

THE RENEWABLE  
ENERGY LAW  
REVIEW

FIFTH EDITION

Editor  
Munir Hassan

THE LAWREVIEWS

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ENERGY LAW  
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# NIGERIA

*Israel Aye, Funmilayo Odude, Immaculate Odekina and Ini Iheonye*<sup>1</sup>

## I INTRODUCTION

Nigeria is a major exporter of petroleum and has a vast deposit of natural gas, yet it suffers a perennial erratic power supply problem.<sup>2</sup> Indeed, inefficient generation and distribution of power is a dominant factor hindering the ease of doing business in Nigeria.<sup>3</sup> In this regard, Nigeria recognises the importance of a renewable and sustainable source of energy to resolve its power deficit. Moreover, generating power through renewable sources has been common practice in Nigeria, particularly hydropower.

## II THE YEAR IN REVIEW

As a result of governmental and stakeholder collaboration, the National Renewable Energy and Energy Efficiency Policy has been introduced to foster the development of renewable energy in Nigeria.<sup>4</sup>

In 2018, the US Agency for International Development (USAID) in collaboration with Power Africa concluded the four-year Renewable Energy and Energy Efficiency Project in Nigeria. On a progressive note, this project has provided 261,938 Nigerian citizens with renewable energy through 16,600 connections in a bid to reduce carbon emissions.

In 2020, as part of the economic recovery process necessary due to the covid-19 pandemic, the Nigerian government launched the Solar Power Naija Project,<sup>5</sup> which aims to roll out five million solar-based connections to off-grid communities. The project targets 25 million homes and is expected to create approximately 250,000 jobs. The estimated cost of the project has been pegged at US\$620 million, although there are plans to recoup the expenditure.<sup>6</sup> As

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1 Israel Aye and Funmilayo Odude are partners, Immaculate Odekina is a senior associate, and Ini Iheonye is an attorney II at Commercial and Energy Law Practice.

2 Yinka O Omorogbe et al., 'Promoting Sustainable Development through the Use of Renewable Energy: The Role of the Law' (2016) in *Beyond The Carbon Economy: Energy Law in Transition* (Oxford University Press).

3 African Development Bank, 'Nigeria Economic Outlook' (2020) [www.afdb.org/en/countries/west-africa/nigeria](http://www.afdb.org/en/countries/west-africa/nigeria) (accessed 31 May 2021).

4 See <https://powerlibrary.nigeriaelectricityhub.com/2020/07/17/national-renewable-energy-and-energy-efficiency-policy-nreep-2015/> (accessed 3 June 2021).

5 Babalwa Bungane, 'Nigeria Announces new Energy Access Project "Solar Power Naija"', *ESI Africa Online Publications* (7 December 2020) <https://esi-africa.com/industry-sectors/renewable-energy/nigeria-announces-new-energy-access-project-solar-power-naija> (accessed 15 June 2022).

6 Peter Hansen, 'Nigeria's Energy for All Solar Power Plan', *Climate Scorecard Nigeria* (2021) [www.climatecard.org/2021/04/nigerias-energy-for-all-solar-power-plan](http://www.climatecard.org/2021/04/nigerias-energy-for-all-solar-power-plan) (accessed 28 May 2021).

at April 2021, the Nigerian government had commenced the implementation of this project with the Jangefe community of the Roni Local Government Area in Jigawa State, where it received 1,000 solar home system connections for its population of approximately 5,000 people.<sup>7</sup> Thereafter, the project will continue across other states.

Another important development in the renewable energy sector of Nigeria is the Nigerian Electrification Programme, which was launched in 2019 by the federal government in the hopes of implementing progress and providing electricity through solar-powered plants. To facilitate the implementation of this project, through the Rural Electrification Agency (REA) the federal government secured financing for this project from the African Development Bank (US\$150 million), Africa Growing Together Fund (US\$50 million) and the World Bank (US\$350 million).<sup>8</sup>

The European Union also made available the sum of €165 million for investment towards the development and implementation of renewable energy projects.<sup>9</sup> This investment seeks to cater for at least '90 million Nigerians and business owners who lack access to affordable renewably energy'.<sup>10</sup>

In the most recent development, a collaboration between a Singapore-based renewable energy enterprise known as B&S Holding PTE and SUNNYFRED Global, a Nigerian investment entity, in partnership with other stakeholders, have settled arrangements to set up West Africa's largest solar photovoltaic (PV) farm in Nigeria. The farm, which is to be known as the Ashama 200MW/HR Solar PV Farm, will be located on about 304 hectares of land in the Ashama village, found in the Aniocha South Local Government Area of Delta State.

