An Overview of Electricity Sector Reforms in Nigeria

W.A. Isola

Department of Economics, University of Lagos, Nigeria.

Abstract

The paper examined the challenges and prospects of power sector reform in Nigeria by employing a purely descriptive approach. The focus of exposition is on the market structure, market design and supply gap in electricity generation within the context of power reform. The paper adopted oligopolistic game theory-based models of Cournot, Betrand and Supply Function Equilibrium to explain the complex interest groups in the electricity industry and relate d them to experiences in other countries. It concluded with a number of suggestions for moving the sector forward from its lacklustre performance of the years.

Keywords: Electricity, oligopoly, Nigeria

JEL Classification: L92, P11, P21

1. Introduction

The electricity industry has witnessed an insightful growth in the last few decades across the globe. A noticeable feature of this growth is the deregulation to a more vibrant oligopolistic market structure — the subsector used to be monopolistic, with state-owned parastatals. Bacon (1999) submitted that by the end of 1990, most countries of the Organisation for Economic Cooperation and Development (OECD) and over 70 developing and transition countries had taken initiatives towards reforming their power sectors, thus, reflecting an appreciable tempo. Perhaps the advancement in technology, coupled with the changes in economic perceptions, had accounted for this feat. However, the impetus for electricity reform differs significantly among developed and developing countries.

The principal objective of electricity reform is to improve the economic and financial performance of the sub sector in the developed countries, while macroeconomic conditions played a decisive role in transition and developing countries. Many governments of the latter group are no longer willing or able to bear the weight of subsidies, squat service quality, non-collection rates, higher network losses and poor service delivery. Following Nigeria's implementation of the structural adjustment programme (SAP) in 1986, which led to the commercialization and privatization of public utilities as part of its cardinal goals,

the government put in place a number of measures to revamp the power sector. In 1988, for instance, the National Electric Power Authority was commercialized; with this, the organization was able to review its tariffs upward. In 2005, an electricity power reform act was enacted to give legal backing to the reforms in the sector. Through this act, the monopoly of NEPA was broken and a competitive market structure was ushered in, with participation from the private sector.

It is pertinent to ask, however, whether the passing of the bill into law would guarantee efficient and regular supply of electricity at minimum tariffs. Will the current reform avoid the situation of transferring state monopoly to private monopoly, given that competition among the few participants is prone to the exercise of market power by the dominant player in the industry? These questions, among others, have spurred the need to undertake an overview of electricity sector reforms in Nigeria. The focus of this paper, therefore, includes market structure, institutional considerations and supply gap in electricity generation in Nigeria under the reforming scenario. The experience of electricity blackout in the early 2000s in some leading countries, such as Italy (2003), California, US (2001), Auckland, New Zealand (1998), and Chile (1998-1990) Made Newbrey (2002) quoting Watts (2001) to admit that:

> It is clear that deregulation is a high risk choice. Those jurisdictions that have not yet deregulated electricity generation need to think long and hard before they go ahead. Those that have done so need to figure out how to minimize the downside potential of the journey on which they have embarked. (Newbrey, 2002)

In view of this fear even in countries that are regarded as developed, it is imperative to review electricity sector reforms in Nigeria. Examination of the theoretical and institution frameworks for electricity policy reforms would help, in no small measure, shed light on such reforms, as well as help fine-tune policy options for Nigeria. Consequently, the rest of this paper is organized as follows: section 2 presents some theoretical considerations and a review of literature, while section 3 deals with synopsis of the electricity sector , including the electricity sector reform Act 2005. Section 4 is on the envisaged challenges and prospects of the reform, while section 5 presents a conclusion, with some policy implications and suggestions.

2. Theoretical Issues of Power Sector Reforms

The basic thesis of industrial organization is that the structure of an organization determines its performance, measured in terms of operational efficiency. However, one possible explanation of the structure-conduct-performance of an enterprise regards the theories of perfect competition and monopoly. Although the structural features of both markets have been discussed elsewhere (Jehle and Reny, 2001), they provide a description of the extremes (an infinite number of firms versus one firm, and free entry versus blockaded entry); all industries in practice fall somewhere between them. The position of any particular industry can be located along this continuum by looking at the structure of that industry in terms of the number of firms, ease of entry, etc and, from this, predicting the performance of the industry, particularly in respect of profitability. Thus as we move through the continuum from industries with a large number of firms to those with a few, the profitability would rise from normal to super-normal level of monopoly. The long-run economic implications of both competition and monopoly are well documented in the literature.

