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### **Assessment of the Nigerian Power Sector Post Deregulation on the Energy Users.**

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#### **ABSTRACT:**

*The study examines the impact of privatization on energy users in Nigeria. Descriptive Research design was used and the major instrument for data collection was questionnaire, which was structured using five-point Likert scale. Simple percentages, cumulative percentages, and Regression Analyses were employed to analyze the data obtained from the respondents. The findings revealed that there was no technological improvement in the sector, yet. Also, that the deregulation of the Sector had been marred by hike in electricity user tariffs, poor channel of electricity distribution, among others. The study then concluded that although the deregulation of the sector had brought insignificant improvement in service delivery, it could not be said to have achieved desired economic development for the Nigerian citizens due to absence of some vital equipment and lack of technological efficiency arising from the employment of inexperienced workers. The hike in electricity prices made it unaffordable to the average Nigerian families.*

**Key Words: privatization, deregulation, energy, power, efficiency.**



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### **1.0 Introduction**

#### **1.1 Background of the Study**

The Nigerian electric power sector is in a highly charged state. Currently, Nigeria has an installed electricity generation capacity of 8,644 MW/h for supply to the national grid, with available generation of only approximately 3,200 MW/h, to cater for the needs of Nigeria population of approximately 180 million. By way of comparison, South Africa with a population of about one-quarter of the Nigeria's population has an installed electricity generation capacity of over 52,000 Mega Watts (Vanguard February 26, 2013). On the other hand, demand for electricity in Nigeria presently is estimated to be between 10,000 Mega Watts and 12,000 Mega Watts and is projected to increase to 26,561 Mega Watts by 2020 if the Nigerian government is to meet its current economic development goals.

The historic gap between the demand for power in Nigeria and the electricity available from the grid has led to widespread self-generation of power through generators both in the industrial and residential sectors. The World Bank estimates that approximately 85 percent of businesses in Nigeria own electricity generators and that privately-owned self-generation power accounts for roughly 40 percent of the total electricity requirement in Nigeria. The historically poor performance of the power sector became a big embarrassment to the Nigerian government as it imposed a significant barrier to the economic progress of the country. This made the federal government to embark on various programs to improve the performance of the sector.

When the Nigerian nation returned to democratic rule in 1990, the government embarked on various infrastructural rehabilitation and expansion programmes. Within these programmes was the move to reform the power sector. The reform in this sector was necessitated by noticeable myriads of challenges which led to operational inefficiency, limited access to infrastructure, inadequate generation and



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usage of capacity, inefficient regulation, high technical losses and vandalism, insufficient transmission and distribution facilities, high rate of corruption among workers, etc. In order to address this alarming situation, the government embarked on reforming power sector in two phases:

Phase 1: the Infrastructural and rehabilitation phase which took place from 1999 to 2004 (Lawal, 2008 cited in Idris, Mustapha,& Adams, 2013). A major part of the infrastructural development programme of 2004 was the National Integrated Power Project (NIPP); which was initiated to boost electricity generation through the opening of gas power stations across the country (Okolobah & Ismail, 2013 cited in Ajike & Nwakoby, 2016) by decentralizing and granting licenses to different independent power producers (IPPs) to generate and sell electricity privately to power generating stations and general public (Lawal 2008 in Idris, et al, 2013).

Phase II: The Federal Government Act –Electric Power Sector Reform Act (2005) that brought the power sector reform into limelight outlined the framework of the reform as follows: to unbundle the state-owned power entity into generation, transmission and distribution companies; to provide for the transfer of assets, liabilities and staff of NEPA to PHCN; to migrate PHCN staff to successor generation, transmission and distribution companies; to create a competitive market for electricity services in Nigeria; and to set up an independent regulator.

The reform kick-started with the unbundling of NEPA into eleven (11) distribution companies, six (6) generation companies, a single transmission company and the incorporation of an initial holding company (Power Holding Company of Nigeria Plc). The reform proposed a single subsidiary for the control of the transmission, six generating companies and eleven distribution companies. The distribution companies (DISCOs) will control the supply (selling) of electricity within a designated geographical area.



