

THE RENEWABLE
ENERGY LAW
REVIEW

THIRD EDITION

Editor
Karen B Wong

THE LAWREVIEWS

THE RENEWABLE ENERGY LAW REVIEW

THIRD EDITION

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PREFACE

When the first edition of *The Renewable Energy Law Review* launched in 2018, renewable energy made up approximately 26.2 per cent of electric generation globally and has increased to nearly 28 per cent in the first quarter of 2020. Similarly to the renewable energy sector, which has grown steadily, this compendium has also grown and now covers 19 jurisdictions in this third edition.

The renewable energy industry at the time I worked on my first transaction in 1987 was nascent and relatively tiny when compared to the conventional power industry. Fast forward 33 years and, in 2020, it is projected that renewable energy will comprise 80 per cent of the new energy capacity in the United States. According to statistics published by Smart Energy International, renewable energy projects accounted for 176GW of energy capacity globally and over 70 per cent of new capacity globally in 2019, with wind and solar projects accounting for 90 per cent of that new capacity.

Since the ‘early days’ of renewable energy projects, it has been incredibly satisfying to see the exponential worldwide growth that has taken place over the past several decades. As a US-based partner at Milbank practising in the energy industry, I see different political environments, tax and other incentives in place in our 50 states and, having worked on multiple international projects on four different continents, I know that the regimes across the world are equally unique. This compendium has been formulated to provide you with a good overview of the legal framework and current status and challenges in structuring, financing and investing in renewable energy projects in the selected jurisdictions.

Whether you are already active in this sector or merely interested in learning more about the policies, legal structures and state of play in the renewable energy industry globally or in a particular country, I hope that this guide will aid you in your efforts as a participant in an exciting and continually expanding industry.

Karen B Wong

Milbank LLP

Los Angeles

July 2020

NIGERIA

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Olufolasewa Sulaimon¹*

I INTRODUCTION

i Overview of renewable energy project development and law

Power generation in Nigeria is mainly from hydro and gas-fired thermal power plants, with the hydro plants providing 2,380MW (approximately 16.7 per cent of the total generation capacity) and the thermal plants 10,142MW (approximately 83.3 per cent of the total generation capacity).²

However, challenges such as insufficient gas infrastructure and weak electricity infrastructure have impeded the growth of the Nigerian power sector and necessitates the need to supplement gas-fired power plants with renewable energy, and on-grid power with off-grid renewable solutions. The Nigerian renewable energy market, however, remains largely in its nascent state, although renewable energy project development has been ongoing in Nigeria for nearly two decades. Nevertheless, there has been significant traction in the past 10 years owing to increased awareness, funding activities and the involvement of development finance institutions and non-governmental institutions, as well as government participation through the Rural Electrification Agency (REA). Nigeria becoming a signatory to the Paris Agreement on climate change has also provided momentum in the development of renewable energy projects, as the country aims to achieve its nationally determined contribution and its vision of attaining 30,000MW of electricity by 2030, with 30 per cent from renewable energy sources.

Historically, Nigeria's main source of renewable energy has been hydropower plants. Over the years, this has gradually evolved to include other sources such as solar – predominantly through small solar street-lighting projects and the current trend for distributed energy or stand-alone solutions. This progressive shift has led to the emergence of small-scale solar solutions for residential, commercial and even industrial users, including banks (solar-powered automated teller machines (ATMs)), petrol stations and mini grids.

In a bid to support the efforts of the Nigerian government and the private sector, international development finance institutions (DFIs), such as the United States Agency for International Development (USAID), the UK Department for International Development (DFID), and GIZ³ under its Nigeria Energy Support Program (NESP), have contributed to the growth of renewable energy development in Nigeria.

1 Dolapo Kukoyi is a partner, Uyiosa Oigiagbe and Muriel Cookey are associates and Adeniyi Amodu and Olufolasewa Sulaimon are solicitors at Detail Commercial Solicitors.

2 <https://www.usaid.gov/powerafrica/nigeria>.

3 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is a provider of international cooperation services for sustainable development and international education work.

In the second phase of the NESP, which commenced in January 2019, GIZ provides one-off partial capital in-kind grants, in the form of electricity supply equipment, to selected bidders to design, construct, commission, operate and maintain isolated and interconnected mini-grids across the six geopolitical zones in Nigeria. The REA in collaboration with GIZ announced local mini-grid companies who have been selected as preferred bidders for the Interconnected Mini-Grid Acceleration Scheme in March 2020 (see Section II.iii).

Similarly, between October 2019 and December 2019, the REA commissioned solar-hybrid mini-grid power plants in Rokota in Niger State and Akpabom in Akwa Ibom. The NESP also provides support to the Nigerian Electricity Regulatory Commission and other relevant agencies in developing regulations and guidelines to promote accelerated development of renewable energy projects.

The outbreak of covid-19 has also occasioned accelerated developments of renewable energy projects for powering various healthcare facilities across the country.

Currently, through its Nigeria Off-Grid Energy Challenge, All On in partnership with the US African Development Foundation intends to support existing or new renewable energy projects by providing seed capital and convertible debt to enable renewable energy developers reach communities not served by the national grid, while also providing technical assistance and governance support to beneficiaries. Capital supports of this nature and the increased participation of some commercial banks has allowed an increase in the number of off-grid renewable energy activities in Nigeria; for instance, Sterling Bank partnered with Zola Electric to make distributed renewable energy accessible to Nigerian businesses and households requiring constant and reliable power supply.⁴

In addition, there has also been a rise in investments in renewable energy companies by international venture capital firms. In 2019, Arnergy Solar Limited closed a US\$9 million Series A funding round led by Breakthrough Energy Ventures with participation from Norfund, the Norwegian Investment Fund for developing countries, EDFI Management Company and All On.⁵ Similarly, Rensource, a Lagos-based renewable energy company providing power-as-a-service recently raised US\$20 million through Series A funding to offer additional services.⁶

Furthermore, the US government through the USAID Power Africa programme supports the development of the energy sector through credit enhancements, grants, technical assistance and investment promotion efforts. To date, over US\$700,000 in grants has been awarded to entrepreneurs for innovative, off-grid energy projects in Nigeria.

In the fourth quarter of 2018, the World Bank, in collaboration with the federal government and the REA, commenced the Nigerian Electrification Project (NEP). The project is a US\$350 million facility from the World Bank to the Nigerian government for off-grid development, with the objective of increasing electricity access for households, for micro, small and medium-sized enterprises (MSMEs), and for students and patients at federal universities and university teaching hospitals throughout Nigeria. NEP has four components: solar-hybrid mini-grids for rural economic development; stand-alone solar systems for homes, farms and enterprises; power systems for public universities and teaching hospitals; and technical assistance.

4 https://www.allon.com/media/publications/_jcr_content/par/textimage_1943192789.stream/1560239896557/8df5c9fbfccfa74ffa52c28a4ccd4ef6d90e26b/the-nigerian-energy-report-updated.pdf.

5 <https://businessday.ng/energy/article/arnergy-raises-9m-via-series-a-financing-to-boost-energy-reliability/>.

6 <https://techpoint.africa/2019/12/18/rensource-secures-20-million-series-a/>.

ii Key trends in the Nigerian renewable energy market

The following are recent trends in the renewable energy market over the past couple of years.

Increasing access to power via renewable energy solutions

An estimated 27.9 million households and 10.6 million MSMEs have a critical need for access to electricity in Nigeria.⁷ With this demand projected to nearly double in the next 10 years, amid rising population density and more consumers having to rely on self-generation using firewood, kerosene, petrol and diesel to supplement their power needs, access to proven and cost-effective solutions are more crucial than ever. With reliance on alternatives (primarily diesel generators) coming at a high cost, consumers (both residential and commercial) are seeking cleaner and cheaper energy sources to supplement their power needs. This has led to the emergence in Nigeria of a number of businesses and non-profit organisations focused on developing projects and products aimed at increasing access to power for homes, communities and businesses.

Activities of non-profit organisations and pressure groups

Both local and international non-profit non-governmental organisations (NGOs) and pressure groups have over the years played a prominent role in promoting the development of renewable energy in Nigeria. These NGOs have been able to support the growth of the sector through capacity-building, provision of financing, and promoting public awareness.

