

Rural Electricity Supply and Entrepreneurship Development in Nigeria

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Abstract

One of the causes of poverty in Nigeria is the hostile environment for private sector growth. Enterprises wishing to operate in Nigeria in general, and in the rural areas in particular, face constraints including poor and intermittent electricity supply. Electric power is the most critical constraint to enterprise competitiveness in Nigeria. Power alone accounts for 5% of new business start-up costs. About 25% of business start-up costs are spent on private power generations. Privately generated electricity costs about two and a half times as much as electricity provided by the Power Holding Company of Nigeria. To address this problem of power supply, the Federal Government of Nigeria set targets for increasing total power generation in the country from 4200 megawatts in 2004, to 10,000 megawatts by the end of 2007. In addition, the federal government also encouraged private sector investments in the form of independent power projects. In spite of these measures, the problem of poor and intermittent power supply especially in the rural areas still persists with the obvious dire consequences on entrepreneurship establishment and expansion. Using mainly secondary data, this paper reviews the measures taken to solve this problem of power supply and offers some suggestions on how to improve rural

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power supply as an enabling environment for entrepreneurship development.

Key Words: *Rural Electricity; Entrepreneurship Development; Independent Power Project; Wealth Creation; Nigeria*

Introduction

Unemployment in Nigeria has been blamed on power shortages and regular outages (Rahaman, 2011). This irregular supply is as a result of poor power generation, distribution and supply by the government. The situation is more problematic in the rural communities where residents hardly access electricity supply. As a consequence, the cost of doing business is not only astronomical, it is particularly a disincentive for entrepreneurship.

Entrepreneurship is a necessary ingredient for self-employment, which in turn creates jobs and opportunities. Realising that economic growth is impossible without jobs and opportunities, it is imperative that any disincentive to enterprise establishment and eventual expansion should attract the attention of development practitioners. This is because an improvement in the provision of electricity supply in the rural areas will likely enhance job creation and economic growth particularly in Nigeria.

Thirty-five countries in Africa are experiencing a power crisis and the supply is regularly interrupted (Bayliss, 2009). One in four Africans has access to electricity and in rural areas the figure is below one in ten (MDG Africa Steering Group, 2008). In Nigeria, over two-thirds of the population live in rural areas (2005). As a result, poverty in Nigeria tends to wear a rural face.

One of the causes of poverty in Nigeria is the hostile environment for private sector growth. The role of the private sector in poverty reduction is critical. A viable private sector creates jobs, generates wealth and fosters economic growth. However, according to Africa Institute for Applied Economics (AIAE, 2007), enterprises wishing to operate in Nigeria in general, and in the rural areas in particular, face constraints including poor and intermittent electricity supply. This underlines the need for rural electricity supply as an enabling environment that empowers entrepreneurship in Nigeria.

The goal of this paper is to highlight the need for the provision of reliable rural electricity supply as a requisite incentive for entrepreneurship development in Nigeria. Specifically, this work seeks to:

- i. Analyse past and ongoing efforts at establishing and expanding rural access to the electricity infrastructure; and
- ii. make recommendations based on its findings.

Secondary data were mainly used for the study. Information were obtained from both published and unpublished documents. Inaddition, the researcher consulted with a wide range of stakeholders including federal, state and local governments, potential investors, NGOs and the Power Holding Company of Nigeria. Energy Sector Management Assistance Program (ESMAP) reports were also consulted.

Electricity and Development: A Theoretical Overview

The cycle of poverty or the poverty cycle is a commonly occurring term in development studies. It refers to a social phenomenon in which poverty-afflicted individuals tend to remain poor throughout their lifetime and in some cases generations. ([Wikipedia.org/wiki/cycle_of_poverty](https://en.wikipedia.org/wiki/Cycle_of_poverty) accessed 21 February, 2012). The cycle has been described as a vicious circle for it occurs because the financial resources necessary to break out of poverty- productive capital- can only be acquire if the individual has financial resources in the first place. It is assumed that the poverty-stricken find it hard to break out of poverty because they are sufficiently deficient in resources to invest in their own economic development. When applied to countries, the cycle of poverty is called the development trap.