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In 2005, the Government of Nigeria enacted a legislation - the Electric Power Sector Reform Act (EPSRA), 2005 (the 2005 Reform Act) intended to restructure fundamentally the Nigerian electric power sector. It was designed to move the electricity sector in Nigeria from a government controlled, heavily subsidized system to a privatized, largely market-based endeavour. However, the implementation of the Act was frustrated due to the following identifiable shortcomings: the maintenance of an inappropriate pricing regime; the failure to establish a bulk purchaser in line with the provisions of the Electric Power Sector Reform Act; the failure to address investor's concerns about the creditworthiness and financial viability of the distribution companies after investing in them; the operational and financial risks to potential acquirers of successor companies posed by the failure to reach an agreement with the labour unions on the settlement of outstanding arrears (salaries, pensions, other benefits and severance pay); the uncertainties generated by the delay in operationalizing the Nigerian Electricity Liability Management Company (NELMCO); the delay in contracting out the management of the Transmission Company of Nigeria (TCN); concern about the licensing regime for power generation and power distribution companies; and the lack of continuity and consistency in pursuing the enactment and commencement of the EPSRA.

The then government of President Goodluck Jonathan established the Presidential Task Force on Power and published a roadmap for power sector reform in August 2010, potentially opening the door to significant private investment in the Nigerian power sector. This Act provides a brief summary of the existing power sector in Nigeria and key aspects of the reforms currently being implemented. This Act concludes with considerations of the opportunities and challenges for developers, investors and lenders in becoming involved in the reformed power sector, either through participating in the privatization of existing Nigerian power assets or as part of a greenfield independent power project (IPP).



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The efforts above, notwithstanding, by March 2017, Nigeria's estimated available capacity from the grid was approximately 3,200 Mega Watts which could meet approximately only one third of the estimated current demand for power from the grid. As demand for electricity in Nigeria is expected to be more than doubled in the next 10 years, an even greater supply gap would be created in the future without some form of market intervention and fundamental reform of the power sector.

At the completion of the first phase of the power sector privatization process, on November 1, 2013, the Federal Government handed over to the private investors who won the biddings of the 11 distribution companies (discos) and six generation companies (gencos). Despite this, Nigeria's electricity generation has declined from the peak generation level of 4.5 Mega Watts (MW) recorded in December 2012 to about 3.6 Mega Watts (MW) in January 2014 ([www.nigeriapowerreform.org](http://www.nigeriapowerreform.org)).

The provision of regular, affordable and efficient electricity is crucial for economic growth, national security as well as the rapid industrialization of the Nigerian nation. It is a true saying that any nation that desires to develop and grow its economy must first develop its power sector. Energy is an important input to production. Therefore, without electricity, mass production of goods becomes virtually impossible. Erratic electricity supply disrupts production of goods and services, voltage fluctuations negatively affect the durability of machines, thereby making it extremely difficult for industries to produce at optimum level and affordable price. Nigeria is described as a generator economy due to her power situation. It is a known fact that when an organization is meeting its production target, its workforce enjoys the benefit which comes in form of financial rewards, incentives, etc.

From the foregoing point, it becomes very exciting to assess the electric power sector with a view to establishing the argument, 'whether or not' its deregulation



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has delivered the benefits touted, such as lower prices, more competitive and efficient service arising from the use of state of the art technology.

### **1.2 Statement of the Problem**

The Nigerian former Vice President Namadi Sambo, in a keynote address delivered in a power sector workshop held in Abuja in August, 2013, said “Nigerians should accept the deregulation of the power sector and the privatization of PHCN, because of the inherent gains to consumers of electricity”. According to him, the policy, which formed part of the power sector reform programme, will change Nigeria's socio-economic landscape, far more than what the country has seen in telecommunications, following the sector's liberalization. It will also provide the Nigerian people with uninterrupted and quality electricity and attract Foreign Direct Investment, create employment and business opportunities, enhance the living standards of electricity workers, like those of their counterparts in the telecoms sector,'. The Power sector deregulation will also enable power sector employees to work with state of the art technology and to regularly undergo domestic and international courses’ Sambo said.

It is against this backdrop that the study intends to assess the deregulation and privatization of the power sector in order to ascertain whether the gains enumerated above have been achieved, with special attention to its impact on energy users in Nigeria.

### **1.3 Objectives of the Study**

The broad objective of this study is to assess the impact of power sector deregulation on Energy users in Nigeria. However, the specific objectives are to:

- i) Assess the extent to which privatization of the power sector has led to technological efficiency in Nigeria.



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- ii) Examine the effect of privatization of the power sector on Nigerian energy users.

### **1.4 Research Hypotheses**

Based on the objectives of the study, the following hypotheses will guide this study:

- i) Privatization has led to poor technological operation of the Nigerian Power Sector.
- ii) Privatization has led to unaffordability of power to energy users in Nigeria.