Activities by All On

All On Partnerships for Energy Access Limited (All On) is a Nigerian off-grid energy investment company that, among other services, provides risk capital, project development support and funding to energy companies in the form of equity investment and grants. Some of the prominent projects All On has engaged in include investing in Lumos Global BV, a global off-grid solar company operating in Nigeria, and the provision of equity and debt funding to Green Village Electricity, Nigeria's leading mini-grid player, for expansion.

All On in partnership with the US African Development Foundation (USADF) developed the Nigeria Off-Grid Energy Challenge, which seeks to provide seed funding and debt required to develop, scale up or extend the use of renewable off-grid energy technologies to reach communities not served by existing power grids. Through the Challenge, USADF provides each of the selected energy enterprises with US\$50,000 in grant seed capital while All On provides \$50,000 in convertible debt. In addition to funding, the beneficiaries will also receive technical assistance from USADF's local Nigerian technical partner Diamond Development Initiatives (DDI) and governance support from All On. Winners of the Challenge announced in December 2019 include: Sholep Energy Limited, Protergia Energy, Entric Power Systems Limited and Acob Lighting Technology Limited, who will deploy solar-powered mini-grids in underserved areas of the country; Pirano Energy Limited and ICE Commercial Power, who will deploy stand-alone solar energy systems; SOSAI Renewable Energies Company and Nexgen Energy & Allied Services Limited, who will focus on energy for productive agricultural use; and, finally, Greenage Technologies Power Systems Limited, who will provide locally made power storage and inverter solutions.

⁷ 'Nigeria: Energy needs assessment and value chain analysis' (2017), published by All On Partnerships for Energy Access Limited.

Activities by the NESP

In a bid to support clean energy investments in Nigeria, the NESP was created in 2013 with funding from the European Union (EU) and the German Federal Ministry for Economic Cooperation and Development. Since its inception, the NESP has supported: policy development by collaborating with the federal government to establish a clean energy department at the federal Ministry of Power; rural electrification by developing the Mini-Grid Regulation subsequently issued by the Nigerian Electricity Regulatory Commission (NERC); and capacity development through its training courses in partnership with the National Power Training Institute of Nigeria, particularly in rural regions of Nigeria. The NESP further promotes the development of mini-grids in underserved and unserved areas in Nigeria by providing in-kind capital grants to mini-grid developers.

The NESP had an initial phase running from 2013 to 2018. During this phase, the NESP supported measures to promote renewable energy and energy efficiency, as well as investments in these areas. The programme was being implemented with the aid of co-financing from the European Union (EU) to the amount of €20 million. The results achieved during the initial phase include the following:

- e Nearly 16,000 people have gained access to solar power in rural areas. A total of 3,147 households in five different states have been provided with environmentally friendly power using six off-grid village electricity plants (referred to as mini-grids) funded by public-private partnerships. A further 100,000 people are to be provided with environmentally friendly electricity by 2020.
- f Eleven laws and regulations have been introduced, including, for example, the national directive for renewable energy and energy efficiency, a mini-grid regulation, a building energy efficiency code and an energy efficiency label for household appliances.
- g More than 600 people have taken part in training courses on photovoltaics and mini-grid design. Particular attention has been paid to gender equality, with 33 women receiving grants for the above-mentioned training courses and a further 74 women being trained in local energy advisory services (known as energy audits).

The second phase of the NESP, which commenced in December 2017 and is expected to run until March 2021, is focused on supporting Nigeria in utilising the potentials of energy efficiency, integrating renewable energy into the grid and further scaling up of rural electrification. The overarching aim is targeted at the provision of reliable, affordable and sustainable energy for the Nigerian people. This includes provision of energy to disadvantaged parts of the population that have not had access to modern energy services before. The NESP II implements a multilevel approach by combining advisory guidelines on energy policy, economy and technical knowledge for a wide range of stakeholders.

Nigeria Electrification Project

The Nigeria Electrification Project (NEP) is a joint programme developed by the REA and the World Bank and is designed to promote investment in off-grid energy developments by providing subsidies and performance-based grants to developers. The programme has the following objectives:⁸

- a to increase electricity access to households and MSMEs;

⁸ <https://rea.gov.ng/nigeria-electrification-project-nep/>.

- b* to provide clean, safe, reliable and affordable electricity through renewable power sources to unserved and underserved rural communities;
- c* to develop a data-driven off-grid model for Nigeria that will become an exemplar for sub-Saharan Africa; and
- d* to provide a reliable power supply for 250,000 MSMEs and 1 million households.

Also, as part of the NEP, the federal government has borrowed US\$105 million from the World Bank to support Phase II of the Energizing Education Programme, which aims to provide seven federal universities and two teaching hospitals with reliable, affordable and sustainable electricity through the construction of solar-hybrid captive power plants.⁹

Front-runner solar power purchase agreements

In 2016, Nigerian Bulk Electricity Trader (NBET), for the first time, signed power purchase agreements (PPAs) valued at US\$2.5 billion with 14 developers to purchase 1,125MW of solar energy, to be provided to the national grid.

Unfortunately, since the agreements were signed, progress in the execution of the project has been slower than expected because of various issues, including inconsistencies in agreements on tariffs between project developers, NBET and the Federal Ministry of Finance, who would be backstopping the put–call option agreements (PCOA), and on indemnities issued by the federal government. The degree of insolvency in the sector has affected the willingness of the World Bank to provide Partial Risk Guarantees (PRGs) (though a number of projects had been nominated), which are required by both equity and debt providers. This has also delayed the flow of concessionary financing required by these projects, given the high costs and patient capital required. As at June 2020, no agreement has yet been reached between the federal government and any of the developers. We also note that NBET is not signing any new PPAs at present.

State government initiatives

In December 2018, Kaduna state government signed a memorandum of understanding with a clean energy development company in connection with the development of a 30MW solar photovoltaic (PV) plant.¹⁰ Nasarawa state government also signed a PPA with Kuber Power Limited in connection with the proposed development of a 200MW solar power generation plant in the state's capital city.¹¹ The proposed 200MW solar power plant, upon completion, is expected to be one of the biggest solar power plants in Africa.

The Oyo State government has also commenced discussions with Triton Solar and Silicon Valley Nigeria Economic Development Inc for the development of solar plants to provide electricity to 2,000,000 households.¹² In addition, the Oyo State government has revealed that it is set to install all-in-one solar powered lights at palaces, hospitals and major markets throughout the local government areas in the state.¹³

9 <https://rea.gov.ng/EEP-PhaseII-Stakeholder-World-Bank.pdf>.

10 <https://nipc.gov.ng/2018/12/12/kaduna-state-to-develop-30mw-solar-pv-plant/>.

11 <https://www.nasarawastate.gov.ng/biggestsolar.php>.

12 <http://africaincmag.com/2020/01/10/2-million-households-set-to-benefit-from-oyo-state-triton-solar-green-energy-project/>.

13 <https://oyostate.gov.ng/oyo-govt-to-install-solar-powered-lights-at-palaces-hospitals-major-markets/>.

Influx of solar lighting and cooking appliances, home systems and stand-alone solutions

The Nigerian energy space has in recent years experienced an influx of solar stand-alone solutions – the most prominent of these being the Lumos Smart Solar System, which launched successfully in 2016. MTN Lumos, which is a partnership between MTN, Nigeria's largest mobile network, and renowned solar experts Lumos, has attracted over US\$40 million in foreign investment. Also, in 2016, Arnergy Solar Limited introduced the Arnergy Solar Rental Systems, designed to provide electricity for rent to consumers in off-grid communities.

In 2017, the Azuri Quad off-grid solar technology was launched as a solar programme in partnership with the Niger Delta Power Holding Company, a company fully subscribed to by the government to deliver 20,000 solar home systems to rural households living without electricity.

In January 2019, the Rural Electrification Fund implemented by the REA signed agreements for the disbursement of a grant of 1.9 billion naira for the execution of mini-grid and solar home power projects in rural communities, with 26 firms expected to deliver these projects by 2020.¹⁴

iii Role of government agencies and authorities in fostering the development of renewable energy projects

Government participation in the Nigerian renewable energy market has been minimal, limited mostly to making policies intended to encourage renewable energy project development. However, in 2016, the then Minister of Power, Works and Housing, Babatunde Fashola, released a Road Map for Steady, Incremental and Uninterrupted Power Supply, which reinforced the government's readiness to actively participate in renewable energy projects and to increase generation capacity in the country by the use of renewable energy sources, including solar, wind and hydro. One of the planned projects under the road map includes a 10MW wind farm project to be located in Katsina State.

