DISTRIBUTED ENERGY RESOURCES IN NIGERIA: ANALYZING THE AMENDMENT TO THE CONSTITUTION OF THE FEDERAL REPUBLIC OF NIGERIA (FIFTH ALTERATION) BILL, NO.33, 2022

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Abstract

This paper analyses the electric power situation in Nigeria, given the structure after the unbundling of the Nigerian Electricity Supply Industry following the reform and privatization by the passing of the Electric Power Sector Reform Act. As a solution to Nigeria's electricity issues, the paper considers the introduction of distributed energy resources. Still, it recognizes the limitation to this due to the restriction in Items 13 and 14 of the Second Schedule to the Constitution of the Federal Republic of Nigeria 1999 (as amended). Following the amendment of these items by Bill No.33 2022, the paper proposes that state governments begin to consider introducing distributed energy resources to improve their energy supply and economic activities.

Introduction

There is no doubt that there is a significant economic correlation between electricity generation and demand and the economic growth of a nation. Reports are linking the world's biggest economies to their electricity generation figures. Wu states that "China is estimated to become the world's largest economy in terms of gross domestic product (GDP), considering purchasing power parity (PPP), with a total output value of $43 trillion, while the United States and India are projected to be the second and third-largest economies, with economies of $26trillion and $24 trillion respectively, by 2035." (Wu et al., 2019). Ou et al. (2016) also states that "electricity is a driving force of economic development...(and) the shortage of power supply will seriously affect the healthy development of the economy and can cause large economic losses".

Thus, to improve Nigeria's economic prospects, there is a need to improve Nigeria's electricity fortunes. Nigeria has an installed capacity of 12,522MW and less actual generation capacity (ITA, 2021), thereby occasioning inadequate power supply. The effect of an inadequate energy supply in Nigeria is that businesses do not have electricity to power their operations. With the lack of energy comes the need to generate electricity privately, either through power generating sets or other alternative and renewable means. This comes at an additional cost to the entities and increases the operational expense of the entity, making this unsustainable. Thus, there is a fundamental problem with Nigeria's electricity supply, not meeting up with the demand of Nigerians. On the other hand, Nigeria's electricity industry is very centralized, as highlighted later in this paper. At present, the Nigerian Electricity Regulatory Commission ("NERC") is the supervising regulatory agency over electricity activities in Nigeria, with specialized agencies, bodies, and companies responsible for the different layers of the industry. The NESI licenses to carry out activities are obtained from the NERC.

Given this over-centralization, this paper poses the question of whether the centralization of the Nigerian Electricity Supply Industry ("NESI") is effective, given Nigeria's complex needs and whether decentralization, through the use of Distributed Energy Resources ("DER"), should be adopted. If DER were to be adopted, what are the current limitations, and how will the new amendment to Item 13 and 14 of the Second Schedule to the Constitution of the Federal Republic of Nigeria (Fifth Alteration Act) change the status quo? To change Nigeria's electricity situation and answer the questions posed above, this paper posits that Nigeria