Recently, in an attempt to cushion the effects of the covid-19 pandemic, the Central Bank of Nigeria introduced a solar intervention fund that offers soft loans (5 per cent interest) to developers engaged in renewable projects who may obtain credit facilities up to 500 million naira.<sup>11</sup> In 2020, the Nigerian Federal Ministry of Power also invited competent bidders to tender for the construction of various off-grid solar systems and other energy infrastructure projects across the nation.

### III THE POLICY AND REGULATORY FRAMEWORK

The policy and regulatory framework reflects the legal and theoretical outlook of the Nigerian government on the implementation of renewable energy. Although administrative bureaucracies and inefficiencies hinder swift progress, there has been a slow and steady advancement, particularly noticeable in the increased use of solar-powered energy sources in homes, institutions and offices in Nigeria.<sup>12</sup>

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7 *ibid.*

8 See [www.tbridgevp.com/s/NEP-Latest-Report.pdf](http://www.tbridgevp.com/s/NEP-Latest-Report.pdf) (accessed 6 June 2021).

9 See <https://energycapitalpower.com/2019/07/09/nigerias-renewable-energy-sector-gets-165-million-boost/> (accessed 6 June 2021).

10 See [www.vanguardngt.com/2019/05/eu-unveils-solar-tree-contributes-165m-euros-for-renewable-energy-in-nigeria/](http://www.vanguardngt.com/2019/05/eu-unveils-solar-tree-contributes-165m-euros-for-renewable-energy-in-nigeria/) (accessed 6 June 2021).

11 See [www.nipc.gov.ng/2020/09/15/cbn-unveils-solar-intervention-fund-fixes-n500m-maximum-limit/](http://www.nipc.gov.ng/2020/09/15/cbn-unveils-solar-intervention-fund-fixes-n500m-maximum-limit/) (accessed 7 June 2021).

12 Nomvuyo Tena 'Nigeria powering schools through renewable energy', *ESI Africa Publication* (6 April 2021) [www.esi-africa.com/industry-sectors/renewable-energy/nigeria-powering-schools-through-renewable-energy-resources/](http://www.esi-africa.com/industry-sectors/renewable-energy/nigeria-powering-schools-through-renewable-energy-resources/) (accessed 30 May 2021).



## **i The policy background**

The key documents and projects that the government has embarked upon in collaboration with stakeholders are outlined below.

### ***National Electric Power Implementation Policy 2001***

Although electric power was generated by the British colonial government in Ijora Lagos in 1896, since the 1960s, there have been constant power outages in Nigeria. The erratic, unreliable supply had become widespread and disruptive. In 2000, the federal government set up the Electric Power Implementation Committee to advise on reform of the electric power sector and the committee's efforts yielded the National Electric Power Implementation Policy 2001 (NEPIP).<sup>13</sup> The NEPIP stipulates the general framework for Nigeria's agenda on sustainable power distribution with a particular focus on efficient distribution and utilisation.

### ***National Energy Policy 2003***

The National Energy Policy 2003 (NEP 2003) was recommended by the Electric Power Implementation Committee in 2003 to develop Nigeria's energy resources. The NEP 2003 places emphasis on the effective use of sustainable energy resources with a particular focus on solar energy and advocates for the aggressive integration of solar energy in the nation's power supply. It was later reviewed and replaced by the National Energy Policy 2013, which re-emphasised the importance of enforcement and implementation of sustainable energy goals while decrying the failure of implementation, energy loss, inefficiency and waste in the realisation of such goals.

### ***Renewable Energy Master Plan 2005***

The Renewable Energy Master Plan 2005 (REMP) recommends the utilisation of renewable energy and seeks to provide an implementation strategy. It conceptualises Nigeria's renewable energy goals and tries to address the key factors for its attainment. The REMP projects that the minimum electricity demand in Nigeria shall be above 315MW by 2030. The goal is that over 20 per cent of the energy supply will be from renewable sources.

### ***Renewable Energy Policy Guidelines 2006***

The Renewable Energy Policy Guidelines 2006 (REPG) is a document by the Federal Ministry of Power that details policy objectives for the development and utilisation of renewable energy. The REPG is very similar to the REMP, the major distinction being that the REPG places more premium on renewable energy generation and distribution. It also maps out a strategy for a cost-effective administration of the Renewable Electricity Trust Fund. In addition, the REPG provides incentives for the utilisation of renewable energy and recommends a five-year tax holiday as an incentive for investors in renewable energy in the hopes of encouraging the participation of more stakeholders.<sup>14</sup>

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13 MT Ladan, 'Achieving Sustainable Development Goals through Effective Domestic Laws and Policies on the Environment and Climate Change' (2018) Volume 48(1) *Environmental Policy and Law*, pp. 42–63.