Penrose (1963) has argued that competition is the most powerful force pushing the economy to higher levels of achievement, increasing efficiency in the use of resources, protecting consumers against exploitation and ensuring reasonable opportunities to make the most of human abilities and assets. On the other hand, monopoly leads to inefficiency and misallocation of scarce resources. Until recently, the electricity industry was operated solely as state-own monopoly with the attendant inefficiency in service delivery, innovation and management, particularly in developing countries. But the modern trend involves competition.

Perfect competition and monopoly models appeared too wide to be applied directly to the electricity industry, since they do not take into account the essential aspects of electricity markets. Newer models combine the scientific individuality of electricity, based on operational models, and the modelling of firms' behaviours, based on oligopoly competition theory. The models differ mainly in their sets of assumptions and the variables they deal with. In this section, an examination of the most relevant models is presented, focusing on their practical features, the economic models they use and the principles they serve.

In a deregulated regime and given the concentrated nature of the market structures, oligopoly competition models, which are rooted in game theory, are most suitable for analyzing electricity markets. According to Blake (2003), the choice has always been between Bertrand and Cournot competition models as major alternatives. Depending on the purpose of the model and type of market,

one approach might be more relevant than the other. Borenstein and Bushnell, (1999) opined that in periods of high demand, the Cournot paradigm corresponds more closely to electricity markets. Furthermore, the use of Cournot competition is supported by the fact that electricity suppliers have limited capacity. But in the Betrand model, any firm can capture the entire market by reducing her pricing relative to those of other competitors. Hobbs (1986), however, argued that since electricity producers have increasing marginal costs, coupled with limited installed capacity, Betrand's assumptions on behaviour might be doubtful. Green and Newbery (1992), Wolfram (1999) and Sweeting (2007) asserted that in periods of low demand, the Betrand model is a relevant approach. thus, the level of capacity constraints and the nature of demand are the main considerations when choosing between and Bertrand and Cournot competition models.

The supply function equilibrium (SFE) is another model for explaining imperfect competition, in which firms compete through the simultaneous choice of supply functions. The attempt to model competition in the presence of demand uncertainty has motivated Klemperer and Meyer (1989) to develop SFE as a model for analyzing imperfect competition. The thrust of their model is that even if an oligopolist knows its competitors' output, the presence of demand uncertainty implies that he would face many possible demand profiles. It has been argued that managerial decisions on the structure, corporate value, size and decisions of the firm determine the supply function that identifies the outputs that the firm will sell at prices that clear the market. Such a supply function provides the firm with flexibility in adapting to changing business conditions.

It has also been argued that the SFE model is more suitable than the Bertrand and Cournot models because it allows for a strategy space in which competing firms choose entire supply functions. The Betrand model chooses price as a strategy, while the Cournot model employs quantity; hence the strategies of both models are limited to price and quantity. In consistency with the Nash equilibrium solution concept that the three models share, each firm's choice of supply function occurs simultaneously.

3. Literature Review

No doubt, the United States has been one of the foremost countries that embraced competition in her electricity sub-sector with remarkable success. This observation should, however, be qualified because of California's initial experience. California originally reformed and liberalized its electricity market because of the dissatisfaction over high consumer prices. Unfortunately after liberalization in 2000, average wholesale price was more than three times that of

1999. Consequently, there was widespread blackout in 2001, with consequent adverse effects on industrial companies, many of which folded-up, recording high rate of bankruptcy that year. Joskow (2001) observed that California's experience showed that poor market design, coupled with inappropriate regulatory and political intervention s, can rapidly produce extremely unsatisfactory outcomes when capacity is tight, particularly if shortages are unexpected.

