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Legal regime for renewable energy in Nigeria

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Introduction

Over time Nigeria has sought to bring renewable energy into the energy mix as part of measures to reduce global warming. This article:

- highlights the legal regime to achieve that purpose;
- makes a case for renewable energy regarding the current situation in the power industry; and
- touches on the benefits of using renewable energy and the opportunities in the renewable energy sector.

Energy policy

Nigeria's first meaningful foray into renewable energy can be traced back to the Nigeria Energy Policy of April 2003, which set out the framework for the development, exploitation and supply of all Nigeria's energy resources. The policy itemised the sources of renewable and clean energy to include hydropower, biomass, wind, solar and other renewables such as:

- ocean waves;
- tidal energy;
- ocean thermal gradients; and
- geothermal energy.

It further went on to identify the need to diversify the energy base and conserve non-renewable sources of energy.

Presidential Adviser for Petroleum and Energy Alhaji Rilwan Lukman said: "It is hoped that the document will provide the framework for a better development of the energy sector and for a more effective contribution of the sector to the national economy."⁽¹⁾

Renewables under EPSRA 2005

It might have been expected that the legal framework for renewables would be part of the Electric Power Sector Reform Act (EPSRA) 2005 which was the next major legislation on power. However, the main thrust of the EPSRA was to:

- unbundle the government-owned power company;
- privatise the successor generation and distribution companies; and
- establish the Nigerian Electricity Regulatory Commission (NERC).

Unfortunately, the EPSRA did not carry on the spirit of the policy, and renewables only got a mention in relation to the Rural Electrification Agency in section 88(9). This section states that the Minister of Power and Steel, in consultation with the NERC and the Rural Electrification Agency, will prepare a quarterly report that will include information relating to renewable energy power generation – otherwise, the EPSRA is silent on renewables.

Policies, plans, programmes and guidelines

Against this backdrop there have been numerous policies, plans and guidelines geared at increasing the percentage of renewable energy in Nigeria's energy mix such as:

- the Energy Masterplan (2005 and 2012);
- the Renewable Energy Policy Guidelines (2006);

- the Nigerian Biofuels Policy and Incentives (2007);
- the National Renewable Energy Action Plan (2015); and
- the Nigeria Solar independent power producer Support Program.

However, the policies have not yielded the desired effect of increasing the percentage of energy generated from renewables into Nigeria's energy mix.

Renewable energy on grid

In 2015, the NERC approved the NERC Feed-in Tariff Regulations for Renewable Energy Sourced Electricity, which set the tariffs for renewable power plants of between one megawatt and 30 megawatts of capacity. Under the regulation, the Nigerian Bulk Electricity Trader is expected to procure 50% of the power produced from renewable power plants and the distribution companies are expected to procure the balance.

At the time of the regulation's publication, the NERC stated on its website that the regulation would "stimulate investments in 2,000 megawatts of electricity from renewable energy sources by 2020" and it was "envisaged that the country would generate at least 1,000 megawatts from renewable energy sources by 2018".⁽²⁾

Current situation

The NERC states that power generation in Nigeria is from 23 grid-connected generating plants with a total installed capacity of 10,396 megawatts. This includes thermal plants, which have 8,457.6 megawatts of installed capacity, and hydro-generating plants, which have 1,938.4 megawatts of installed capacity.⁽³⁾ Essentially, the laudable intentions of the policies and subsidiary legislation have not been actualised as renewables have not met the target of contributing 2,000 megawatts to the energy mix, as was projected for 2020.

National grid

Even with the available capacity of approximately 6,100 megawatts, the ability of the grid to transmit power has not been on par with generating capacity. Transmission reached its peak on 1 March 2021 when the Transmission Company of Nigeria (TCN) transmitted 5,801.6 megawatts. The national grid has not been able to operate optimally. It was reported to have collapsed eight times in 2022.⁽⁴⁾ However, TCN recently increased its wheeling capacity to 8,100 megawatts under the Nigerian Electricity Grid Maintenance Expansion & Rehabilitation Programme.⁽⁵⁾ It is clear that Nigeria requires off-grid renewable power generation in order to provide power for unserved and underserved communities.