Also, in 2016, the National Council on Power approved the National Energy Efficiency Action Plans, which set out the strategy for achieving Nigeria's electricity vision of attaining 30,000MW of power by the year 2030 with at least 30 per cent renewable energy in the electricity mix. If the government, relevant agencies and stakeholders follow through with these plans, the renewable energy market in Nigeria will experience unprecedented growth.¹⁵

In 2017, the federal government with the assistance of the World Bank Group developed the Power Sector Recovery Program (PSRP), a policy initiative aimed at improving the reliability of the power sector in a bid to boost Nigeria's economic prosperity. In February 2019, the federal government released a restatement of the PSRP, re-emphasising its commitment to, among other things, implementing off-grid renewable energy solutions aimed at providing electricity supply to rural communities. Renewable energy development initiatives have been undertaken by the following government agencies and parastatals.

Federal Ministry of Power

In May 2019, the Federal Ministry of Power (FMP) awarded a 10-year concession to Proserve Energy Services Limited for a 750KW solar power system to supply power to the FMP building in Abuja.

¹⁴ <https://rea.gov.ng/emel-solar-rea-seal-pact-solar-home-systems-sale/>.

¹⁵ National Energy Efficiency Action Plans (NEEAP) (2015–2030).

The FMP is also in the process of awarding concessions for five small and medium-sized hydropower plants to private entities. The dams include the 6MW Ikere Gorge Dam in Ekiti State, the 2MW Omi-Kampe Dam in Kogi State, the 300KW Zobe Dam and 4MW Jibiya Dam in Katsina State, and the 3MW Bakolori Dam in Zamfara State. The objective of the proposed concessions is to ensure an increased power supply. The FMP in collaboration with the Sokoto State government is developing a '3D' 24/7 'feeder' project, wherein dedicated power generated by the appointed developer will be distributed by a selected distribution feeder. The project is being developed with the objectives of decentralisation, decarbonisation and digitalisation:

- a* to promote decentralisation of power generation and supply by implementing a distribution franchising model and procuring additional power via embedded generation;
- b* to reduce carbon emissions by utilising renewable energy sources in generating additional power required for the project; and
- c* to achieve higher collection rates by implementing smart metering and other digital solutions.

In addition, the FMP is the process of awarding concessions for solar power plants to successful bidders in Sokoto State on a design-build-operate-transfer basis.

REA

Flagship initiatives of the REA include the following programmes.

NEP

The NEP (in collaboration with the World Bank – see Section I.i) is aimed at providing access to electricity to households and MSMEs in off-grid communities through renewable energy sources. Components of the NEP include solar-hybrid mini-grids and solar home systems (SHSs);

Under the solar-hybrid mini-grid component of the NEP, the REA has developed the Mini Grid Performance-Based Grants Program (PBG), which aims to close the viability gap for mini-grids developed on a spontaneous basis. Grants of US\$350 per connection are available on a first come, first served basis to developers of solar-hybrid systems for unserved areas, with a minimum total grant request of US\$10,000 per mini-grid.¹⁶ Developers who have benefited under the PBG include: Renewvia Solar Nigeria and PowerGen Renewable Energy Nigeria Limited.

The SHS component is aimed at assisting capable solar providers reach underserved Nigerian households and MSMEs more rapidly and to provide access to better energy services at lower cost than current services. Target beneficiaries or end users are persons who lack connection to energy services with no immediate prospect of connection or who suffer from unreliable and expensive power and do not anticipate improvements in service.¹⁷ Under the SHS component, assistance is offered through the Output Based Fund (OBF), which provides fixed incentive payments per SHS system installed, and the Market Scale-Up Challenge Fund, which provides lump sum grants against the strongest business plans and

¹⁶ <https://rea.gov.ng/mini-grid-pbg/>.

¹⁷ <https://rea.gov.ng/solarhomesystems/>.

other investor co-funding for rapid scale-up. In February 2020, the REA executed a grant offer agreement under the OBF with Emel Solar to sell SHSs to Nigerian households and businesses.¹⁸

In March 2020, another phase of the NEP was unveiled, involving a partnership with the African Development Bank (AfDB) that is expected to provide electricity to over 500,000 people across 105,000 households. The REA is to service four NEP components to provide solar-hybrid power for 250 sites with US\$200 million in funds provided by the AfDB: solar-hybrid mini grids will be allocated US\$70 million; energy-efficient appliances for productive use will be allocated US\$20 million; Phase III of the Energizing Education Programme will be allocated US\$100 million; and technical assistance and capacity building will be allocated US\$10 million.

Other REA programmes

Other REA programmes include the following:

- a* The Energizing Economies Initiative is aimed at providing power to selected economic clusters using renewable mini-grid technology to meet current and future supply requirements with a high level of power reliability for economic growth.¹⁹ Markets that have now gained access to electricity under the Energizing Economies Initiative include Ariaria Market in Aba, Sabon Gari Market in Kano State, both Sura Market complex and Iponri Market in Lagos State, and Isikan Market in Ondo State.
- b* The Energizing Education Programme is aimed at providing power supply to 37 federal universities and seven university teaching hospitals across the country, with both projects focusing on adopting renewable energy mini-grid technology. Phase I was expected to be completed in 2018 and provide power to nine institutions, benefiting over 300,000 students and staff. Seven of the nine planned power plants (10.5MW out of a total of 26.56MW) will be powered by solar energy, in line with the federal government's energy-mix policy. While Phase I of the Project has not been completed, two projects have now been commissioned under this programme: a 2.8MW solar-hybrid power plant at Alex Ekwueme Federal University in Ndufu Alike Ikwo and a 7.1MW solar-hybrid plant at Bayero University Kano.

An energy database is to be established to provide data on key indicators, such as on-grid infrastructure, off-grid infrastructure, population statistics, availability of resources and statistics on existing and upcoming amenities that require energy.

Updates on various other projects at different stages of development can be found on the REA's website.²⁰

The Nigeria Sovereign Investment Authority

The Nigeria Sovereign Investment Authority is sponsoring on behalf of the federal government the development of a 10MWp solar PV power plant sited in the Kumbotso local government area, Kano State, Nigeria. In May 2020, it invited expressions of interest (EOI) from possible

18 <https://rea.gov.ng/emel-solar-rea-seal-pact-solar-home-systems-sale/>.

19 <http://rea.gov.ng/energizing-economies/>.

20 <https://rea.gov.ng/>.

engineering, procurement and construction (EPC) and operations and maintenance (O&M) contractors to submit bids for the development of the solar project. The EOI expired on 3 June, after which selected bids were to be invited to submit tenders.

Federal Ministry of Environment

In fulfilment of Nigeria's obligation to the United Nations Framework on Climate Change, the Federal Ministry of Environment (FMoE) initiated the Renewable Energy Programme in 2016,²¹ aimed at improving the viability of the Nigerian renewable energy market to attract capital to develop renewable energy technologies in Nigeria.

Federal Ministry of Science and Technology

The Federal Ministry of Science and Technology has a Renewable and Conventional Energy Technology Department (RCET), which supports the growth of renewable energy in Nigeria through research and development initiatives. The RCET collaborates with the Energy Commission of Nigeria (ECN) on projects aimed at improving the indigenous growth of renewable energy projects.

Energy Commission of Nigeria

The ECN, like the RCET, contributes towards the growth of Nigeria's renewable energy market through its research and development initiatives, which have led to the establishment of research centres across the country.

iv Legal framework for renewable energy project development.

The following policies and pieces of legislation provide a broad outline of the legal framework for Nigeria's renewable energy market.

Legislative enactments

Electricity Power Sector Reform Act (federal enactment, 2005)

The Electricity Power Sector Reform Act (EPSRA) is the principal piece of legislation governing Nigeria's power sector. The EPSRA provides for the establishment of NERC and the REA, including licensing provisions and the regulation of the generation, transmission, distribution and trading of electricity in Nigeria.

Environmental Impact Assessment Act (federal enactment, 1992)

The Environmental Impact Assessment Act (the EIA Act) makes it mandatory for an EIA to be conducted for projects that are likely to have significant effects on the environment, including power projects. A power developer seeking to carry out power generation through the use of renewable energy must register the project with the FMoE for an EIA. The FMoE shall determine the level of the EIA required for each project on a case-by-case basis. In some cases, the FMoE may determine that a full-scale EIA is not required, and may only require a project developer to prepare an environmental management plan (EMP).