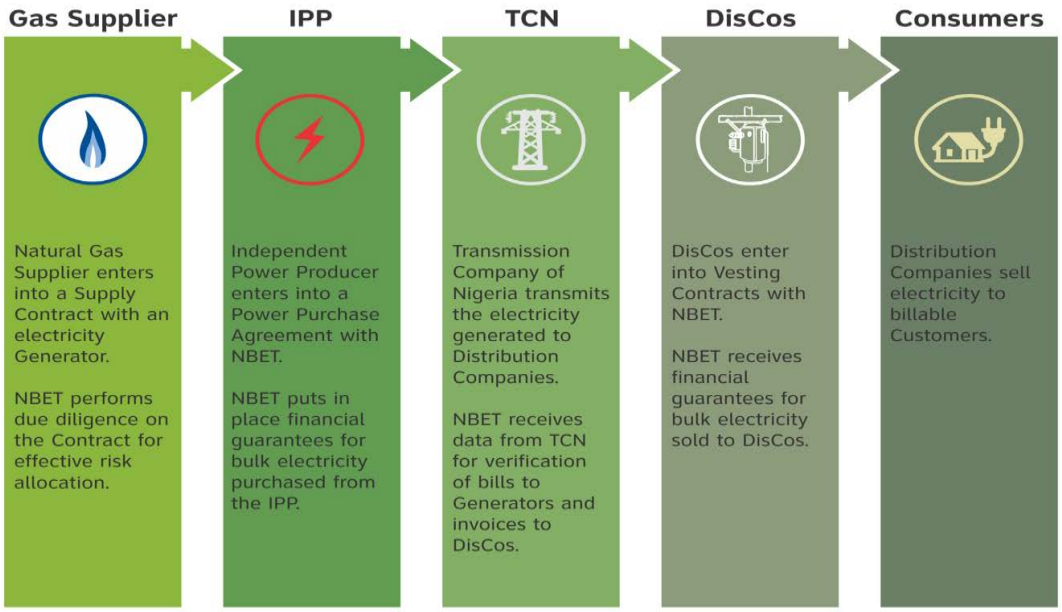
must decentralize the NESI and proposes the introduction of DER into Nigeria's electricity mix. This proposal has been given hope by the recent passing, by the National Assembly, of Bill No.33 amending the Constitution of the Federal Republic of Nigeria, 1999 ("CFRN"). In the following sections, this paper will conduct a brief analysis of the current regulatory framework, the proposed framework given the recent amendment and suggest actions state governments should be taking.

Nigeria's current electricity mix and the Constitution of the Federal Republic of Nigeria

The Nigerian Electricity Supply Industry ("NESI") presently consists primarily of three key players, with other supporting players, though equally important in their right. The generation companies generate electricity through the country's electricity generation points. Following the passing of the Electric Power Sector Reform Act ("Power Sector Act"), the government sold energy-generating plants to private entities (NERC, 2022).

The transmission infrastructure was placed under a Management Contract and subsequently terminated. The Transmission Company of Nigeria currently handles transmission services in Nigeria. It is a public company owned by the federal government and has a Transmission License and a System Operator License. The TCN transmits electricity received from generation companies (inclusive of IPPS and NIPP) to the Distribution Companies while supplying the Nigerian Bulk Electricity Trading Company with the data of electricity transmitted. The distribution utility of PHCN was sold to distribution companies operating within the country and distributing electricity to consumers residing within their allocated areas (see Figure 1).

Figure 1: The Transactional framework of the NESI



Source: https://nbet.com.ng/nesi.html

Closely tied to the transaction structure of the NESI, as depicted in the image above, is the regulatory framework applicable to the industry. This structure includes the NERC, a body created under the Power Sector Act, with the mandate to oversee the administration of the Power Sector Act, create an efficient industry, create a market structure, and issue licenses. With the understanding of the transaction structure of the NESI, there comes the need to understand the constitutional provision relating to the NESI and how it impacts the ability of State governments and critical players in developing the NESI.

Constitutional Framework for NESI under the CFRN, as amended

Part II of the Second Schedule of the CFRN lists electricity as one of the matters in the concurrent legislative list. Item 13 of Part II of the Second Schedule provides that "the National Assembly may make laws regarding the generation and transmission of electricity in or to any part of the Federation and from one State to another State, as well as the regulation of any right, authority to use or supply of electrical energy;" while Item 14, line "A" provides for State House of Assembly to make laws relating to electricity and establishment in the state of electric power stations, but subsequently limits the generation, transmission and distribution of electricity for States to "areas not covered by a national grid within that State". As provided under the Power Sector Act, areas not covered by the national grid are to be captured and provided for by the Rural Electrification Agency ("REA"). The REA is a body set up under the Power Sector Act to, among other things, work towards the development of renewable energy sources and research to provide electricity to areas not covered by the national grid.

