inconsistent government subsidies, and inadequate incentives accompanying investment have all affected the development of most renewable projects[35]. To overcome these challenges and maximize the potential of renewable energy in Nigeria, there is a need for a well-framed

[33]Adaku Onyenucheya "FG to address challenges hindering renewable energy in Nigeria" at https://guardian.ng/business-services/fg-to-address-challenges-hindering-renewable-energy-in-nigeria/#:~:text=The%20proliferation%20of%20inexperienced%20and.Accessed on 15th Setember,2022.

[34]Adewale Adewuyi "Challenges and prospects of renewable energy in Nigeria: A case of bioethanol and biodiesel production", Energy Reports Volume 6 ,supplement 4 ,February 2020 ,pages 77-88,at https://www.sciencedirect.com/science/article/pii/S2352484719313137 Accessed 15th,2022.1

[35]Adewale Adewuyi "Challenges and prospects of renewable energy in Nigeria: A case of bioethanol and biodiesel production", Energy Reports Volume 6 ,supplement 4 ,February 2020 ,pages 77-88,at https://www.sciencedirect.com/science/article/pii/S2352484719313137 Accessed 15th,2022.1

legal framework that promotes the rapid development and utilization of renewable energy, as well as increased access to innovative financial solutions to support the widespread adoption of renewable energy solutions[36].

7. CONCLUSION

Encouraging more investment in renewable sources for electricity generation is crucial for Nigeria to meet its energy demands and contribute to achieving the Global Sustainable Development Goals. The world is transitioning to renewable energy sources, and Nigeria needs to follow suit. With the right policies and framework, renewable energy can play a significant role in ensuring energy security, mitigating climate change, and fostering economic development[37].

To improve the energy situation in Nigeria, there is a need for increased private investors participation in the sector, especially through electricity prosumers[38]. This requires the implementation of specific legal frameworks and policies to support renewable energy, including augmenting existing energy policies. The creation of a conducive environment for private investors and attracting foreign direct investment in renewable energy technology is also essential[39]. We hope that this work will inspire further research on how to address Nigeria's energy crisis using its available renewable energy resources.

8. RECOMMENDATION

To address the issue of power outages resulting from inadequate electricity generation and poor supply, significant changes are needed in Nigeria's electricity sector to fully realize the potential of renewable energy. This requires an integrated approach to planning and investment, which

[36]Chukwuma and others ”Renewable Energy in Nigeria: Potentials and Challenges” Journal of Southwest Jiaotong University(2021)Vol.56 No.3.

[37]Chitzi C. Ogbumgbada, ”Developing an effective legal framework for renewable energy utilization in Nigeria”athttps://www.researchgate.net/publication/328541807.Volume 8, No.3(April 2018)pp.45-52

[38]Nikolina Šajn ”Electricity Prosumers 1”,European Union Briefing November 2016 EPRS | European Parliamentary Research Service Members' Research Service EN PE 593.518.

[39]Nnaemaka Vincent Emodi,Kyung-Jin Boo, ”Renewable energy development in Nigeria: Current status and policy options ”,Volume 51(2015),P356-381. 2

complements ongoing efforts in research, development, and regulation[40]. Appropriate policies and processes can mitigate market risks and incentivize renewable energy investment, including policies that encourage self-generation using simple technologies like solar panels and subsidies on certain renewable energy technologies. A specific law governing renewable energy is also necessary to provide more incentives for uptake. Capital financing is a critical requirement for the capital-intensive activities involved in electricity generation, transmission, and distribution. Furthermore, public education is essential to improve consumer and policy choices which will in turn promote private sector participation in the renewable energy sector[41].

[40]The Sungas Project ”Renewable Energy Potential in Nigeria Low-carbon approaches to tackling Nigeria’s energy poverty”athttps://www.stakeholderdemocracy.org/portfolio/renewable-energy-potential -in-nigeria/?gclid=EAIaIQobChMI3bqknYLA-wIVmPdRCh0F3w9eEAAYASAAEgIgEfD_BwE.Accessed on 13th November,2022

[41]The Sungas Project ”Renewable Energy Potential in Nigeria Low-carbon approaches to tackling Nigeria’s energy poverty”athttps://www.stakeholderdemocracy.org/portfolio/renewable-energy-potential-in-nigeria/?gclid=EAIaIQobChMI3bqknYLA-wIVmPdRCh0F3w9eEAAYASAAEgIgEfD_BwE.Accessed on 13th November,2022