14 This has been reflected in the Federal Government Pioneer Industry List, Gazette No. 84, Volume 104 of 2017, which grants an initial tax holiday of three years that is renewable for two additional years.

### ***Captive Energy Generation Regulations 2008***

The Captive Energy Generation Regulations 2008 (CEGR) were issued by the Nigerian Electricity Regulatory Commission (NERC) in 2008 to regulate captive generation of electricity for small or private use. It houses principles akin to those in the general regulations but applies especially to small generators or captors. The CEGR defines captive power generation as ‘generation of electricity exceeding 1 MW for the purpose of consumption by the generator, and which is consumed by the generator itself, and not sold to a third-party’.<sup>15</sup> The CEGR also sets provisions for the licensing and regulation of captive energy generators.<sup>16</sup>

### ***National Renewable Energy Efficiency Policy 2013***

The National Renewable Energy Efficiency Policy 2013 was conceived by the Federal Ministry of Power as a policy to foster sustainable power generation and consolidate the stipulations of the existing energy laws. It seeks to improve energy efficiency as well as to overcome the administrative and social barriers hindering the sustainable use of energy.

### ***National Energy Efficiency Action Plans 2015–2030***

The National Energy Efficiency Action Plans 2015–2030 (NEEAP) were adopted by the Inter-Ministerial Committee on Renewable Energy and Energy Efficiency and approved by the National Council on Power. Although the template was adopted from that initially designed by the ECOWAS Centre for Renewable Energy and Efficiency, the NEEAP provides a strategic outlook on the situation in Nigeria with plans for the implementation of renewable energy goals. Specific focus is placed on effective energy, emission reduction, efficient lighting,<sup>17</sup> monitoring, distribution and enforcements, and verification of standards of materials, homes, buildings and industries.

The NEEAP also emphasises capacity building and the utilisation of local materials and workers. The inputs of the implementation of the NEEAP are to be monitored by the Federal Ministry of Power. The NEEAP also outlines the establishment of a system for monitoring, verifying and enforcing minimum energy performance standards.<sup>18</sup>

### ***Order on the Mandatory Dispatch of Hydropower Plants 2019***

This order was issued by the National Electricity Regulatory Commission in 2019,<sup>19</sup> requiring the offtake of power generated by the three hydropower generating stations in Nigeria before offtake from gas-powered plants.<sup>20</sup>

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15 CEGR, Section 2.

16 CEGR, Sections 3 to 8.

17 Including the replacement of lighting sources (like kerosene lanterns) with conservative light bulbs.

18 See NEEAP 2016 policy document, paragraph 2.1.3. Evaluation of standards shall be carried out in collaboration with the Standards Organisation of Nigeria.

19 NERC/182/2019.

20 Clement Ezeolisah, ‘NERC Directs System Operators to Prioritise Dispatching all Hydro Power Stations to Check Flooding in Nigeria’ (2019) <https://nsong.org/MediaPublicity/NewsDetails?NewsID=81> (accessed 28 May 2021).

### ***Energy for All – Mass Rural Electrification Programme 2020***

This programme expresses the federal government's intention to power 304 healthcare facilities and schools across the country using renewable energy (primarily solar).<sup>21</sup> This programme was introduced in August 2020 and will be implemented in collaboration with the existing agencies. It has been given a timeline of 12 months.

### ***National Climate Change Policy 2021–2030***

The National Climate Change Policy 2021–2030 is aimed at implementing the mitigation procedures already put in place to promote a low-carbon, high-growth economic development plan for a sustainable environment in Nigeria.

### ***Other projects***

Further to the above, Nigeria has implemented several renewable energy projects, including:

- a* the Renewable Electricity Action Programme, which was conceived by the Federal Ministry of Power in 2006 and sets out a road map for the sustainable implementation and distribution of renewable electricity in Nigeria with notable targets;
- b* the Nigerian Electrification Project, which aims to increase electricity access for households and micro, small and medium-sized enterprises;
- c* the Energising Education Programme, which seeks to provide educational institutions with sustainable electricity by adopting mini-grid technology;<sup>22</sup> and
- d* the Power Sector Recovery Programme 2019, which seeks to boost Nigeria's power generation in anticipation of economic prosperity for the nation.

## **ii The regulatory and consenting framework**

### ***Federal Ministry of Power***

The Federal Ministry of Power is the administrative arm of the federal government responsible for coordinating the power sector agencies to achieve policy directions. Recent actions of this ministry indicative of its favouring of renewable energy include the 10-year concession awarded to Proserve Energy Services Limited to generate a 750kW solar power supply system to further facilitate renewable energy and decarbonisation.