At global, national, state and even local levels, a common approach to poverty reduction is by ensuring sustainable economic growth (Oji, 2005). At the Millennium Summit in September 2000, the largest gathering of world leaders in history adopted the United Nations (UN) Millennium Declaration committing their nations to a new partnership to reduce extreme poverty. The gathering also accepted series of time-bound targets with a deadline of 2015. These targets have become known as the Millennium Development Goals

(MDGs) (UN Millennium project accessed 21 February, 2012). In adopting strategies for the achievement of the MDGs, the assembly concluded that reduction in extreme poverty cannot be achieved without energy to increase production and income, create jobs and reduce drudgery. The assembly also realised that electricity access in particular is of paramount importance because of its convenience as an energy form for various applications (Jesuleye, Siyanbola & Ilori, 2010). It was against this background of capital investment in the electricity infrastructure that this study was conducted.

Rural Electrification and Nigeria's Electric Power Sector

The main objective of rural electrification is to make available basic infrastructure for socio-economic development and industrialisation of the rural areas (Okonkwo, 1995). This basic infrastructure not only provides employment opportunities to the rural dwellers but also provides the enabling environment for private sector-driven economic growth.

Since the first arrival of electricity in Nigeria in 1896, the industry has been faced with the problems of limited facilities (NEPA, 1973-78). As a result, electricity supply was concentrated in the urban areas. Rural electrification was neglected. Conscious efforts at rural electrification in Nigerian were made in the middle of 1970s. During this period the Federal Government made policies aimed at extending electricity to all local government headquarters in the country. According to NEPA (1973-78), State Governments were permitted to establish micro electrification projects which were all supplied by power station.

In pursuit of the rural electrification project, state governments established rural electrification boards. However, the states' rural electrification boards adopted inconsistent strategies in the rural electrification implementation. While some State Governments supplied electricity to the rural areas through the national grid, others adopted the strategies of supplying power from State- owned generating stations.

In the beginning, the policy was to extend electricity to all local government area headquarters. It should be pointed out that the epileptic supply of electricity to these headquarters notwithstanding,

connection of local government area headquarters does not equate with connection to the nooks and crannies of the rural areas.

A more comprehensive reform is currently going on in the Nigerian power sector. The Electric Power Sector Reform Act of 2005 provides for the establishment of the Rural Electrification Agency. This agency is charged with the preparation and submission to the President a sustainable and coordinated rural electrification strategy and plan for Nigeria. Achievement and progress of the rural electrification strategy and plan are periodically reported to the President based on information relating to: (a) the expansion of the main grid, (b) the development of isolated and mini-grid system, and (c) renewable energy power generation. The Rural Electrification Agency is empowered to set up and administer the Rural Electrification Fund. According to the Electric Power Sector Reform Act (2005), the purpose of the Rural Electrification Fund is to promote, support and provide rural electrification programmes through public and private sector participation in order to: (a) achieve more equitable regional access to electricity, (b) maximize the economic, social and environmental benefits of rural electrification subsidies, (c) promote expansion of the grid and development of off the grid approaches to rural electrification, provided that no part of the Rural Electrification Fund shall be used as subsidies for consumption. However, the activities of the Rural Electrification Agency and the ancillary Rural Electrification Fund are thin on the ground as they are mired in soggy bureaucratic quagmire.

According to Abdul-Razaq (2006), with a population of 55million, UK has an installed generating capacity of 72,000 Mega Watts, (MW) and has a peak demand of 55,000MW. With a population of 40million, South Africa has an installed generating capacity of 42,000MW and peak demand of 38,000MW. Nigeria has installed power generation capacity of 6000 MW (Anon, 2006). Power is generated from three hydro stations; namely Kainji, Jebba and Shiroro all in Niger state, thermal stations in Egbin (Lagos State) Afam (Rivers State) and Sapele (Delta State). Despite Nigeria's power generation and consumption potential, poorly maintained facilities brought the national power generation service to virtual

collapse towards the end of 1999 and the beginning of 2000. In the views of Soludo (2006), the entire basic infrastructure was in a state of crisis with barely 1700MW/h of electricity being generated for a country that needed at least 50,000MW.