This seems to corroborate Joskow's (1998) earlier assertion that the success of infrastructure sector reform (especially electricity) partly depends on the creation of effective regulatory institutions. He therefore submitted that issues to be addressed in designing the institutions include the establishment of regulatory goals and deciding on the structure and organization of a regulatory agency. It is noteworthy that the issue of institutional setting is crucial, especially bearing in mind the recent development in California.

Similarly, Joskow (2007) examined the lessons learned from electricity sector liberalization over the past four years. Attributes of the reform model that have spurned good performance are identified, drawing on empirical analysis of market structure, behaviour and performance in many countries. Joskow also discussed wholesale and retail market competition and evidence of networking regulation performance. He concluded by examining the technical, economic and political challenges to improving the efficiency of what continued to be partial liberalization programmes in many countries.

Midttum and Thomas (1996) presented a comparative study of British and Norwegian electricity in introducing competition into their electricity industry. Britain and Norway are European pioneers to have embraced competition in their electricity industries, but they did so in very different ways. Both countries attempted to create a system in which the potentially competitive activities, generation and supply to final consumers were opened up to competitive market forces. However, Britain liberalized by privatization, leaving generation largely in the hands of a few companies. Norway maintained a dominant public ownership but sought to create a competitive environment through a decentralized production structure. The British 'capitalist' and Norwegian 'structuralist' approaches both exhibited clear market-oriented features, but with the dynamics placed respectively on the ownership side and on decentralized competition.

This raises the question on the issue of ownership and control of public enterprises between the private and public sectors. While Britain favoured the transfer of ownership from government to the private sector, Norway embraced public ownership with competition. The danger of outright transfer of ownership

from government to the private sector is obvious in the context of developing countries like Nigeria. Provided the emergent ownership structure is carefully designed, privatization may lead to transfer of government monopoly to private monopoly, which will be counter productive. Economic history has shown that as there are efficient private companies, there are equally efficient public companies; hence, the issue of ownership is incidental to operational performance. What is crucial, therefore, is the enabling environment for a healthy business competition on a level-playing ground for the operators, public or private. This argument, however, has been extensively discussed elsewhere (Isola, 2002). Aside from Norway, Bye and Hope (2006) admitted that other Nordic countries, including Sweden and Demark, have had reasonably successful reform experience s devoid of full privatization. However, the Nordic Competition Authorities (2007) maintained that the Nordic model had to grapple with the challenges of attracting investment in new generating capacity based on market incentives rather than direct or indirect government interventions in the form of subsidies.

Notwithstanding, the strengths and weaknesses of the approaches adopted by Britain and Norway would no doubt be informative to developing countries that are in the threshold of liberalizing their electricity sector. It must be noted that the UK experience on restructuring of its generation and mitigating possible market powers has demonstrated the complexity and challenges involved in introducing competition into the sector. Green and Newbery (1992) showed that the initial structure based on only two unequal competing generators was inefficient and that two equal competing firms would be more effective. Wolfram (1999) showed that, although prices under oligopoly appear seem above marginal costs, regulatory constraints, threat of new entry and financial constraints may produce lower prices than theories would suggest. The UK experience with respect to the determination of optimum market structure might, therefore, be relevant to Nigeria at this stage of her restructuring effort.

The power sector in many Latin American countries has been deregulated with an increasing level of private ownership and management. Pollitt (2004) and Littlechild (2013) noted that the performance of electricity sector in Chile, after the reform, was incredible—for it led to increased investment in generation and transmission, a fall in average industrial and residential prices for electricity, and expansion in rural electrification and improvement in quality of service delivery, among others. The effects of the improvements were noticeable in the growth of the GDP and a decline in inflation during and after the process of privatization. However, the power sector reform processes in Chile, Colombia and Peru were continuous exercises. Overview of the experiences of other countries were

presented by Woof et al. (2010), Chernonko (2013), Sen and Jamash (2013) , Ma (2011) and Dorman (2014). The experiences of these countries are, no doubt, of interest to the current paper.

Consequently on the theoretical considerations and literature review above, a number of lessons can be learnt by Nigeria in her restructuring efforts. First, there is the need to model an optimum market structure from the onset. The modelling of such market structure will provide an insight to the behaviour of the operators in the industry. Second, it is important to pay attention to institutional parameters, that is, the fundamental rules of the game under which the market operates; hence, the need to put firmly in place a strong market design, regulatory framework, and credible regulatory agency devoid of government intervention and manipulation. Perhaps the most important lesson is that models that appear to work well in some circumstances and places may not be easily transferred to countries facing different circumstances.