NERC's off-grid solutions

The NERC, in recognising the importance of off-grid solutions, has various regulations geared at developing alternatives to the national grid and creating the framework for:

- captive power generation;
- embedded power generation;
- off-grid generators; and
- mini-grids.

Some of these mechanisms are highlighted below.

Captive generation

Captive power generation is the generation of electricity that exceeds one megawatt for the purpose of consumption by the generator, which is consumed by the generator itself and is not sold to a third party.⁽⁶⁾ However, the NERC can issue its consent for excess power not exceeding one megawatt to be sold to an off-taker and, if the surplus exceeds one megawatt, the generator must apply for a generation licence.

Embedded generation

Embedded generation is the generation of electricity that is directly connected to and evacuated through a distribution system.⁽⁷⁾ There are three classes of embedded generation:

- small units (one megawatt to six megawatts);
- large units (six megawatts to 20 megawatts); and
- units of over 20 megawatts (which are required to dispatch electricity into the grid).

Embedded power has been used in several European countries to distribute electricity generated from renewable energy.

Off-grid electricity generation licence

This licence category issued by the NERC is for the generation and sale of power to a single buyer through a power purchase agreement.

Mini-grids

Mini-grids are part of the solution to minimising reliance and pressure on the grid while bridging the electricity supply gap using renewable clean energy. A mini-grid is:

any electricity supply system with its own power generation capacity, supplying electricity to more than one customer and which can operate in isolation from or be connected to a Distribution Licensee's network. . . . any Isolated or Interconnected Mini-Grid generating between 0kW and 1MW of Generation Capacity.⁽⁸⁾

The Regulation for Mini-Grids 2016 covers the issuance of mini-grid permits to qualified operators and modes of application for permits for isolated mini-grids (larger than 100 kilowatts to one megawatts). It stipulates that operators of isolated mini-grids of up to 100 kilowatts can apply for a permit or simply register the project as a mini-grid without the rights and obligations of a permit holder. In addition, the regulation addresses interconnectivity to a distribution network, tariffs, safety, dispute resolution and other issues.

COP 26 and Sustainable Energy for All

Nigeria signed the Paris Agreement on 22 September 2016 and ratified it on 16 May 2017. The Paris Agreement is an international treaty under the aegis of the United Nations Framework Convention on Climate Change and has been adopted by 196 countries with the goal of limiting global warming. At COP 26, Nigeria committed to zero emissions by 2060 and, soon after, the federal government rolled out the Nigeria Energy Transition Plan. This plan outlines Nigeria's goal to reduce emissions from power generation by transitioning from diesel and petrol generators as it increases generating capacity due to integrated renewable sources of energy. Ultimately, the plan aims to increase the use of renewables to supply electricity to homes, industries and for transport.

As part of the implementation of Sustainable Development Goal 7 (affordable and clean energy), Nigeria has implemented the Sustainable Energy for All (SE4All) initiative. This seeks to ensure access to modern energy, doubling the energy efficiency rate and the renewable energy mix by partnering with international organisations, foreign governments, finance institutions, businesses and civil society.

Some highlights of the Nigeria's target under SE4All are:

- energy access – to reduce the percentage of people living without electricity from 60% in 2015 to 10% in 2030;
- energy efficiency – to achieve lighting that is 100% energy efficient in homes and that is 50% energy efficient in industries; and
- renewable energy – Nigeria's electricity vision, known as "30:30:30", is for renewable energy to contribute 30% of the electricity mix by 2030.

The Nigeria SE4All initiative also supports the growth of mini-grids and solar home systems as alternative power sources for those on the grid and as an off-grid power solutions for people in unserved areas. The NERC, in highlighting the potential of renewables, has stated that hydropower alone can generate an estimated 10,734 megawatts and that solar energy could be utilised in smaller applications.