A new vision for the power sector in Nigeria envisages 15,000 kilometers of new transmission lines, 17 new power plants and so many integrated power plants (IPPs). The IPP is conceptualized as an intervention project to comprehensively address the state of electricity infrastructure in the country. Under the National Integrated Power Project (NIPP), seven new power stations with 2,744MW capacity would be constructed and seven new substations would be built alongside the expansion and reinforcement of 32 existing substations as well as the reticulation of 3000km of new transmission line project (Igolo, 2006). The NIPP is designed as a fast track approach to improving the nation's electric power supply through the implementation of generation, transmission, and distribution of gas projects.

The N33 billion NIPP was flagged off with the 561MW gas turbine in Cross River State. The project located at Ikot Nyong in Odukpani Local Government Area of the state was conceived in December 2004 with an expected completion date of 2007 when it was expected that seven new power stations would come on stream and 10,346 MW of electricity would be generated. The government that initiated the project left in 2007 without achieving the expected completion. The succeeding government suspended it only for yet another to re-launch it in the latter part of 2010. Thus Nigeria is still waiting for the materialisation of the laudable objectives of this project. According to NPC (2007), Nigeria significantly lags behind comparable countries on access, quality and affordability of electricity supply. Per capita electricity consumption in Nigeria in 2003 stood at 125KWh compared to 4513KWh for South Africa. The UNIDO Manufacturing Enterprise Survey (2007) found that firms have only 2.98 days of public electricity in a week. This volume of public electricity supply is sufficiently deficient for the thriving of a competitive private sector.

The Role of Electric Power in Creating a Competitive Private Sector

The private sector is expected to be proactive in creating productive jobs, enhancing productivity and improving the quality of life (NPC, 2005). Related to private sector activities, entrepreneurship is also central to the wealth and competitiveness of a nation. If the entrepreneur is the engine of growth, then electricity as an infrastructure powers that engine. According to Igbinovia and Orukpe (2007), rural electrification in Nigeria is expected to bring about positive change in a number of areas: enhanced changes in the communities overall productivity, emergence and sustenance of small scale industries and agro-allied industries, mechanized farming and irrigation schemes, reduced rural-urban drift and reduction in deforestation activities.

According to NPC (2005), Nigeria's infrastructure does not meet the needs of the average investor. This inhibits investment and also increases the cost of doing business. Electric power represents the most important infrastructure requirement for moving the private sector forward (NPC, 2005). This poor power infrastructure has also contributed to poor business environment in Nigeria.

Business environment comprises the enabling conditions for private enterprise and competitiveness of firms in an economy (AIAE, 2007). It is a nexus of policies, institutions, physical infrastructure and human resources which influence the efficiency with which different firms and industries operate (Eifert, *et al.*, 2005). The physical infrastructure aspect of business environment is a limiting factor for enterprise establishment and expansion in Nigeria. This limitation is more pronounced in the rural areas of Nigeria.

Integrated Rural Development Planning

According to Livingstone *et al* (1987), development planning focuses on raising the rate of growth and achieving long term development of the economy in relatively poor countries. In itself, integrated rural development planning is often described as resource allocation, accumulation and management aimed at providing complete and comprehensive increase in the per capita income of the people in a designated area. Such plans are comprehensive in the sense that

they cover all productive activities including agricultural, non-agricultural as well as social infrastructure. It is in effect multi-sectoral within the boundaries of the area concerned.