There are already a good number of studies on electricity industry in Nigeria (see Ayodele, 1978; Taiwo, 1982; Ukpong, 1973; Kayode, 1972; Iwayemi, 1975; Ogunkola, 1992; Awosipe, 2003). These studies have either looked at the supply side or demand analysis of electricity industry in Nigeria. The uniqueness of the current paper lies in its examination of matters arising from the newly enacted Power Sector Reform Act, which was signed into law on 11 March 2005. It also attempts to proffer the way forward for the sector.

4. Electricity Sector Reform in Nigeria

The Electricity Reform Act 2005 is the latest in the array of legislations on the electricity industry in Nigeria. The electricity industry began in the country towards the end of the 19th century; the first generating plant was installed in Lagos in 1898 by the colonial government and was managed by the Public Works Department (PWD). In 1950, the government passed the Electricity Corporation of Nigeria Ordinance No. 15. Thereafter, several other legislations were enacted; these include the Niger Dam Authority (NDA) Act of Parliament of 1962 and Decree 4 of June 1972, by which the National Electric Power Authority (NEPA) was established. NEPA was mandated to maintain an efficient, coordinated and economic system of electricity supply to all part s of Nigeria. The law made NEPA the sole body responsible for the generation, transmission, distribution and marketing of electricity. A monopolistic status was thus conferred on NEPA.

As a state-owned establishment, NEPA was inefficient in service delivery, innovation and management. Following the implementation of the structural

adjustment programme (SAP) in 1986, the federal government put in place several measures to revamp the electricity sector. In 1988, NEPA was commercialized and this enabled the organization to review its tariffs upward. As part of his restructuring efforts, President Olusegun Obasanjo signed into law the Electric Power Sector Reform Bill 2005 that broke the monopoly of NEPA. The specific objectives of the 2005 reform were:

- To ensure a system of generation, transmission, distribution and marketing that is efficient, safe, affordable and cost-effective throughout the industry. In the long run, to provide access to electricity, although not necessarily through grid;
- To ensure that electricity supply is made more reliable so as to effectively support the socioeconomic development of the country;
- To ensure that the power sector attracts private investors both from within and outside the country;
- To ensure minimum adverse environmental impact; and
- To ensure a leadership role for Nigeria in the development of the proposed West African Power Pool.

In order to actualize these objectives, the Power Reform Act of 2005 adopted the wholesale competition model, as opposed to the single-buyer model or retail competition. In this arrangement, distribution companies were to buy power directly from generators and the transmission company was a pure electricity transport and dispatch company. Adoption of this model has paved way for the breaking up of NEPA into 18 companies, comprising 6 generators, 11 distributors and one transmission company. In addition, the Act made provision for the reform in phases. First, a 100.0% state-owned Initial Holding Company (IHC) was created and vested with the assets and liabilities of NEPA. This company coexisted with independent power producers (IPPs), of which NEPA signed power purchase agreements. The National Electricity Regulatory Commission (NERC) was also created at this stage. The creation of this independent regulator is fundamental to the reform programme and the objective of attracting private sector investment. Successor companies were also incorporated at this phase for the purpose of assuming the assets and liabilities of IHC. These companies were given powers to carry out functions related to generation, transmission, trading, distribution and bulk supply as well as resale of electricity. Cross-ownership was strictly prohibited. The federal government was to initially hold the shares in the successor companies until they are gradually

privatized. A special purpose entity was also to be created for the purpose of procuring electricity from successor generation companies as well as IPPs.

In the second, medium-term phase, the privatization of successor generation and distribution companies would be largely completed, while the successor transmission/dispatch company would be left under the control of the government. Consequently, the 11 distribution companies and 4 generating companies were privatized, while the federal government contracted out the management of the transmission company to Manitoba Transmission Company. The final, long-term phase involved the establishment of a wholly competitive market, characterized by economic pricing of electricity that would allow for the recovering of full cost of supplying electricity. Sequel to this, NERC adopted a multi-year order tariff in 2008 in order to ensure reasonable electricity tariff to end users and fair returns on investment to generation, transmission and distribution companies.