### ***NERC***

The NERC was established in 2005 under the Electricity Power Sector Reform Act 2005 (EPSRA).<sup>23</sup> The NERC can basically be regarded as the administrative-technical arm of the Federal Ministry of Power. It has been conferred with the authority to grant and revoke electricity distribution licences and permits.<sup>24</sup> Its overriding mandate is to ensure that electricity is available to consumers. Under the NERC, the Nigerian Electricity Regulation

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21 Patrick Mulyungi, 'Nigeria to electrify 304 health care facilities and schools with renewable energy' (2021) <https://constructionreviewonline.com/news/nigeria/nigeria-to-electrify-304-health-care-facilities-and-schools-with-renewable-energy/> (accessed 29 May 2021).

22 Yemi Oke, 'Energy Law Nigeria' (2020) in *IEL Energy Law* pp. 1–216 (Kluwer Law International BV, Netherlands).

23 EPSRA, Section 88. The NERC was established under the act as a body corporate with perpetual succession that can sue and be sued in its own corporate name.

24 NERC Act, Sections 7 to 12.

2012, the Mini-grid Regulations 2017 and the Renewable Energy Feed-in Tariff Regulations 2015 were enacted to increase the renewable power supply with a particular focus on clean electricity generation and distribution.<sup>25</sup>

### ***Federal Ministry of Environment***

This ministry was the initiator of the Renewable Energy Programme in 2016, which aimed at drawing collaborations and financial and human resource capital towards achieving Nigeria's renewable energy plans in accordance with the United Nations Framework on Climate Change. This is also the ministry in charge of reviewing and issuing certificates for environmental impact assessments.

### ***National Environmental Standards and Regulations Enforcement Agency***

The National Environmental Standards and Regulations Enforcement Agency (NESREA) was established in 2007 to protect the environment, with a mandate to enforce compliance with environmental laws as well as to promote the sustainable use and development of natural resources in Nigeria, with the goal of maintaining environmental standards and minimising pollution. In this regard, the NESREA (Electrical/Electronics Sector) Regulations 2011 were also enacted.<sup>26</sup>

### ***Nigerian Electricity Management Services Agency***

The Nigerian Electricity Management Services Agency (NEMSA) seeks to promote efficient distribution of electricity throughout the country, although its particular focus is on the technical standards of operating and distribution plants. The NEMSA collaborates with the Standards Organisation of Nigeria (SON) to stipulate and enforce standards for electrical materials.

### ***Energy Commission of Nigeria***

The Energy Commission of Nigeria was established under the Energy Commission Act in 1979, although reformed in 1988 and 1989. The commission generally formulates policies and makes recommendations to the government on energy development and distribution in Nigeria.<sup>27</sup>

### ***Transmission Company of Nigeria***

The Transmission Company of Nigeria is the body responsible for the transmission of electricity in Nigeria, in collaboration with other stakeholders and market players. It focuses on the transmission network across the country.

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25 Jama Onwubuariri, 'Reviewing the Legal Framework for Renewable Energy Projects in Nigeria'; Michael Dioha, 'Nigeria's Renewable Energy Policy: A Fantasy or Reality?' (2018) *Renew Energy World*.

26 NESREA (Establishment) Act, Section 34.

27 The Energy Commission of Nigeria came to being through the enabling Act No. 62 of 1979, as amended by Act No. 32 of 1988 and Act No. 19 of 1989.

### ***Nigerian Bulk Electricity Trader***

The Nigerian Bulk Energy Trader is authorised to bulk purchase electricity and resell or contract with the power distribution companies (discos) and other electricity market operators for distribution throughout Nigeria.

### **iii The legal framework**

The following pieces of legislation provide the framework for the operation of renewable energy in Nigeria, and are further determined by the policy and enforcement outlook.<sup>28</sup>

### ***Constitution of the Federal Republic of Nigeria***

The Constitution of the Federal Republic of Nigeria (the Constitution) vests lawmaking powers for electricity generation and transmission across Nigeria on the National Assembly. Significantly, the damming of water sources within Nigeria for hydropower generation and the establishment of renewable energy power plants in Nigeria are chiefly under federal jurisdiction.<sup>29</sup> However, the Houses of Assembly of the states are allowed to make electricity laws that extend to areas within their states not covered by the national grid system or to regulate power stations established by the states in this regard.<sup>30</sup>

### ***EPSRA***

The EPSRA was promulgated in 2005 as a response to the erratic performance of the National Electric Power Authority (NEPA).<sup>31</sup> The EPSRA therefore terminated the mandate of the NEPA and repealed its enabling law, replacing it with the NERC.<sup>32</sup> The EPSRA provides robust and reformatory stipulations on competition, consumer protection, licensing, generation and transmission of power in Nigeria.<sup>33</sup>

The Rural Electrification Fund was also established under the EPSRA and the proceeds from the fund are to be equitably administered by the REA to ensure more equitable access to electricity for all, especially in rural areas where indigenous peoples utilise firewood, coal and fuel for energy, including for cooking and domestic use.