With respect to infrastructure, energy is critical in integrated rural development. Energy has always been critical for economic growth, social development and poverty reduction (Dorf, 1978.) However, several challenges confront integrated rural development. These include lack of funds for the capital intensive projects; non-continuity with government policies; vandalism and protection of government facilities; and lack of technology to produce the sub-transmission materials and equipment. These challenges are similar to those that face rural electrification in Nigeria. For instance, lack of local technology to produce the sub-transmission materials also affects the implementation of rural electrification to the extent that many of the capital intensive components such as conductors, insulators and transformers are imported. Lack of funds affects integrated rural development planning as well as the capital intensive rural electrification project. Furthermore, the potential investors in the rural electrification project need credible assurances that their investments will not be festered by government policy inconsistency. Thus the prevalent poverty linked characteristics of the rural areas tend to be inextricably intertwined with the near absence of electricity infrastructure.

Poverty, Growth, Employment, Entrepreneurship Nexus

Reducing economic poverty is important for those who are challenged to meet their basic needs and who struggle to eke out a living. Quick and sustained poverty reduction requires pro-poor growth (Manning, 2007). Pro-poor growth is a pace and pattern of growth that enhances the ability of the poor to take part in, contribute to, and benefit from growth (OECD, 2007). There are at least two major views on what is referred to as pro-poor growth (Adelzadeh, 2007). One is based on the absolute notion which considers only the incomes of the poor and the rate at which poverty is reduced. The other utilizes relative changes in the incomes of the poor and their impact on poverty. In both views, measuring changes in the incomes of the poor is emphasised.

Quick poverty reduction involves enhancing growth (rise in average per capita income) that brings about proportionally greater benefits to the poor than to the rich (Kakwani *et. al.* 2003). Thus, growth should be broad based, cutting across strata and regions and inclusive of large part of the work-force of which those who live in the rural areas constitute a considerable component. Policies directed at sustaining growth should essentially increase poor people's opportunities, capabilities and incentives for employment and entrepreneurship.

The question of moving the poor out of the underdevelopment trap is as much about encouraging entrepreneurship as it is about job creation (Shkolnikov & Sullivan 2010). In the views of Baumol *et. al.* (2009), most vibrant economies create the majority of jobs with the small and medium-sized companies- not governments' state-owned enterprises or large multinationals. So, the question of development becomes that of creating small businesses that have strong potential for job creation. Entrepreneurship is necessary for stimulating economic growth and employment opportunities. With particular reference to the developing world, thriving small businesses are the basic engines of job creation, income growth and poverty reduction at large. Because entrepreneurship holds out such possibilities for economic growth and because the entrepreneur is the key to successful business launch, making entrepreneurs out of the willing and able residents in the rural areas through the provision of regular electricity supply is a development imperative. Let us briefly focus on the concept of entrepreneurship to be better able to appreciate its role in job creation.

The Concept of Entrepreneurship

Understanding of the concept of entrepreneurship owes a lot to the work of Joseph Schumpeter in the 1940s. An entrepreneur is a person willing and able to transform a new idea or invention to a successful innovation (Schumpeter, 1941). Schumpeter situated the entrepreneur at the core of economic system, hence the engine of growth. Basic to entrepreneurship is innovation which translates to new methods of production, new products, new markets; or the setting up of new organisation or the breaking up of an existing

one. Thus a veritable characteristic of the entrepreneur is the capacity to create something new.

Another definition of entrepreneurship refers to it as the process of bearing the risks or buying at certain prices and in turn selling at uncertain prices. Distinguishing between the traits of entrepreneurial personality from managerial traits, Lynskey (2000) stated that while the latter is risk averse and tends to be interested in the control of resources, the former searches for opportunities and so is a risk-taker. This idea brings out the degree to which entrepreneurship is associated with bearing risk.

Some other definitions describe entrepreneurship as involving the creation of new enterprises and with the entrepreneur as the founder. One does not however need to be a founder to be an entrepreneur. Entrepreneurship has been equated with starting an own business. Schumpeter viewed entrepreneurship as a force of "creative destruction". In this sense, established ways of doing businesses are destroyed by the creation of new and better ways of doing them. According to NDE (2005), entrepreneurship entails recognising a business opportunity, mobilising men and materials and persisting to exploit that opportunity. In all, entrepreneurship is a necessary prerequisite for self- employment and the entrepreneur is central to successful launch of any business.