Challenges and prospects of the reform

For the effective realization of the objectives of the electricity reform programme in Nigeria, some issues relating to market structure, ownership and conduct regulation, among others, must be adequately addressed. This becomes necessary because the extent of application of each aspects of the reform has serious implication for the overall impact of the reforms on national economic growth. This section would consider examples of how, without adequate care, well intentioned reforms in key areas can have less than the desired impact on the economy and, in some cases, can be counterproductive.

a. Market structure

The introduction of competition in the generation of electricity has been a key aspect of electricity industry reform and decentralization. A central feature of decentralized electricity industry market is the wholesale electricity spot market or pool, which is a competitive pool— this means an electricity spot market in which generators compete to supply energy through supply prices or bids. This is central to the introduction of competition in the electricity industry.

The creation of a pool raises a number of fundamental questions concerning market structure, with respect to the exercise or abuse of market power. Apparently, to forestall this problem, NEPA was broken into 18 companies, as stated earlier. In addition, by the 2005 Act, the National Council on Privatization was to establish, by September 2005, a holding company to take over the assets

and liabilities of NEPA. A relevant question was: were six (6) firms sufficient (as a starting point) to ensure reasonable market structure, for instance, in power generation? Or more importantly, what were the criteria for selecting the number of firms required to constitute the appropriate market structure? In answering these questions, it is necessary to understand that the design of market structure can either make or mar the entire reform exercise.

It is noteworthy that the market to be created should neither be too large so as to create excess capacity nor too small so as to allow for abuse of market power. It has been found, however, that duopoly is prone to the exercise of market power. Recent empirical studies provided evidence that generators have exercised market power in both California and United Kingdom's reforms (Wolfram, 1999), which is partly attributed to poor market designs. Perhaps, a study should be conducted to ascertain the optimum market structure for Nigeria, taking cognizance of the demand and cost structure that would guarantee electricity production and allocative efficiency.

b. Regulatory framework

The 2005 Act provided for the establishment of National Electricity Regulatory Commission (NERC), which is charged with the creation of a level playing field for all stakeholders in the power industry and provide a conducive atmosphere for market competition. Effectiveness of the power sector reform would, therefore, depend largely on the ability of NERC to discharge its duties efficiently. Consequently, the selection of members of the commission should be based on merit, integrity, commitment, professionalism and academic excellence. In other words, economic and technical considerations should supersede political expedience in the selection of members of the committee.

c. Ownership

Ownership of the companies is a crucial issue. When the ownership of an industry is moved from public to private hands, many possible factors need to be considered. One of the primary challenges of ownership of multiple companies (either vertically or horizontally linked) is transfer pricing. Transfer pricing is the situation where one business within a group charges another business within that group for a product it needs as input. This raises concern for conduct regulation, since it provides ample opportunity for a company to pay an abnormally high price for services rendered by a sister company, the cost of which is then passed on to the consumers. The abnormally high price leads to abnormal profits in the competitive business.

This is a problem that is best avoided through the establishment of an appropriate industrial structure and limitations on common ownership. Although the 2005 Act does not accept cross-ownership of companies, the Nigerian way of sidetracking rules is a concern. Experience during the execution of the Nigerian Indigenization Decree showed that some Nigerians fronted for foreign concerns—a situation that had been discussed extensively by Onimode (1984). As stated earlier, the privatization of the 18 units that were created out of NEPA was the responsibility of Bureau of Public Enterprises (BPE). Thus, the BPE must get out of the lethargy it has got into with the privatization exercise so far. It should also be more thorough and transparent with the exercise so as to avoid errors of the past, a case which Isola (2002) pointed out that public enterprises were sold to rent seekers instead of genuine businessmen.