21 <http://environment.gov.ng/clean-energy-initiatives/>.

Note that the submission of an EIA Approval Certificate or an approved EMP is mandatory for an application for a generation licence from NERC. However, the NESP, in collaboration with the FMoE, has commenced efforts to develop simplified EIA and Environmental and Social Management Plan processes for renewable mini-grid projects.

Nigerian Electricity Management Services Agency Act (federal enactment, 2015)

The Nigerian Electricity Management Services Agency (NEMSA) is responsible for the enforcement of technical electrical standards prescribed by NERC, including the testing and certification of electrical installations, electricity meters and instruments. Note that the NESP, in collaboration with the NEMSA, is in the process of developing electricity management guidelines for solar mini-grid projects in Nigeria.

NERC Regulations

NERC Mini-Grid Regulation (2017)

The Mini-Grid Regulation is aimed at accelerating electrification in unserved and underserved areas – principally but not restricted to rural areas. The regulation is limited to distributed power of up to 1MW.

NERC Renewable Energy Feed-in Tariff Regulations (2015)

The Renewable Energy Feed-in Tariff (REFIT) Regulations aim at enhancing the attainment of the national targets on renewable energy-sourced electricity and encourage as well as support greater private sector participation in power generation from renewable energy technologies. Note that the REFIT is currently ineffective and has been due for review since the end of 2018.

Policies

National Electric Power Policy (Electric Power Implementation Committee, 2001)

The National Electric Power Policy outlines the framework for the power reform agenda in Nigeria. It also sets a target of a 10 per cent renewable energy mix for all new connections by 2020.

Nigerian National Energy Policy (Electric Power Implementation Committee, 2003)

The Nigerian National Energy Policy acknowledges the importance of the different renewable energy sources and how they can be effectively utilised. However, no concrete targets for renewables have been set.

Renewable Energy Master Plan (ECN, 2005)

The Renewable Energy Master Plan (REMP) encourages the integration of renewables (with particular emphasis on solar energy). The REMP advocates an increased supply of renewable electricity, from 13 per cent of electricity generation in 2015 to 23 per cent in 2025 and 36 per cent by 2030. The REMP has yet to be signed off by the government or formulated into a law governing renewable energy development.

Renewable Energy Policy Guidelines (Ministry of Power, 2006)

The Renewable Energy Policy Guidelines (REPGs) articulate policy goals for the development of off-grid independent renewables systems and the setting up of a Renewable Electricity Trust Fund (RETF), as well as cost-effective measures to accelerate renewable projects. The REPGs also include incentives for investors by way of a five-year tax holiday.

The Renewable Electricity Action Programme (Ministry of Power, 2006)

The Renewable Electricity Action Programme (REAP) sets out a road map for implementing the REPGs and RETF and further sets out development targets for technology and application. As yet there has been no evident implementation of the REPGs and the REAP.

National Renewable Energy and Energy Efficiency Policy (Ministry of Power, 2015)

The National Renewable Energy and Energy Efficiency Policy (NREEEP) was issued by the federal government to foster power generation through renewables and energy efficiency capacity by 2020. The NREEEP was developed as a robust policy document to consolidate the objectives of the aforementioned policies.

NERC Order on the Mandatory Dispatch of Hydropower Plants (2019)

Following the meteorological forecasts for 2019, which predicted significant flooding events across the country, NERC issued Order NERC/182/2019 to the System Operator to prioritise the dispatch of hydro generated electricity.²² Although the Order was issued in 2019, there was no clear time frame specified for its effectiveness and, as such, it may be argued that the Order still subsists.

II THE YEAR IN REVIEW

i Recent developments in renewable energy law

Changes in administrative practice in relation to renewable energy projects

Increase in value added tax (VAT) rate

On 14 January 2020, President Muhammadu Buhari signed the Finance Act 2019 (the Finance Act) into law. The Finance Act effected radical changes to several provisions of Nigerian tax laws, including the VAT Act.²³ By virtue of the amendments to the VAT Act, the VAT rate has been increased from 5 per cent to 7.5 per cent, effective from 1 February 2020.²⁴ VAT is chargeable on the supply of all goods (tangible and intangible) and services where consideration (i.e., money or money's worth) is given by the recipient of the goods or services, other than those goods and services listed in the First Schedule to the VAT Act, which are exempted.

22 <https://nsong.org/MediaPublicity/NewsDetails?NewsID=81>.

23 Value Added Tax Act Cap V1 Laws of the Federation of Nigeria 2004.

24 Section 4 of the Value Added Tax Act, as amended by the Finance Act 2019.

VAT exemptions on renewable energy equipment

In February 2020, the federal government issued VAT (Modification Order) 2020 with the Official Gazette,²⁵ setting out an extended list of items exempted from the application of VAT. The list now includes the following renewable energy equipment: wind powered generators; solar powered generators; solar cells, whether in modules or made up into panels, other photosensitive semiconductor devices; solar direct current (DC) generators of an output not exceeding 750W; solar DC generators of an output exceeding 750W but not exceeding 75kW; solar DC generators of an output exceeding 75kW but not exceeding 375kW; solar DC generators of an output exceeding 375kW. This exemption appears to apply to the listed renewable energy equipment as goods only, such that VAT will not apply in the importation or in-country sale of the equipment, but this exemption does not extend to services rendered with the use of this equipment.

However, the Federal Inland Revenue Service (FIRS) subsequently issued a public notice – Value Added Tax Act (Modification Order), 2020: Items not Exempted from VAT – stating that renewable energy equipment is not VAT exempt and will continue to attract VAT at the standard rate of 7.5 per cent. The validity of this public notice has been called into question as FIRS notices are merely clarificatory and cannot override any tax law or validly issued instrument, and the power to vary, modify or amend the VAT exemption list as contained in the First Schedule to the VAT Act is vested only in the Minister of Finance.²⁶

Import duty on renewable energy equipment

Following the reclassification by the Nigerian Customs Service of solar components and equipment,²⁷ import duty of 5 per cent continues to apply on all solar panels, modules and components imported into Nigeria (including bypass diodes, inverters, etc.). This is a radical change from the zero per cent import duty rate provided under the previous classification,²⁸ which stipulated that the import duty on solar panels should be zero per cent. By virtue of the reclassification, solar panels imported for the purpose of power generation will be classified under HS Code 8501, while panels imported for any other purposes that do not include component parts for electricity generation, such as inverters or bypass diodes, will be classified under HS Code 8541, which is the classification for photovoltaic cells made up into modules not for power generation. Specifically, solar cells whether in modules or made up into panels²⁹ and other photosensitive semiconductor devices³⁰ will be subject to 5 per cent import duty. Also, wind-powered generators³¹ and solar-powered generators³² attract 5 per cent import duty. Accessories for the transmission of electrical energy³³ and primary cells and primary batteries made of mercuric oxide³⁴ attract 20 per cent import duty.

25 No. 18, Vol. 107 of 2020.

26 Section 38(b) of the VAT Act and *Warm Spring Waters Nigeria Limited and Ors v. FIRS* (2015) 20TLRN 49.

27 Harmonised System (HS) Code 8541 to HS Code 8501 in 2018.

28 Nigerian Customs Common External Tariff Code 541.4010.00.

29 HS Code 8541401000.

30 HS Code 8541409000.

31 HS Code 8502310000.

32 HS Code 8502391000.

33 HS Code 7326901000.

34 HS Code 8506300000.

Following the recent VAT (Modification Order) 2020, renewable energy equipment will no longer be subject to VAT. Furthermore, the NREEEP proposes free customs duty for two years on the importation of equipment and materials used in renewable energy and energy efficiency projects,³⁵ and the National Renewable Energy Action Plans (2015–2030) also proposed incentives to encourage participation in the renewable energy sector. Consequently, there continues to be an increase in the use of solar equipment in the energy mix and a shift towards local manufacturing of solar panels.

NEMSA certification for bidding for power projects

The NEMSA Act provides that no person shall be allowed to undertake electrical installation work on any premises unless that person is duly certified by NEMSA. To this effect, NEMSA issues certifications for contractors looking to engage in the business of electrical installations.

The NEMSA certificate is fast becoming one of the compulsory tender documents for contractors looking to bid for power projects in Nigeria. All projects envisaged by the REA in line with its mandate under the EPSRA require contractors to provide, among other documents, evidence of registration with NEMSA as a licensed contractor in the power sector.