Agriculture is Nigeria's main economic activity in terms of employment and linkages with the overall economy (NPC, 2005). Nigeria's economy is diffused with the primary production sector. This sector is dominated by agriculture which accounts for 41% of the GDP (APRM, 2008) followed by crude oil which is 22%. The secondary sector especially, manufacturing, accounts for 3.8 %. This makes Nigeria one of the least industrialized countries in Africa (APRM, 2008).

Rural infrastructure in Nigeria has long been neglected. Investments in infrastructure including electricity have been focused largely on the cities. As a result, the rural population has extremely limited access to electric power supply and development of entrepreneurship. Neglect of rural infrastructure negatively affects efforts towards poverty reduction in the rural areas. For the rural economy to grow, this poverty-linked characteristics must be addressed with a view to enhancing access.

Rural Electricity supply as an Enabling Environment for Entrepreneurship

The federal government approved a National Electric Power Policy in 2001. The rural electrification component of the policy seeks to link rural electrification expansion with economic development objectives and promote the active participation of states, local communities and the private sector. According to EMAP (2005), in 2003, the federal government approved an energy policy for Nigeria. The policy allows for rural energy supply with conventional (petroleum products, gas coal, electricity) and non-conventional and renewable (solar, wind small scale hydro, biomass, fuel wood etc) alternatives. Some aspects of the policy are relevant towards scaling up energy services namely: developing and harnessing solar, wind, hydropower and wood biomass energy resource and integrating them into the national energy mix.

Rural electrification is facing some serious structural challenges. The short fall in the needed Mega Watts of electricity is due to poor power transmission and distribution infrastructure. According to NPC (2007), much of Nigeria's power sector infrastructure was built in the 1970s and 1980s. This under-investment in rehabilitation and maintenance has resulted in poor access and low quality of available power; concerted efforts should be made to upgrade and expand existing facilities. Political considerations, should be minimized, or better still, be completely eliminated in the pursuit of improving electricity supply in the rural areas of Nigeria. In terms of generation, there should be increase in the available capacity.

Available evidence suggests the impact of the ongoing efforts has been minimal. Indeed, the programme of connecting the entire county's local government headquarters to the national grid needs to be upgraded to include connection of all towns and villages to the national grid. Public – private partnership is called for in the execution of such project.

With respect to transmission, there should be upgrading in the transmission evacuation capacity throughout the country. Regarding distribution the overloaded distribution network should be expanded to accommodate the growing number of consumers.

Conclusion and Recommendations

This paper has analysed rural electricity supply as an environment that enables entrepreneurship empowerment in Nigeria. It specifically identified workable approaches for expanding rural access to the electricity infrastructure. One of the causes of poverty in Nigeria is the hostile environment for private sector growth. The issue of moving the poor out of poverty is as much about encouraging entrepreneurship as it is about job creation. Most economies create most jobs with small and medium-sized enterprises as opposed to government-owned companies. Thus the issue of development is that of creating businesses that have strong potential for job creation. Entrepreneurship is necessary for the stimulation of economic growth and employment opportunities. Rural electrification in Nigeria is expected to enhance productivity in the rural areas. However, the entire basic infrastructure for electricity generation in Nigeria is in crisis with barely 1700MW/h of electricity being generated for a country that needs at least 50,000. This effectively inhibits business and also increases the cost of doing business. Because of the important role of entrepreneurship in job creation and eventual poverty alleviation, coupled with the role of reliable rural electricity supply, there is the need for policies, institutions, physical infrastructure and human resources targeted at providing the necessary environment for the efficient operation of firms and industries in the rural areas of Nigeria.

Based on the foregoing, it is recommended that a programme of active Public–Private-Partnership (PPP) in the execution of the project of connecting all towns and villages in Nigeria to the national grid be encouraged. Essentially, governments must avoid corruption and ensure that tariffs, project terms and regulatory conditions are appropriate. Also, in both geography and function, there should be commitment in the implementation of the unbundling of the electricity sector. Power generation should be separated from transmission and distribution. Such restructuring is expected to allow for competition in electricity generation.

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