### ***Environmental Impact Assessment Act 1992***

The Environmental Impact Assessment Act 1992 seeks to forestall the negative impacts of activities on the environment, including power generation and extraction. As at the time of its enactment, hydrocarbons constituted (and still constitute) a major source of energy for Nigeria, the generation and extraction of which had negative environmental impacts. The enactment of the Environmental Impact Assessment Act 1992 mandates project managers and parties to examine the likely impact of their activities on the environment before

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28 Chioma V Basil Esq, 'Renewable Energy Deployment in Nigeria' (2021) *Michaelmas Chambers Publication*.

29 Constitution, Schedule 2, Part II Item 13.

30 Constitution, Schedule 2, Part II, Item 14 (a)–(c).

31 Helen Obioma, 'Implications of Legal Reform in the Nigerian Power Sector' (2016) Volume 10(3) *African Research Review*.

32 David Oloke et al., *Barriers for Implementing Solar Energy Initiatives in Nigeria: An Empirical Study* (2021) (Emerald Publishing Limited).

33 EPSRA, Sections 25 to 30, 62.

undertaking them. Under the current Guidelines 2017,<sup>34</sup> a power-generating company or developer will be required to submit its environmental impact assessment to the Federal Ministry of Environment and obtain permission or a licence to proceed with the project.

### ***NEMSA Act 2015***

The NEMSA Act 2015 seeks to enforce and maintain standards in power distribution. The NEMSA carries out technical inspections and testing for electrical materials. The standards are stipulated by the NERC in collaboration with the SON.

In the judicial arena, there is minimal enforcement of the plethora of environmental laws in Nigeria as the case law seeking to promote renewable and clean generation of power has usually been focused on petroleum activities. This is further crippled by technical principles such as cause of action, the doctrine of ripeness and *locus standi*.<sup>35</sup> An ordinary citizen is therefore discouraged from approaching the court to enforce the environmental laws where he or she is not directly and personally affected more than other citizens. Although recent decisions by the Nigerian Supreme Courts seem to reverse this strict reasoning, there is still yet to be an express opening of the court's doors.

In cases such as *Centre For Oil Pollution Watch v. Nigerian National Petroleum Corporation*,<sup>36</sup> the court reiterated the need to switch from the carbon-polluting mindset. Also, in the case of *Amadi & Ors v. Essien*, the court affirmed the enforceability of electricity regulation in Nigeria.<sup>37</sup> Finally, in the case of *Barr Mike Kpemi v. Benin Electricity Distribution Company PLC*, the court enforced the claimant's right to an electricity meter for the supply of electricity to his household.<sup>38</sup>

### ***Climate Change Act 2021***

The Climate Change Act 2021 provides the framework for achieving low greenhouse gas emissions. Moreover, it ensures that climate change policies and actions are integrated with other related policies for promoting socio-economic development and environmental integrity. It also ensures that private and public entities comply with stated climate change strategy targets and the National Climate Change Action Plan. The National Climate Action Plan is expected to be formulated every five years and aimed at identifying activities to ensure that the national emission profile is consistent with carbon budget goals.

## **IV RENEWABLE ENERGY PROJECT DEVELOPMENT**

### **i Project finance transaction structures**

Although the renewable energy sector in Nigeria is still at a nascent stage, there has been considerable growth especially in the execution of renewable energy projects. Due to the high capital expenditure that these projects require, generation of finance in this regard always

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34 Environmental Impact Assessment Act 1992 Section 2, Paragraph 3 of the Guidelines 2017.

35 A Fagbemi, 'Environmental Litigation in Nigeria: The Role of the Judiciary' (2019) Volume 10 (2) *Nnamdi Azikiwe University Journal of International Law*.

36 [2019] 5 NWLR (Pt 1666) 518, See also *Momoh v. Adedoyin* (2018) 12 NWLR (Pt 1633) 34 CA at p. 378, paragraphs C–E where the court advocated that we eschew technicalities.

37 (1993); 7 NWLR (Pt 354) 91 at 112.