Hydropower construction licences

In view of the federal government's objective to diversify the power sector, the Nigeria Integrated Water Resources Management Commission in March 2019 announced that it had issued 21 Water Use Licences to stakeholders, including the companies Nestlé Waters and Winners Power Garden, for hydropower generation and other water-related activities.³⁶ In March 2020, the federal government, through the Federal Ministry of Water Resources, signed a concession agreement with North South Power Company for the operation and maintenance of a 30MW hydroelectric power from the Gurara multipurpose dam in Kaduna State.³⁷ The North South Power Company was also issued a Water Use Licence for the Gurara hydropower plant.³⁸ The project is expected to add 30MW to the existing power generation capacity and an estimated 17.6 billion naira in revenues.

ii Recent trends and market activity

In December 2017, the US African Development Foundation (USADF) and All On announced the creation of a 15 million-naira partnership with the goal of expanding access to energy for underserved and unserved markets in Nigeria. In line with the trend of expanding energy access, MTN Lumos, in a bid to build on the success of its operations in the Nigeria energy market, is in the process of raising addition capital to the extent of US\$200 million.

In the first quarter of 2018, Rensource, a renewable energy provider, was able to raise US\$3.5 million through a round of investments led by Mauritius-based Amaya Capital Partners, with participation from Omidyar Network and Pule Taukobong's CRE Venture Capital. In the last quarter of 2019, Rensource announced it had raised a further

35 Paragraph 5.4(e) of NREEEP.

36 <https://nipc.gov.ng/2019/03/29/fg-issues-21-hydropower-other-licences/>.

37 <https://www.icrc.gov.ng/fg-north-south-power-sign-gurara-30mw-concession-agreement/>.

38 <https://waterresources.gov.ng/2020/02/11/fg-presents-water-use-license-to-north-south-gurara-energy-company/>.

US\$20 million through a Series A funding round jointly led by CRE Venture Capital and Omidyar Network, with participation from Inspired Evolution, Proparco, EDPR, I&P, Sin Capital and Yuzura Honda.

This also came on the back of a US\$30 million investment by African Infrastructure Managers in Starsight Power Utility Ltd, a Nigeria-based energy services company with clients in the financial services and energy sectors. In December 2018, Nigerian Breweries Plc and CrossBoundary Energy entered into a solar PPA for the installation and operation of a 650kW rooftop solar plant at Nigerian Breweries' Ibadan brewery. On completion, the project will be the first solar-powered brewery operated in Nigeria. The solar plant is set to produce an annual supply of 1GWh of power. CrossBoundary Energy Access has also raised U\$16 million to finance 190 solar mini-grids in sub-Saharan Africa. Also, as noted in Section I, in 2019, distributed utility company Anergy Solar Limited raised US\$9 million in a Series A funding round.

In other renewable energy fundings of note, a syndicated-loan facility of US\$10 million was set up by the Renewable Energy Performance Platform and co-financed by the Electrification Financing Initiative with the objective of making electricity available to over 150,000 people in isolated communities in Nigeria through the installation of 35,000 solar home systems over the next five years. In addition to this, the Bank of Industry and All On announced the establishment of a 1 billion-naira Niger Delta Off-Grid Energy Fund to provide financing to off-grid energy businesses that develop energy technology in the Niger Delta. Also, at the fourth Nigeria Energy Forum, held in April 2019, the European Union formally launched a €30 million fund for renewable energy projects in Nigeria.³⁹

In April 2019, it was announced that Solarcentury had completed its largest project in Africa and the largest commercial and industrial (C&I) sector renewable project in Nigeria – a solar installation for Tulip Cocoa Processing Limited. The federal government through the Federal Ministry of Transportation also announced plans for solar-powered tricycles and motorcycles to introduce green transportation into the Nigerian transport system, although this plan has yet to be implemented.

Renewvia Energy Africa has announced its intention to raise US\$350 million (debt and equity) over a period of five years to install 1,000 solar systems. An upcoming funding round is expected to raise between U\$5 million and U\$10 million.

iii Interconnected Mini-Grid Acceleration Scheme

The Interconnected Mini-Grid Acceleration Scheme (IMAS) is an in-kind partial grant in the form of procured distribution and metering equipment and technical assistance, to support the deployment of privately led solar interconnected mini-grids. The aim of the IMAS is to provide a minimum of 15,000 customers, including residential, public, commercial or productive users across Nigeria, with access to reliable electricity services at an affordable tariff by the end of September 2020. The REA, in collaboration with the FMP and GIZ through the NESF, announced the selected bidders (local mini-grid companies) for the IMAS in March 2020.⁴⁰

39 <https://www.thenef.org/>.

40 <https://rea.gov.ng/results-interconnected-mini-grid-acceleration-scheme/>.

iv Utilisation of renewable energy in combating covid-19

The covid-19 pandemic has precipitated the development of several renewable energy projects to support healthcare facilities across the country. For instance, the REA in collaboration with the FMP provided solar-hybrid mini-grids that will power critical loads such as ventilators, lighting, cooling equipment and intensive care units for various health centres. The REA developed a 20kWp solar-hybrid mini-grid to power facilities at the 128-bed Ikenne isolation centre in Ogun State; a 25kWp solar-hybrid mini-grid to power facilities at the Nigeria Centre for Disease Control public health laboratory in Lagos State; a 53.1kWp solar-hybrid mini-grid to power the University of Abuja Teaching Hospital isolation centre; and a 10kWp solar-hybrid mini-grid at the 100-bed Iberekodo isolation centre in Ogun State.⁴¹

All On, an off-grid energy impact investing company seeded by Shell, announced the 180 million-naira Covid-19 Solar Relief Fund to assist renewable energy companies Auxano, Arnergy, GVE and Lumos install solar-powered systems to provide power for emergency health centres in support of the fight against covid-19.⁴²

III THE POLICY AND REGULATORY FRAMEWORK

i The policy background

Impact of government policy on renewable energy development

The policy direction of the government towards the diversification of Nigeria's energy mix has been largely progressive; however, the administrative challenges and lack of implementation have stifled policymaking efforts, particularly with respect to the cost of importing components and equipment required to develop renewable energy projects and the delay in implementation of the proposed incentives under the NREEEP. A gap still exists between the policy framework and its effective implementation in enforceable laws and regulations. Notwithstanding this, there remains a strong commitment from the government to drive the growth of renewable energy in the nations' energy mix and this is evident in the collaborations between the federal regulatory agencies, state authorities, the private sector and financial institutions to incentivise and deliver renewable energy projects.

Support for renewable energy technological development

The government through its agencies and parastatals has put in place several initiatives aimed at supporting the indigenous development of renewable energy technology. A large part of these programmes is aimed at supporting research and development in the area of renewable energy solutions.

The Ministry of Science and Technology, through the RCET, supports research and development activities leading to the local production of solar panels, wind turbines and balancing systems (converters, inverters, controllers and chargers, etc.).

The ECN, in line with its mandate to promote the development of energy resources and renewable energy, has established a number of centres across federal institutions in Nigeria, one of which is the Sokoto Energy Research Centre, at Usmanu Danfodiyo University,

41 <https://rea.gov.ng/press-release-federal-ministry-power-installs-24-hours-solar-powered-mini-grids-four-covid-19-isolation-centers-across-nigeria/>.

42 <https://www.all-on.com/media/media-releases/all-on-announces-n180-million-covid-19-solar-relief-fund.html>.

Sokoto. Since its inception, the Sokoto Centre alone has been involved in over 60 pilot projects that cut across the various aspects of renewable energy technology. Other centres established in universities across Nigeria include the National Centre for Energy Research and Development, University of Nigeria, Nsukka, and the National Centre for Energy Efficiency and Conservation at the University of Lagos.

In addition to the above, the National Agency for Science and Engineering Infrastructure (NASENI), established in 1992 by the federal government, runs the 5MW Solar Panel Plant at Karshi, Abuja, for the production of solar panels and modules for Nigerians. In collaboration with the government, NASENI is pioneering the manufacture of solar plant modules and small hydropower turbines in the northern part of Nigeria; it is anticipated that these will be installed in each of the country's six geopolitical zones.