d. Conduct regulation

Another area of concern relates to the details of the conduct regulation that has to be put in place. Conduct regulation entails the needs to address a wide range of issues, including the establishment of average tariffs (and possibly tariff levels), the quality of service to be provided and penalties that should be applied when quality requirements are not met. To give credence to this, the Nigerian Electricity Regulatory Commission (NERC) adopted a multi-year tariff order (MYTO) to estimate end-user tariff in the country. To date, MYTO has been reviewed several times since inception in 2008. Nevertheless, a reasonable tariff structure has still not been adopted in Nigeria, as consumers are dissatisfied with the exorbitant bills and poor electricity service provision. The 2015 amendment of MYTO to reflect a 45.0% hike in electricity prices has led to some conflict between the government and other stakeholders, especially the consumers. While the government argued that the old tariff was not sustainable, as it was not strong enough to attract the required investment in the sector, the other stakeholders, especially members of the organized labour, protested the hike nationwide and issued a two-week ultimatum to government to revert its decision. This is a major challenge confronting power sector reform in the country. This has elicited a pertinent question: how much should a consumer pay to have good quality and uninterrupted power supply in Nigeria?

Furthermore, the political and social acceptability of the electricity reform requires that the poor are made no worse off and should be seen to benefit from it. The 2005 Act made provision for the establishment of regulatory agency to cater for the interest of the rural poor. In discharging its responsibilities, the

agency should take a cue from the Chilean experience, particularly the aspect that concerns community self help, merit-based award of subsidies, and working with development agencies and NGOs to develop renewable energy programmes for very remote communities.

In spite of these challenges, however, the electricity reform in Nigeria has tremendous potential for accelerating economic growth in the country. In fact, the achievement of Vision 20:2020 in Nigeria partly depends on regular supply of electricity for industrial consumption. Regular supply of energy will no doubt energize the industrial sector, give room for expansion and consequently enhance employment opportunities and poverty reduction strategies.

According to Fehr and Harbond (1998), the effect of electricity deregulation depends on the situation at the time of reform. Where an existing monopoly provider works well and meets consumer demands at costs reflecting tariffs, allowing competition will have little or no immediate effect. On the contrary, where there is an inefficient incumbent failing to meet market demand (such as the situation in Nigeria), deregulation offers a number of advantages. For example, substantial supply gap for electricity generation exits in Nigeria. In spite of the considerable attention given to the energy sector since 1999, the supply of electricity has not kept pace with demand. The data in figure 1 show that the generation of electricity oscillated between 1,700MW and 3,500MW in a country where the estimated generation (demand) was put at 10,000MW per day (Imoke, 2004). Currently, electricity generation in Nigeria is around 5000MW, whereas the projected electricity demand is put at 31,240MW by the end of 2015 (ECN, 2015). This shows the huge gap between demand and supply of electricity in the country. However, by breaking the monopoly of NEPA, genuine entrepreneurs have wider latitude to operate and fill the gap in the industry.

The World Bank (2002) found that as a result of the unreliability of the monopoly provider of Nigeria's electricity (NEPA), virtually all manufacturing firms had some form of generating capacity. Although the majority of the firms used NEPA as their primary source of power, they maintained sufficient backup to power their entire operations in the event of power failure. Similarly, Adejugbe (2006) and Isola (2005) alluded to the negative impact of epileptic power supply through NEPA on the manufacturing concerns in Nigeria. Even private household consumers rely on generating sets for electricity to enhance their comfort. Thus, reforming electricity in the country such that it allows inflow of private investments into the sector would lead to efficient supply of electricity at reasonable tariffs. The exercise would impact positively on the operations of

manufacturers of goods and services, reducing their production costs and, consequently, prices of their products. This will then enhance consumer welfare.