38 Unreported Suit No. AK/94/2019.

seems to be a Herculean task. Financing may usually involve international, regional or local investments, grants and public–private partnerships, which may involve the state or federal governments of Nigeria.<sup>39</sup>

### **Grants**

Grants in renewable energy are like financial rewards usually given by governments and international organisations for the execution of projects. Generally, grants do not include financial implications such as loans or loan guarantees, interest rate subsidies, revenue sharing and so on.<sup>40</sup> Some other examples include the United States African Development Foundation (USADF)<sup>41</sup> or the Sustainable Energy Fund for Africa by the African Development Bank.<sup>42</sup>

### **Concessional loans**

Concessional loans are financial advances made below market interest rates and usually include a moratorium period within which the loan recipient is not mandated to repay the debt. Some examples in this regard include the Green Energy Fund Programme (a brainchild of the African Guarantee Fund), the Central Bank of Nigeria intervention loan and the Six Billion Naira Solar Energy Fund of the Nigerian Bank of Industry.<sup>43</sup>

### **Venture capital**

Venture capitalists are key players in Nigeria. Although Nigeria lacks a developed venture capital structure to cater for its renewable energy needs, there are interventions found here and there.<sup>44</sup> In 2019 for example, RENsource Energy raised US\$20 million in an equity financing round led together by existing investors CRE Venture Capital and the Omidyar Network, with participation from Inspired Evolution, Proparco, EDPR, I&P, Sin Capital and Yuzura Honda.<sup>45</sup> This enabled the company to finance its construction of solar solutions for small- and medium-scale businesses in the Sabon Gari market.<sup>46</sup> Subsequently in June 2019, Arnergy Solar, a Nigerian power start-up, raised US\$9 million and has, since its launch, delivered 2MW of installed capacity as well as over 5MWh of storage capacity to business and residential clients across Nigeria.<sup>47</sup>

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39 A recent public–private partnership is the 73km Solar Street Light project between Blue Camel Energy Limited and the Plateau (Jos) State Government, Nigeria. See Y Suleiman (2019) ‘Interview on Jos Solar Street Light Project’.

40 See [www.investopedia.com/terms](http://www.investopedia.com/terms) (accessed 7 June 2021).

41 See [www.gogla.org/usadf-all-on-open-2020-edition-of-100000-energy-challenge](http://www.gogla.org/usadf-all-on-open-2020-edition-of-100000-energy-challenge) (accessed 7 July 2021).

42 See [www.afdb.org/en/topics-and-sectors/initiatives-partnerships/sustainable-energy-fund-for-africa](http://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/sustainable-energy-fund-for-africa) (accessed 7 June 2021).

43 See [www.boi.ng/solar-energy/](http://www.boi.ng/solar-energy/) (accessed 5 June 2021).

44 Abdulrasheed Isah, ‘A Tale of Two Countries: Financing Renewable Energy in Nigeria and Brazil’ (2019).

45 See [www.theafricareport.com/21981/nigeria-attracts-29m-in-green-equity-finance/](http://www.theafricareport.com/21981/nigeria-attracts-29m-in-green-equity-finance/) (accessed 5 June 2021).

46 M Mataluko, ‘Renresource raises \$3.5 m to take affordable renewable energy to more Nigerians’ (2018) <https://techpoint.africa/2018/01/30/renresource-raises-3-5m/> (accessed 5 June 2021).

47 See [www.theafricareport.com/21981/nigeria-attracts-29m-in-green-equity-finance/](http://www.theafricareport.com/21981/nigeria-attracts-29m-in-green-equity-finance/) (accessed 5 June 2021).

### ***Reduction in import duties***

As discussed in a later part of this chapter, there exist fiscal incentives aimed at encouraging the importation of renewable energy equipment as Nigeria does not yet manufacture this equipment domestically. One of the incentives is zero duties on solar panels with diodes.<sup>48</sup> Generally, the Central Bank of Nigeria, in managing foreign exchange reserves, restricts foreign exchange at official rates to importation of certain goods and services, which is cheaper for importers. This does not affect solar products as they qualify for foreign exchange at Central Bank of Nigeria rates. Therefore, the Renewable Energy Association of Nigeria, the largest group of renewable energy enterprises, has called for a complete tax waiver on renewables for the purpose of encouraging growth and creating healthy competition in the renewable energy space.<sup>49</sup>

The principal participants in renewable project finance are:

- a* multilateral institutions and donors;
- b* public development banks (banks of industry);
- c* government finance;
- d* development financial institutions;
- e* multilateral development banks;
- f* commercial banks; and
- g* impact investors such as the USAID.