## **2.0 Review of Related Literature**

### **2.1.1 Brief history of Power generation in Nigeria**

Power generation in Nigeria effectively began in 1896 with the 20MW power station at Ijora, although no coordinating entity for nationwide electricity generation and supply existed until 1951 when the Electricity Corporation of Nigeria (ECN) was established. The Niger Dam Authority (NDA) was subsequently set up to build and manage dams in Nigeria in 1961, with the country operating at a total installed generation capacity of a little above 50MegaWatts, with the first 132KV line constructed in 1962. In 1972, the Federal Government of Nigeria effected the unification of both entities, leading to the formation of the National Electric Power Authority (NEPA), a power utility responsible for generation, transmission, and distribution and trading of electricity in Nigeria. However, this exclusive monopoly of NEPA over the generation, transmission, distribution and sales of electricity ceased in 1998 in line with the privatisation drive of the federal government with the entity undergoing a name change to PHCN (Power Holding Company of Nigeria) in 2005 (Amadi, 2012; Okoro &



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Chikuni, 2007; Osueke & Eze, 2011a). The National Bureau of Statistics (2012) emphasised the significance of thermal systems in the national energy mix establishing that electricity in Nigeria was from predominantly thermal systems before the advent of hydro-generated electricity. It is also curious to note that the hydro system that began with Kainji in the early 1970s was gradually displaced by the thermal dominated systems again some years later because of persistent water-flow problems of the River Niger at Kainji as well as increasing costs of establishing hydro-plants and their long gestation delays.

### **2.1.2 The Nigerian Power Sector before deregulation and Privatization**

Since 1972 till early part of 2006, electricity production and supply in Nigeria has been a monopoly of the federal-owned electric utility body known as National Electric Power Authority (NEPA). This body was charged with the responsibility for the generation, transmission, distribution and sale of electricity to customers. According to Nigerian Tribune, December 11, 2011, the problems of that sector had been compounded by the fact that, throughout the 1990s, there was no expansion in power generation facilities, notwithstanding the galloping population. In 1993, for example, the energy generated was 1,669 MegaWatts. The country leadership then did not see any need to invest in the power sector. Between 1981 and 1985, during the fourth National Development Plan, there was oil boom and power demand growth rate was over 10 per cent, (Daily Independent, 2011). Thus, while the civilian administration took over in 1999, power generation was in the region of about 1,700 megawatts out of an installed capacity of 5,906 megawatts. At the beginning of year 2000, power supply plummeted to 1,500 megawatts, amounting to 25.3 per cent of installed capacity. There are a number of factors that plague electricity production in Nigeria. These factors include: insufficient capacity, inadequate fuel supply, lack of statistics and data, poor maintenance culture, inefficiencies and over-manning, inadequate training, ageing experienced workforce, a loss – making distribution sector, and transmission bottlenecks. In



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addition, limited funding, evacuation constraints, high transmission and distribution losses at over 40%, “exuberant” sale prices of PHCN assets, and politicizing of decisions, were noted as part of the issues facing the sector.

Thermal (gas fired) electricity generating companies account for over 80% of current electricity production; however, gas supply constraints had resulted in less than optimal production in recent times. There is a need for committed implementation of the Nigerian Gas Master Plan (NGMP), adequate processing and supply of dry gas, regulation of the Distribution System Operators (DSO) of upstream suppliers, adequate policy to govern the industry – Petroleum Industry Bill (PIB), better enablement of the industry to meet current challenges, and development of appropriate gas infrastructure. Urgent steps need to be taken for the development of a national gas grid .

Power sector future trends were forecasted in three phases; the immediate future of the industry is expected to be characterized by deregulation of gas prices, combined cycle is to be the standard technology deployed, consolidation of the industry with vertical integration of generation and distribution with consideration being given to the development of mini-hydro power plants, and implementation of feedin- tariffs to attract and encourage private sector investment in coal-fired and solarpowered plants. In addition, there is expected to be more development and investment in accurate and definitive system studies led by the Transmission Company of Nigeria (TCN) which will improve planning. The establishment of an Energy Ministry would foster better collaboration between the gas and power sectors given the strong relationship between them, streamlining land access and way-leave compensation, the use of “Smarter” grids, greater emphasis on demand-side management and a more assertive Nigerian Electricity Regulatory Commission (NERC) with respect to supervising responsibilities and roles.

In the long term, there will be a greater level of automation and technology, closer integration into the West Africa Power Pool (WAPP) required in respect of



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import/export of power which will help minimise the threat of the River Niger being dammed. Also, there will be entry of major Power utilities investors to takeover companies and there will be an attraction of capital to long term funds into the sector i.e. Pension funds.