There are also private sector initiatives aimed at promoting the development of renewable energy technology, such as the partnership between Sterling Bank, Kaduna State government, Kaduna Business School and Blue Camel Energy to deliver the 'Solar-Fi Hub' renewable energy solution, to improve access to electricity in rural communities.⁴³ Other laudable initiatives include the Blue Camel Renewable Energy Academy, which offers training to technical personnel for the deployment of solar solutions, entrepreneurship development and research and development activities. There are also renewable energy training programmes offered by development agencies such as GIZ and other market operators, including All On, Rubitec Solar and Rensource.⁴⁴

Incentives

The NREEEP provides incentives centred around renewable energy, some of which include: (1) customs duty exemptions for two years on the importation of equipment and materials used in renewable energy projects; (2) five-year tax holidays for manufacturers from date of commencement of manufacturing; (3) five-year tax holidays on dividend incomes from investments in domestic renewable energy sources; (4) provision of soft loans and special low-interest loans from the power sector development fund for renewable energy supply; and (5) grants to communities to encourage renewable energy projects.

The NERC REFIT Regulations aim to ensure generation of a minimum of 2,000MW of electricity from renewable energy by the year 2020. The power generated is accorded priority access to the grid at a guaranteed price through mandatory renewable power purchase obligations on power distribution companies (Discos) and NBET. The Regulations, however, are limited to projects with a capacity of between 1MW and 30MW, and solar projects with a capacity of 5MW and below; off-grid renewable projects do not fall within the ambit of the Regulations. Furthermore, the REFIT is currently ineffective and has been due for review since the end of 2018.

There are currently no tax credits for renewable energy as the Nigerian market has yet to develop sufficiently to accommodate initiatives of this kind; however, there are plans by the federal government, under the NREEEP, to introduce tax credits for producers of renewable energy appliances and fixtures.

43 <https://sterling.ng/sterling-bank-lights-nigerias-path-to-accelerated-development/>.

44 https://www.allon.com/media/publications/_jcr_content/par/textimage_1943192789.stream/1560239896557/8df5c9fbfccfa74ffaf52c28a4ccd4ef6d90e26b/the-nigerian-energy-report-updated.pdf.

The federal government published in the Official Gazette⁴⁵ a comprehensive list of pioneer industries and products that would qualify for the pioneer status incentive, which entitles a recipient to tax exemption for an initial period of three years, extendible for a period not exceeding two years.⁴⁶ Eligible pioneer products include operation of generation facilities that produce renewable electric energy, operation of distribution systems (i.e., consisting of lines, poles, meters, wiring, etc.) that convey electric power received from generation facilities or the transmission system to the final consumer, and the manufacture of electric components, including solar home systems and inverters.

Incentives for solar energy resources

The policies and incentives discussed above are largely applicable to all sources of renewable energy. Manufacturers of solar energy-powered equipment and gadgets are eligible for tax exemption by way of the above-mentioned pioneer status incentive. This incentive is not available to other renewable energy sources.

ii The regulatory framework

Renewable energy sector regulators and key counterparties

Nigerian Electricity Regulatory Commission

NERC is responsible for granting all licences and approvals with respect to the entire electricity value chain (generation, distribution, transmission, trading, system operations, metering, etc.).

Transmission Company of Nigeria

The Transmission Company of Nigeria (TCN) is one of the entities created following the unbundling of the power sector. The TCN is currently the only entity licensed for transmission of electricity and consists of the market operator, the system operator and the transmission service provider. Given the TCN's monopolistic status, on-grid renewable projects require collaboration and contractual arrangements with the TCN. The market operator is also responsible for the administration of the market rules applicable to projects supplying power via the transmission network.

Nigerian Bulk Electricity Trader

Nigerian Bulk Electricity Trader (NBET) is currently the sole holder of a bulk purchase and resale licence in Nigeria. NBET enters into bulk PPAs with generation companies and independent power producers (IPPs) for the bulk purchase of power, which is then resold to the relevant Discos in Nigeria under a vesting contract.

Standards Organisation of Nigeria

The Standards Organisation of Nigeria (SON) is responsible for setting the standards of all products and equipment in or brought into Nigeria. SON through its electrical and electronics group certifies products that are imported or manufactured in Nigeria and ensures that all products and equipment are of the correct quality and standards.

45 No. 84, Vol. 104 of 2017.

46 Nigerian Investment Promotion Commission Pioneer Status Incentives August 2017.

Nigerian Electricity Management Services Agency

The Nigerian Electricity Management Services Agency (NEMSA) has responsibility for ensuring the enforcement of technical standards in the power sector and conducting inspections of electricity projects. NEMSA collaborates with SON and other governmental agencies to ensure that all major electrical materials are of the correct quality and standard.

Nigerian Customs Service

The Nigerian Customs Service (NCS) is responsible for implementing and collecting import and excise duties for products and equipment imported into Nigeria. The import duty and VAT currently imposed on the importation of solar equipment and its components is paid to the NCS.

Federal Ministry of Environment

The FMoE is the principal authority in respect of environmental matters in Nigeria. In addition to policymaking, the FMoE is in charge of EIAs for projects in Nigeria (including renewable energy projects) and issues EIA certificates for approved projects.

National Environmental Standards and Regulations Enforcement Agency

The National Environmental Standards and Regulations Enforcement Agency (NESREA) is responsible for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general, and for environmental technology. NESREA is also responsible for enforcing compliance with environmental laws, guidelines, policies and standards. Pursuant to the provisions of the NESREA (Electrical/Electronics Sector) Regulations 2011, NESREA also issues permits⁴⁷ to entities involved in new or used electrical electronic equipment manufacturing, processing, recycling, and power generation, transmission or distribution.

Environmental concerns

Pursuant to the provisions of the EIA Act, no activity may be undertaken or authorised by the public or private sector without prior consideration, at an early stage, of its environmental effects. Where the extent, nature or location of a proposed project or activity is such that it is likely to significantly affect the environment, its environmental impact assessment shall be undertaken in accordance with the provisions of the EIA Act.⁴⁸

Energy project developers in Nigeria have to comply with the provisions of the EIA Act. The FMoE has EIA guidelines for power sector projects, including renewable energy projects, which set out the procedure for carrying out EIAs for power projects in Nigeria.

However, under the current regulatory framework, renewable energy project proponents in Nigeria find the cost and applicable timelines for EIAs unfavourable. To ease the cost implications and steep timelines associated with EIAs, the EIA Guidelines provide that projects under Category II (which includes any renewable energy development) that are not located in an environmentally sensitive area may not be mandatorily required to

⁴⁷ The permit is broadly categorised as the Used Electrical and Electronic Equipment (UEEE) permit, which relates to handling UEEE imports and exports.

⁴⁸ Section 2(1) and (2) of the Environmental Impact Assessment Act.

undertake a full-scale EIA but will be required to undertake a partial EIA.⁴⁹ Nevertheless, while recognising the obvious importance of EIAs, it would be helpful to have a simplified, affordable and efficient EIA process to speed up renewable energy project implementation, especially in respect of mini-grid projects. As noted above, a simplified Environmental and Social Management Plan for solar mini-grid projects is being developed. This expected to accelerate the development of renewable energy mini-grid projects.

Green attributes or renewable energy credits and renewable energy tracking

Nigeria's renewable energy market is still largely new and not sophisticated enough to ascribe special values to electricity from renewable energy in terms of green attributes or renewable energy credits. However, it is important to note that NREEEP proposes a power production tax credit (PPTC).

The PPTC seeks to incentivise individuals who generate electricity from renewable energy with tax credits. While this has not yet been implemented in Nigeria, it is a step in the right direction towards improving Nigeria's energy mix, as well as placing value on electricity generated from renewable energy. It is expected that the implementation of the policy and the PPTC will encourage private investment in the industry.

Furthermore, renewable energy power projects in Nigeria are largely off-grid, as the market has not yet developed to the point where several developers can feed power generated from renewable energy sources into the grid. While the government in recent times has shown a keen interest in ramping up renewable energy development in Nigeria, the mechanisms in place to effectively track such development across the country are minimal. The REA intends to provide data on renewable energy projects across Nigeria through its Nigerian Energy Database (NED). Although currently operational, the NED has not yet been fully developed.

Regulatory approvals and timelines

Building and construction permits are issued by the applicable state governments, and timelines for these vary from state to state. The following federal authorities issue regulatory approvals according to the stated timelines.