### ***Green bonds***

Green bonds are regarded as an innovative and alternative way of raising finance flow towards low-carbon, climate-resilient opportunities. A distinct feature of green bonds is that their proceeds are used solely to finance or refinance environmentally friendly projects, such as renewable energy.<sup>50</sup>

The green bonds market creates an opportunity to increase the profile of green projects in Nigeria, and provide a platform for the government to raise local and international funds.<sup>51</sup>

## **V DISTRIBUTED AND RESIDENTIAL RENEWABLE ENERGY**

Distributed renewable energy generation implies generation of electricity from renewable energy sources such as solar, wind, hydro and biomass near the point of use instead of centralised generation sources such as the national grid.<sup>52</sup> Distributed energy resources can include solar panels, combined heat and power plants, electricity storage and small natural

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48 Excluding solar cells and other components used in the manufacture or assembly of solar modules. See [www.ace-taf.org/wp-content/uploads/2020/01/ACE-NIGERIAN-IMPORTATION-GUIDE-2019122001.pdf](http://www.ace-taf.org/wp-content/uploads/2020/01/ACE-NIGERIAN-IMPORTATION-GUIDE-2019122001.pdf) (accessed 5 June 2021).

49 Offgrid Nigeria, 'Customs slowing down the growth of solar power in Nigeria with arbitrary port charges' (2018) [www.offgridnigeria.com/customs-slowing-down-growth-solar-power-nigeria-arbitrary-port-charges-rean/](http://www.offgridnigeria.com/customs-slowing-down-growth-solar-power-nigeria-arbitrary-port-charges-rean/) (accessed 5 June 2021).

50 See [tnp.com.ng/insights/green-bonds-and-the-emergence-of-sustainable-finance-in-the-nigerian-capital-market/](http://tnp.com.ng/insights/green-bonds-and-the-emergence-of-sustainable-finance-in-the-nigerian-capital-market/) (accessed June 2022).

51 See <https://climatechange.gov.ng/nigeria-green-bonds/> (accessed 8 June 2022).

52 See [www.energy.gov/eere/slsc/renewable-energy-distributed-generation-policies-and-programs](http://www.energy.gov/eere/slsc/renewable-energy-distributed-generation-policies-and-programs) (accessed 5 June 2021).



gas-fuelled generators, among other things. Interestingly, Nigeria has massive solar energy potential, which happens to be the more developed and explored aspect of renewable energy resources in Nigeria presently.<sup>53</sup>

Lumos is one of the country's leading solar firms that sell self-contained solar facilities to residential units, thus providing relative ease of access to clean energy. Other distributed renewable energy firms in Nigeria include Arnergy, Astrum Energy and many others.

#### **i Solar power purchase agreement**

This is a financial arrangement whereby the customer allows a third-party developer to own, operate and maintain the PV system on its property, and purchases the system's electric output over an agreed period of time. In other words, the host customer buys the services provided by the PV and not the PV system itself. It shifts the burden of installation and high capital upfront, and even produces a cash flow to the host customer.<sup>54</sup>

#### **ii Outright payment**

In this arrangement, the customer pays for the solar system installation outright and owns it. Sometimes, this will come at a discounted price.<sup>55</sup>

#### **iii Lease to own**

Under this arrangement, the customer pays a fixed monthly payment to the installer but does not own the solar panel. Essentially, the solar installer will work with a separate leasing company to offer a solar lease.<sup>56</sup> Some energy providers partner with certain financial institutions to provide consumer credits to customers who need their services. On the other hand, cooperative societies have the option of paying off the cost of the entire system while the customers repay over a long period of time.<sup>57</sup>

#### **iv Pay as you go**

This arrangement allows customers to pay for solar energy in weekly instalments or whenever they can. In other words, they pay modest amounts to purchase time units to access solar electricity instead of paying upfront for the entire solar lighting structure.<sup>58</sup>

## **VI RENEWABLE ENERGY SUPPLY CHAINS**

The renewable energy supply chain generally caters for the processes involved in the generation and distribution of renewable energy. This would usually start from the point of acquisition or captivation to accumulation, conversion, transmission and distribution for use by the end consumer.

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53 See [www.epa.gov/energy/distributed-generation-electricity-and-its-environmental-impacts](http://www.epa.gov/energy/distributed-generation-electricity-and-its-environmental-impacts) (accessed 4 June 2021).

54 See [www.epa.gov/greenpower/solar-power-purchase-agreements](http://www.epa.gov/greenpower/solar-power-purchase-agreements) (accessed 4 June 2021).

55 See <https://astrumenergy.com.ng/payment-options/> (accessed 4 June 2021).

56 See [www.solarreviews.com/blog/solar-lease-everything-you-need-to-know](http://www.solarreviews.com/blog/solar-lease-everything-you-need-to-know) (accessed 4 June 2021).