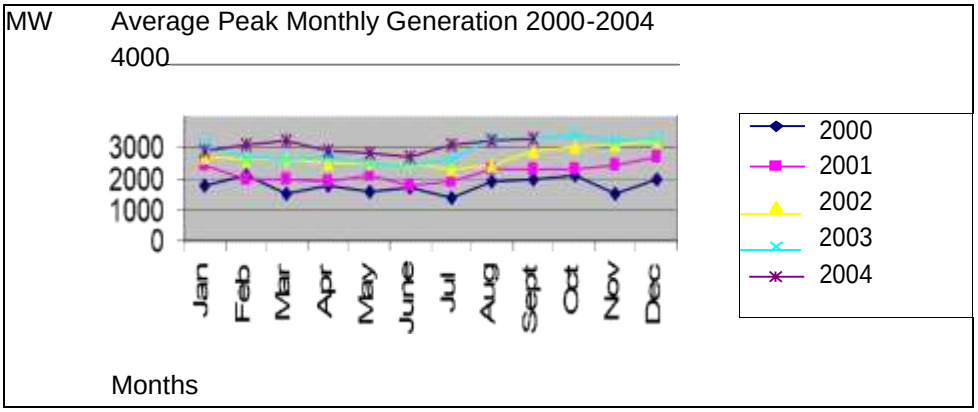

Figure 1: Status of electricity generation in Nigeria
Source: National Electric Power Authority, Headquarters, Abuja

Although the power sector may not attract as many players as did the communication sector, because of its specialized nature, vast investment opportunities exist in the sector, especially with the unbundling of NEPA. The first area of opportunity will be the 18 companies, which have been created from NEPA. These will directly or indirectly create employment opportunities for the teeming Nigerian population. Besides, the reform will help provide opportunities for private concerns that had been desiring to invest in the power sector. This will then open up the sector for full private participation.

5. Conclusion and Policy Implication

Experience has shown globally that competition among electricity generation companies is a major goal of restructuring in the industry. It is expected that the more competitive the market for selling power, the lower is the price. Available evidence shows that introduction of competition in the generation segment of electricity industry has been successful in both developed and developing countries. However, competition on its own does not guarantee success; rather, a blend of competition with credible institutions — the fundamental rule of the game under which the industry operates—brings success.

Also, from the international scene, it has been observed that when the rules (in terms of market design, regulations and conduct regulatory agencies) are strong, there is often successful deregulation of electricity; it is otherwise where

the institutions are weak. Based on these experiences globally, it is crucial for Nigeria to address a number of issues earlier on raise d in this paper. Concerning the market structure, a simulation study needs to be conducted to provide insight into the optimum structure of the industry. This cannot be achieved by a mere rule of the thumb. Isola (2011) had earlier provided some forms of insight into this issue by looking at the market structure in the restructuring of the nation's electricity industry.

Another crucial issue is the ownership of the companies that emerged through the privatisation exercise. Although the 2005 Act does not accept cross-ownership of companies, the manner in which rules are often sidetracked in Nigeria is a concern. Thus, in order to ensure transparency and accountability in the conduct of the exercise, the privatization agency should be strengthened enough to have the requisite authority to conduct and conclude deals while being independent of government control.

Furthermore, this paper has identified the considerable supply gap in the electricity generation segment. Hence, to motivate and attract genuine investors, the investment climate should be made attractive; the economic, social and political environment s in the country should be conducive for long-term investment. Furthermore, it is important to note that inputs of electricity production are tradable goods (gas and fuel), which are normally denominated in foreign currency, while the outputs are mostly sold within the country in local currency. The achievement of efficient supply of electricity at affordable tariffs, therefore, hinges on a stable exchange rate. The social environment is still characterized by tension and frustration, with frequent ethnic and religious crises across the country. The Niger Delta crisis and the Boko Haram menace in the northern part of the country must be remarkably underscored and noted. These issues constitute wrong signals to genuine foreign investment in the power sector and must thus be tackled accordingly.

In conclusion, electricity reform may be likened to a fire which, if unregulated, produces havoc; but if regulated, it gives light and warmth. As a matter of urgency and priority , therefore, policy issues should be directed towards the following areas— first, a study needs to be conducted to ascertain the optimum market structure for the country, taking cognizance of the nature of demand and the cost structure of electricity in Nigeria that can guarantee production, allocative and dynamic efficiencies. Second, appropriate market design that can ensure sustainable reform should be put in place. Third, since electricity reform is complex and technical, there is the need to invest in training and retraining of trainers, as well as public enlightenment campaigns. Fourth, the

composition of NERC is crucial to the success of the reform. Consequently, the selection of members of the commission should be based on merit, integrity, commitment, professionalism and academic excellence. In other words, economic and technical considerations should supersede political expedience in the selection of members of the committee.

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