NERC

- a* Generation licence: six months from acknowledgement of the application;⁵⁰
- b* mini-grid permit: 30 days from the date of receipt of a completed application;⁵¹ and
- c* captive generation permit: three months from acknowledgement of the application.⁵²

49 Paragraph 3.0 (e) EIA Guidelines 2017.

50 Section 12(b) of the Nigerian Electricity Regulatory Commission (NERC) Application for Licence (Generation, Transmission, System Operations, Distribution and Trading) Regulations 2010. Note, however, that in practice this may take up to 12 months.

51 Section 10(2) of the NERC Mini-Grid Regulation.

52 Section 7(b) of the NERC (Permits for Captive Power Generation) Regulations 2008.

FMoE

EIA/EMP certificate: between six months and one year.

NEMSA

NEMSA certificate: one month.

IV RENEWABLE ENERGY PROJECT DEVELOPMENT

i Project finance transaction structures

The privatisation of Nigeria's power sector and the acquisition of power assets worth US\$3.3 billion was largely funded by local banks through corporate finance structures with guarantees required from the sponsors' existing businesses. However, Nigeria has yet to record a project financed renewable energy project. To date, the 459MW gas-fired Azura-Edo project remains the first and only successful project-financed greenfield power project in Nigeria.

Notwithstanding the above, we note that CrossBoundary Energy Access (CBEA), Africa's first project financing facility for mini-grids, has announced its launch, with funding commitments from the Rockefeller Foundation and Ceniarth. CBEA is expected initially to invest US\$16 million into mini-grids serving 170,000 people, providing first-time power to homes and businesses. The focus is on markets with supportive mini-grid regulatory frameworks, such as Tanzania, Nigeria, and Zambia.⁵³

Principal documentation for renewables project finance

Bankability under project finance is largely dependent on proper risk allocation as provided in the suite of agreements to be executed at each stage by the project stakeholders. A broad overview of the agreements and project documents negotiated and executed under the Azura-Edo deal, and the counterparties concerned, is provided below.

Property and land documents

Under the Azura-Edo project, the following property documents were executed between the Edo state government and Azura Power in conjunction with the relevant host communities: Certificate of Occupancy (C of O), Deed of Assignment or Deed of Lease.

Power purchase agreement

A PPA was concluded between NBET and the Azura-Edo IPP.

Finance documents

Some of the finance documents executed under the Azura-Edo project include: security documents such as an account charge agreement; intercreditor agreements; hedging agreements; subordination agreement; accounts agreements; DFI loan agreements; local bank loan agreements; common terms agreement; claims cooperation agreement; and mezzanine loan agreement.

⁵³ <https://www.avca-africa.org/newsroom/member-news/2019/crossboundary-mini-grid-facility-announces-first-close/>.

Credit enhancement facilities

A standby letter of credit (LC) was provided by NBET backed by a series of World Bank PRGs provided by the International Bank for Reconstruction and Development (IBRD).

IBRD also provided political risk insurance cover, which was also contemplated under the insurance cover provided by the Multilateral Investment Guarantee Agency (MIGA).

Other credit documents and agreements executed under the Azura-Edo deal include:

- a* project agreement (debt mobilisation) between IBRD and the Azura-Edo IPP;
- b* PRG (debt mobilisation) between IBRD and the lender's agent (Standard Chartered);
- c* indemnity agreement between IBRD and the federal government;
- d* project agreement (letter of credit) between IBRD and Azura-Edo;
- e* reimbursement and credit agreement between JP Morgan (LC issuing bank) and NBET;
- f* MIGA host country approval between the federal government and MIGA; and
- g* NBET cooperation agreement between IBRD and NBET.

Operations and maintenance agreement

An O&M agreement was concluded with the O&M contractor.

Engineering, procurement and construction contract

An engineering, procurement and construction (EPC) agreement was concluded with the EPC contractor.

Original Equipment Manufacturer Agreement

An original equipment manufacturer (OEM) agreement was concluded with the manufacturer.

Put-call option agreement

The PCOA sets out the terms and conditions by which the investor may sell its interest or shares in the project company to the federal government in the event of a government or investor default under the PPA with NBET. In the Azura-Edo deal, the PCOA was entered into between the federal government, NBET and the Azura-Edo IPP.

Direct agreements

Direct agreements give the lenders the right to step into the shoes of the sponsors where there has been a default. It allows the lenders an opportunity to cure any defect that might occur as a result of an action or inaction of the project sponsors. This will typically include: a PPA direct agreement; an O&M direct agreement; an EPC direct agreement; and a PCOA direct agreement.

Tenor of renewable energy projects

There is currently no industry standard for the term of a debt for renewable energy projects in Nigeria, particularly as there is no recorded project-financed renewable energy project. Commercial bank loans are typically short-term loans of three to seven years, except in the case where credit enhancements have been provided to give comfort to the banks, as was the case in the Azura-Edo deal. The Azura-Edo deal was financed with loans from a range of DFIs, local banks and multilateral agencies. In contrast to commercial bank loans, DFIs typically provide long-term financing for a period of 15 to 20 years.

Principal participants in project finance transactions

Within the Nigerian context and using the Azura-Edo project as a benchmark, the participants in a traditional project finance structure will include the following:

- a* the project sponsor, who typically would be the initial promoter of the project and could be an individual, a company, a state or a combination of these;
- b* co-sponsors, who will typically include bigger project development companies with deeper pockets, more technical experience and access to financing who would join the project at certain stages of the project (depending on their risk appetite); for example, the Azura-Edo project had a total of five sponsors;
- c* the lenders, who, in a syndicated lending, would include lead arranger, security trustee and facility agent;
- d* DFIs and export credit agencies;
- e* guarantors (e.g., MIGA, World Bank);
- f* advisers, including technical advisers, legal advisers, financial advisers, tax and audit and environmental impact advisers;
- g* the state or federal government, as applicable;
- h* the TCN;
- i* contractors (EPC, OEM and O&M);
- j* offtakers (NBET in this instance); and
- k* insurance companies.

Institutions involved in the financing and offtake of renewable energy projects

Financiers

Commercial banks

The commercial banks involved in the Azura-Edo project include Standard Chartered Bank, Siemens Bank, Stanbic IBTC Bank, Rand Merchant Bank and First City Monument Bank. However, we have noted that the commercial banks are hesitant about funding renewable energy projects and we have yet to see any funding structure involving a commercial bank for such projects. We are also aware that some projects may utilise Islamic finance models in their financing structure.

DFIs

The DFIs used in the financing of the Azura-Edo project include Africa Finance Corporation, FMO, Infrastructure Crisis Facility – Debt Pool, and CDC Group. It is important to note that the IFC and FMO are currently involved with a few of the 14 solar project developers.

Offtakers

Several institutions purchase and use renewable energy, mostly as an alternative source of power. For the supply of power on-grid, the offtaker is NBET. As Nigeria's renewable energy market has yet to be fully developed to accommodate the injection of power from distributed renewable energy sources, most projects that adopt renewable energy operate hybrid systems with power from renewable energy sources serving as backup to grid or diesel generators. This is typically the case with respect to commercial banks that use solar to power ATMs, or petrol stations that use solar to power their dispensers. Furthermore, residential offtakers, as well as businesses and MSMEs in the service industries, including small health solution centres, tailors and salons, make up a high percentage of the offtakers that utilise solar energy in Nigeria. In Nigeria, unlike in other countries, there is no market for renewable energy credits.

Distributed and residential renewable energy

Distributed renewable energy generation is the most common method of renewable energy deployment in Nigeria, with solar energy being the most prevalent source of renewable energy utilised. The distributed renewable energy providers in Nigeria offer various options for power supply, which entail different ownership structures:

- a* Outright purchase: energy consumers may acquire the solar energy equipment by outright purchase and install it on their sites for their use. In this case, the electricity consumer takes full ownership of the equipment.
- b* Lease to own: renewable energy providers also offer lease-to-own schemes that allow the electricity consumer to pay for the equipment over a period while continuing to use it. Ownership remains with the renewable energy provider until payment is complete and it then passes to the electricity consumer.
- c* Subscription (power as a service): in this arrangement, the solar equipment is installed on the electricity consumer's site; however, there is no transfer of ownership. Instead, the consumer merely pays a subscription fee to use the equipment. Ownership remains with the energy provider.