57 *ibid.*

58 See [https://energypedia.info/wiki/Pay-as-you-go\\_Approaches\\_\(PAYGO\)](https://energypedia.info/wiki/Pay-as-you-go_Approaches_(PAYGO)) (accessed 4 June 2021).

From a legal perspective, regulations are put in place to ensure equitable utilisation and distribution of electricity. The NERC regulates this sphere and it is mandated to do so in an equitable and competitive manner. With respect to feeding the supply chain, there are various licences in place to ensure steady motion. In this regard, there are various types of licences that are procured depending on the nature or stage of renewable energy participation and distribution. An applicant will essentially need to determine the necessary category of licensing that a proposed activity falls into.

**i The generation licence**

This licence applies to the generation stage of the supply chain and authorises the generation of electricity. However, one would have to determine whether such generation will be for the purpose of private or individual use (off grid) or for public use (on grid), or for utilisation jointly with a licensed generator or distributor.<sup>59</sup>

**ii The transmission licence**

This licence applies to the transmission stage of the supply chain. The transmission licence, as its name implies, authorises the operation and maintenance of a transmission system or facility within Nigeria. This stage of the supply chain is usually handled by the Transmission Company of Nigeria. Such transmission usually involves movement of power in bulk from the generating site to the national grid prior to general distribution.

**iii The distribution licence**

This licence authorises a licensee to distribute generated electricity from grid supply points directly to the general consumers. Since the introduction of the EPSRA, this is where the discos usually come in. There are currently 11 discos servicing the 36 states of Nigeria and classified based on their region or sphere of distribution. Their role is usually to bring electricity to homes.

**iv The trading licence**

This licence authorises the licence holder to deal in the purchase and sale of the available electricity to consumers.

**v Captive generation licence**

This licence is issued to persons generating less than 1MW of electricity. This means the electricity is merely generated in a renewable way and is not sold to a third party, meaning that it is for personal use.

There is no doubt that the key factor in any good supply chain should be sustainability,<sup>60</sup> which can be facilitated by liberalisation, competition, and adequate communication and empathy between all stakeholders involved.

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59 See <https://rea.gov.ng/nigerian-mini-grid-market-opportunities-investment/> (accessed 5 June 2021).

60 F Jelti, A Allouhi, MS Büker, R Saadani, A Jamil, 'Renewable Power Generation: A Supply Chain Perspective' (2021) Volume 13, 1271 *Sustainability*.

## vi Tariffs

The tariffs available offer:

- a* pioneer (tax exemption) status for energy companies for the first three years, renewable for another two years;
- b* a generous capital allowance for investments in infrastructure and raw materials;
- c* zero tax on repatriation of profits (to encourage foreign participation and interest);
- d* a duty allowance for imports and exports of renewable machinery and materials;
- e* free custom duties for two years on the importation of equipment and materials used in renewables and energy efficiency projects;<sup>61</sup> and
- f* availability of loans and funds to project developers of renewable energy.

The tariffs are not automatic and usually have to be applied for or claimed during the tax computation.

## VII CONCLUSIONS AND OUTLOOK

As a sequel to Nigeria's participation in the Paris Agreement on Climate Change, there has been increased attention on the desirability and possibility of increasing power generation through renewable energy sources, thus meeting Nigeria's intended nationally determined contribution 2030 target to mitigate climate change.<sup>62</sup> Nigeria's renewable energy strategy in this regard includes solar power generation and a decrease in the predominant use of fossil fuel-burning generator sets.<sup>63</sup>

The renewable energy attitude is complemented by international donors (such as the USAID and the World Bank) and local visionaries (such as Zolar Electric and Arnergy Solar Limited) that have invested in renewable energy in Nigeria. It is hoped that the investments will be reflected and enforcement will be complemented by wider adoption of renewable energy.

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61 National Renewable Energy and Energy Efficiency Policy.

62 Dele Faseemo, 'Benefits of Renewable Energy Adoption in Nigeria Endless' *The Guardian Nigeria* (2021) <https://guardian.ng/interview/benefits-of-renewal-energy-adoption-in-nigeria-endless/> (accessed 31 May 2021).

63 Peter Hansen, 'Nigeria's Energy for All Solar Power Plan', *Climate Scorecard Nigeria* (2021) [www.climate-scorecard.org/2021/04/nigerias-energy-for-all-solar-power-plan/](http://www.climate-scorecard.org/2021/04/nigerias-energy-for-all-solar-power-plan/) (accessed 30 May 2021).

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