A critical look at this provision presents the contradictory nature of the Power Sector Act and the Constitution. The REA has the mandate to develop off-grid solutions to close the electricity gap and actively work towards bringing unserved areas into the main grid. Still, the REA remains a federal government agency, responsible to the Minister of Power. Seeing that the unserved areas are typically rural areas within states of the federation, it is more appropriate for this power to be vested in the state governments instead.

This limitation of the state's powers to generate, transmit or distribute electricity constitutes a fundamental problem in the NESI value chain. Apart from the national transmission infrastructure being depleted and requiring critical updates, some contracts have already been awarded and significantly passed the expected completion date, but the projects are below the completion target. (Transmission Company of Nigeria, 2022). This critical decay of the national transmission grid has occasioned more than 200 national grid collapses, occasioning severe blackouts in the country (Emodi & Diemuodeke, 2022) and leading to a reduction in the economic power of the country.

Policy Recommendation

This paper proposes the introduction of Distributed Energy Resources ("DER") through a decentralized energy system. A decentralized energy system generally is one where energy production facilities are closer to the site of energy consumption and allows for more use of resources, particularly renewable energy. (UNESCAP, 2012) DERs are "small-scale electricity supply or demand resources that are interconnected to the electric grid. They are power generation resources and are usually located close to load centres and can be used individually

or in aggregate to provide value to the grid" (Cummins Inc., 2021). They are electricity-producing resources that are connectable to local distribution systems and can be used to supplement the power supply in an area through renewable means. For DERs to work, renewable energy systems must be in place and popularized. More importantly, energy resources closer to the deployment areas must be encouraged. Thus, in a country like Nigeria, attention must be shifted to various resources in the different regions for energy generation, transmission, and distribution. For instance, Northern Nigeria is humid and windy and can generate electricity through solar and onshore wind energy, with a huge capacity to generate and store the energy generated within that state, transmit and distribute the needed resources to homes within the state and excess energy generated transmitted to the national grid. In the Southern part of Nigeria, electricity may continue to be generated through hydrothermal sources while adding offshore wind energy to the energy mix.

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As earlier referenced, the Second Schedule to the CFRN creates a legal dilemma wherein the state's power to generate, transmit and distribute is limited to areas not covered by the national grid. This limitation is of such fundamental nature wherein states effectively cannot take action to provide remedies to the inadequacies of power generation within the control of the federal government. Even though the Power Sector Act created the Rural Electrification Agency ("REA") as a body saddled with the responsibility to use public and private sector participation to ensure equitable electricity access, particularly to rural areas not covered by the national grid, the REA is essentially a federal government agency and is not within the control of the state governments. Thus, state governments practically do not have control over electrification projects in their states.

With the amendment of Items 13 and 14 of the Second Schedule of the CFRN in Bill No.33 2022, by removing "areas covered by the national grid", there may have been the removal of the limitation on state governments' powers to legislate on generation, transmission and distribution within their states. While it is early to rejoice as the Nigerian constitutional amendment process requires this amendment to be passed by two-thirds of the State Houses of Assembly, there is hope that if passed into law, state governments can take better actions. Thus, this brief is to help set the course of action and a policy call for state governments to help direct where attention should be turned, on being given the powers to change the economic fortunes of their states through distributed energy resources.

In addition to the above, distributed energy resources would create economic opportunities within states that did not previously have sufficient economic activities. It is expected that renewable energy companies involved in distributed energy resources within the state would set up entities within each state to generate, transmit, distribute, store and wheel excess energy to the national grid, thereby boosting economic activities within each state.

Conclusion

Nigeria's electricity challenges are not insurmountable; even though current legislations may present it as being difficult, it is possible to change the course of Nigeria's history, given its size. While distributed energy resources can be executed and monitored in addition to other

technologies, there must be increased political pressure to ensure that state parliaments approve this amendment. In contrast, state governments must consider various options to improve their electricity output once this power is vested in their parliaments. In addition, distributed energy resources will not solve all the issues that plague the NESI; it will reduce the pressure on the national grid, decentralize energy generation, and cause each state to work towards energy sufficiency to improve states' economic fortunes.

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