CCA 2021

As part of its commitment to resolving global warming, the Climate Change Act (CCA) 2021 was enacted in Nigeria to provide a framework for climate change actions and carbon budgeting, and to establish the National Council of Climate Change (NCCC). With a view to increasing renewable energy, the secretariat of the NCCC is required to formulate a five-year National Climate Change Action Plan that prescribes measures and mechanisms to enhance energy conservation, energy efficiency and renewable energy usage in industrial, commercial, transport, domestic and other areas.⁽⁹⁾

Projects with potential for renewable energy

Several ongoing projects show potential for renewable energy, such as the 1.2 megawatt on-grid solar plant at the Lower Usuma Dam in the Federal Capital Territory, Abuja, which is dedicated to the Usuma Dam Water Treatment Plant. Apart from creating employment, former Minister of Power Babatunde Fashola stated that, "through the project, water treatment bills would reduce by N31Million per annum while carbon emission would reduce by 741 tonnes per annum".⁽¹⁰⁾

In Rimi, Katsina State, the federal government is building a [10 megawatt wind power plant](#), which commenced as a Katsina State project in 2005. The federal government took it over in 2007. However, commissioning of the project has suffered delays due to various reasons. Notably, the [Japanese International Cooperation Agency](#) partnered with the government on both these projects.

In 2018, the African Development Bank approved a grant of \$1.5 million for the feasibility studies for the Jigawa 1-GW Independent Power Producer Solar Procurement Program. The Rural Electrification Agency is developing this programme and the Moroccan Solar Energy Agency will support it.

To further emphasise the economic importance of renewable energy and off-grid energy solutions, the Rural Electrification Agency noted that developing off-grid alternatives to complement the grid creates a \$9.2 billion per year⁽¹¹⁾ market opportunity for mini-grids and solar home systems that will save \$4.4 billion per year⁽¹²⁾ for Nigerian homes and businesses.⁽¹³⁾

Energy deficit and renewable energy

The World Bank estimates that "85 million Nigerians do not have access to grid electricity" and that this represents 43% of the country's population and makes Nigeria the country with the largest energy access deficit in the world.⁽¹⁴⁾ The Association of Nigerian Electricity Distributors believes that Nigeria requires 30,000 megawatts now so there are huge opportunities for renewable energy in Nigeria. There is no doubt that the use of renewable energy for on-grid and off-grid solutions will go a long way in closing the gap between demand and supply of electricity.

Comment

The solutions that will enable the increase of renewable energy in the power sector must go beyond the regulatory landscape and should comprehensively address issues of:

- project financing;
- cost of capital;
- off-grid solutions;
- fiscal incentives;
- energy pricing; and
- most importantly, the ability of the consumers in remote and rural areas to pay for the power generated while ensuring the renewable plants are profitable.

All of this can be achieved while Nigeria goes green, lowering carbon emissions and saving the environment from further degradation to give Nigeria and the world a cleaner and healthier future.

Endnotes

- (1) Foreword of the National Energy Policy.
- (2) For further information please see "[NERC's Regulation Envisages 2,000MW of Renewable Sourced Electricity by 2020](#)".
- (3) For further information please see "[Power generation in Nigeria](#)".
- (4) For further information please see "[Blackout as national grid collapses – eighth time in 2022](#)".
- (5) For further information please see "[TCN Raises Power Transmission Capacity To 8,100MW In 7 Years](#)".
- (6) Section 1 of the NERC Captive Regulations for the Granting of Permits for Captive Power Generation.
- (7) The NERC Regulations for Embedded Generation 2012.
- (8) Section 3 NERC Regulation for Mini-Grids 2016.
- (9) Section 20 of the CCA - the plan is to be formulated in consultation with the federal ministries responsible for the environment and budget and planning.
- (10) Starconnect Media Nigeria, 24 August 2016.
- (11) N3.2trn/year.
- (12) N1.5 Tran/year.
- (13) "How off-grid power can help bridge Nigeria's energy deficit" by Jeremiah Odoh, 11 July 2022, Business Day online
- (14) World Bank PRESS RELEASE No. 2021/088/AFR.