The current trend in the Nigerian market is for small-scale solar systems that can be used to either supplement grid power or generators. Companies such as Arnergy Solar, Daystar Power Energy Solutions and MTN Lumos are prominent participants in this space. New entrants to the market such as Rensource, who provide subscription-based power from solar, are expected to help grow Nigeria's renewable energy market by providing highly competitive prices and flexible power solutions that can be tailor-made to meet the needs of both businesses and residential oftakers.

Non-project finance development

Apart from project financing models, other non-project finance structures have been explored for developing renewable energy projects globally. One such structure is crowdfunding, which has helped support a number of projects in Africa, some of which are in Nigeria. While crowdfunding is currently not permitted in Nigeria, developers have been able to take advantage of foreign crowdfunding platforms to finance local projects. A good example of these platforms is Bettervest GBMH, a German company that has publicly expressed interest in the financing of renewable energy projects. Through Bettervest, SOSAI Renewable Energies Company, an indigenous company, has been able to raise almost €450,000 in three investment rounds from over 800 investors around the world. Also, Havenhill Synergy Limited, in addition to its US\$50,000 grant from the USAID, is seeking to raise additional funding using Bettervest for up to 69million naira to undertake a solar mini-grid project in Kwaku, Abuja.

Investment funds have in recent times been explored to finance renewable projects in Nigeria. CrossBoundary Energy, Africa's first dedicated fund for commercial and industrial solar, falls within this category. Renewable energy developers have also benefited from grants provided by DFIs in Nigeria, such as the Bank of Industry, and international DFIs such as the UK DFID and the African Development Bank, which recently approved a US\$25 million investment fund for renewable energy projects in Nigeria and West Africa.

Also, in 2019, SunFunder, provided US\$4 million in debt funding to Daystar Power Nigeria Limited to scale up its business of providing renewable energy solutions to businesses in Nigeria.

Commercial banks such as Sterling Bank Plc have dedicated certain funds for the purpose of financing and facilitating renewable energy growth in Nigeria. Sterling Bank has developed a trading platform, 'Imperium', with the aim of connecting customers with renewable energy providers to ensure more stable electricity for these consumers. In addition, the bank has expressed its commitment to providing financing for long-term renewable energy projects with the aim of providing access to electricity for businesses and communities. In this regard, Sterling Bank partnered with Zola Electric, a for-profit social enterprise, to make distributed renewable energy accessible to Nigerians businesses and households in need of a constant and clean power supply.

Another financing model that has recently been adopted in Nigeria is the use of early risk financing and construction financing for initial-stage funding in renewable energy projects, usually up until the commercial operation date. For example, Renewvia Energy Africa, seeking to raise about US\$350 million for its Africa-focused renewable energy project has executed a partnership agreement with Dream Projects Incubator, which will provide a portion of the required financing as capital investment in Renewvia Energy Africa.

Furthermore, the federal government has taken to providing financing for renewable energy projects in Nigeria; for example, through the 10 billion-naira green bond issued to support the Energizing Education Programme implemented by the REA (see Section I.ii). Also, as at October 2019, the federal government, through the REA signed grant agreements with seven renewable energy investors under the World Bank funded NEP for output-based funding and performance-based grants with respect to the funding of solar-hybrid projects.⁵⁴

V RENEWABLE ENERGY MANUFACTURING

While the government has established a number of manufacturing facilities, most local companies are primarily involved in the assembly of renewable energy equipment, particularly solar panels and other solar energy components and systems; for instance, Auxano Solar Nigeria Limited and Blue Camel Energy Limited operate solar panel assembly plants in Lagos State and Kaduna State respectively. Although NASENI claims to have produced solar panels in its Karshi plant, it is unclear whether these have been made available for commercial consumption. However, given the announcement in April 2019 by the Borno State government of the completion of Africa's largest solar panel factory, Nigeria may benefit from a huge boost in renewable energy manufacturing. The fully automated factory is expected to produce 40MW worth of solar panels annually, with each panel possessing the capacity to generate 300W of power. However, through the combined efforts of the RCET under the Ministry of Science and Technology, the ECN through the various research centres spread across the country, and entities such as NASENI, Nigeria is considered to be poised to commence indigenous manufacturing in the very near future.

In addition, the federal government, in a bid to encourage local manufacturing and participation within the renewable energy space, introduced several incentives in the NREEEP. The incentives include but are not limited to:

- a* individuals engaged in the manufacturing of batteries and accumulators are granted a five-year tax holiday, renewable for a period of two years and;

⁵⁴ <https://rea.gov.ng/30040-2/>.

- b* individuals engaged in the manufacturing of transformers, meters, control panels and other electricity-related equipment are granted a five-year tax holiday, renewable for a period of two years.

While these incentives are aimed at encouraging manufacturing of renewable energy equipment, there are no tariffs with respect to renewable energy equipment.

VI CONCLUSIONS AND OUTLOOK

There are currently over 20 million households and 10 million MSMEs without access to electricity,⁵⁵ which translates as 45 per cent of the population having access to electricity from the grid. This means that there is still great reliance on self-generation using generators. With the United Nations projecting Nigeria's population to exceed 300 million by 2050, thereby overtaking the United States as the third most populous nation in the world, it is crucial that the current supply outlook is addressed urgently, to match the growing population and its electricity needs.

The federal government, under the NREEEP, plans to ramp up the percentage contribution of solar energy to the energy mix to a minimum of 3 per cent by 2020 and 6 per cent by 2030. Furthermore, once commercial issues are resolved, the prospect of 14 solar PPAs becoming operational, combined with the innovative efforts of the REA to harness renewable power through its special EEI and EEP projects, suggests that Nigeria's renewable energy future is looking bright.

In addition to the above, the rapid growth of stand-alone solar solutions in recent years is also a testament to the opportunities that lie in the energy sector, with more solar companies focusing on providing small-scale solutions to meet everyday household and commercial needs. This is further complemented by the investments in the mini-grid space under the NESP, NEP and NPSP platforms. Furthermore, in the wake of the covid-19 pandemic, the use of renewable energy has proved to be a solution to challenges emerging in the healthcare sector, as well as in agriculture. In the healthcare sector, we have seen its usefulness in laboratories, primary healthcare facilities and hospitals. In the agricultural sector, renewable energy will help in providing solutions in the areas of food production and processing. However, it remains important to address the challenges in financing on-grid, off-grid and distributed energy projects in Nigeria, to make attracting investment in such projects more viable. C&I consumers are increasingly interested in affordable and reliable power solutions, and the use of solar power systems is a growing trend because of the heavy costs of diesel generators and the environmental ambitions of these companies.

While the exemption of renewables from VAT provides relief and a level of incentive and will potentially encourage growth in the renewable energy space, the government will need to further incentivise and provide avenues to facilitate the delivery of power generated from renewable sources to the grid or through the distribution companies' networks, including by determining suitable tariff methodologies. In addition, to move Nigeria's renewable energy sector forward, the government will have to focus on ensuring that the relevant policies to

55 <https://www.usaid.gov/powerafrica/nigeria>.

encourage development of renewable energy projects (including manufacturing components locally) are codified and duly enforced by the various regulators and stakeholders. Also, the government must address both the administrative bottlenecks (which often cause delays and stifle investment) and the liquidity issues in the sector by harmonising processes, technical codes and standards to enable capacity development in the sector.

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Dolapo Kukoyi is a partner at Detail and leads the firm's power practice. She is one of the leading lawyers in Nigeria's power sector. Her transactional experience includes advising the Central Bank of Nigeria and the Nigerian Electricity Regulatory Commission (NERC) on the 213 billion-naira intervention fund for the Nigerian electricity supply industry; and advising clients on the privatisation of the Power Holding Company of Nigeria (PHCN) and National Integrated Power Project (NIPP) assets in the Nigerian power sector. Dolapo advised the Nigerian Energy Support Programme (NESP) and NERC in drafting the regulation for mini-grids below or equal to 1MW, and also advised the NESP on structuring mini-grid pilot projects in five states in Nigeria (Niger, Ogun, Sokoto, Cross River and Plateau). She is currently advising the Lagos State government on the Light Up Lagos project to facilitate the delivery of 3000MW through embedded power generation. Dolapo serves as lead for the Climate Change thematic group of the Sustainability Policy Commission of the Nigerian Economic Summit Group and is an advisory board member of the Renewable Energy Association of Nigeria. Dolapo earned her law degree from the University of Ibadan in 2001 and holds a diploma in intellectual property law from the International Bar Association and the College of Law of England and Wales (2007).

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