### **2.1.3 Deregulation of the Power Sector**

The concept of deregulation and privatization are not in any way new. Their origin can be traced to the series of problems that many third world economies were facing in the late 1970s. In Nigeria, the disruption of the country's political scene by the military was critical in intensifying the role of government in business, especially due to the Indigenisation Decree of 1973 which ensured the conversion of privately controlled international corporations into state-owned enterprises (Adoga, 2008). Jerome (2008) explains that government increasingly assumed a more diverse and strategically important development roles in the Nigerian economy. This was accentuated during the oil boom of the 1970s and 1980s, when successive military regimes, buoyed by economic nationalism and massive oil windfalls, developed a large public enterprise sector encompassing a broad spectrum of economic activities. These covered large basic industries (manufacturing, agriculture, services, public utilities and infrastructure), which included telecommunications, power, steel, petrochemicals, fertilizer, vehicle assembly, banks, insurance and hotels (Jerome, 2008). Resulting from the above was the emergence of about 1500 public enterprises (one of the largest in sub-Saharan Africa), all of which were being funded by oil revenue – and they were all performing poorly, turning in less and less annually. At first, the sustainability of the welfare system was not questioned since the country was earning billions in surplus from oil trade. Nevertheless, it was only a matter of time before things began to fall apart.



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When the time came, Adoga (2008) describes the state of Nigeria's political economy with the following words: by the mid eighties, the crash of international oil prices ensured that the usual billions of Nigeria pumped into these corporations could no longer be sustained by the Federal Government. At the same time, annual profit of these corporations plummeted due primarily to corruption and inefficiency, excessive bureaucracy, defective ownership structures, gross incompetent management, complacency, defective capital structures, lack of effective control and supervision by the government, outdated technology, nepotism, international competition, among other factors. Jerome (2008) captured the state of Nigeria's financial burden before the wave of privatisation more succinctly: The estimated 1,500 enterprises accounted for about 57% of aggregate fixed capital investment and about 66% of formal sector employment. The magnitude, scope and persistence of failure of Nigeria's public enterprises (PEs) have been extraordinary. These enterprises require continuous massive subsidies but deliver only intermittent and substandard services; industrial enterprises typically operated at 10–35% of capacity. Investment in the public enterprise sector exceeded US\$35 billion, comprising US\$12.5 billion in equity, US\$10.2 billion in government loans, and another US\$11.5 billion in unspecified and largely unrecorded subventions to various enterprises.

Given the scenario above and the pressure from international lending organisations, the Federal Government rolled out the economic policy of deregulation and privatisation with the inauguration of an 11-man Technical Committee on Privatisation and Commercialisation (TCPC) in 1988. It is worthy of note here, that the International Monetary Fund and the International Bank for Reconstruction and Development (now World Bank) had earlier recommended privatisation as part of the Structural Adjustment Programme (SAP). The policy thrust of SAP, observes the Consumer Empowerment Organisation of Nigeria (CEON, 2008) was focused



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‘on economic reconstruction, social justice and self-reliance through the alteration and re-alignment of aggregate domestic expenditure and production patterns for the purpose of restoring the economy back to the path of steady’ and a very fundamental aspect of the recommendation to government was the ‘rationalization and privatisation of public enterprises to encourage competition through liberalization and deregulation. In this regard, the TCPC was directed to coordinate the rehabilitation of government enterprises and oversee Nigeria’s privatisation programme in which the actual divestiture commenced in the early months of 1989 (Jerome, 2008). From 1988 to 1993 when the privatisation process was suspended, 55 firms had been privatised by the TCPC vis-à-vis five methods namely, public offer of equity shares for sale, private placement of equity shares, sale of assets, Managements buy-out and differed public offer. The TCPC encountered numerous challenges between 1988 and 1993 when the programme was suspended, some of which include excessive bureaucratic bottlenecks, imbalances in the geo-political spread of shareholders, lack of access to credit, over-subscription, ideological warfare between the government and those who saw privatisation as imperialistic and labour antagonism (Zayyad, 2007; Jerome, 2008). The government replaced the TCPC with the Bureau of Public Enterprises (BPE) with the promulgation of Decree No. 78 of 1993. BPE experimented with the lease of public enterprises for awhile and due to criticism by foreign investors, the scheme was dropped. Hence, the second round of privatisation in Nigeria never took off until 1998 after the then military head of state, General Abdulsalam Abubakar, announced his commitment to privatise – given IMF’s resolve to re-open talks with Nigeria only after the government had expressed commitment to pursue the policy (Obadina, 1998; Jerome, 2008). The legal framework within which BPE commenced operation is through the Public Enterprises (Privatisation and Commercialisation) Decree No. 28 of 1999, which created the National Council on Privatisation (NCP) with the following functions:



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1. Making policies on privatisation and commercialisation,
2. Determining the modalities for privatisation and advising the government accordingly,
3. Determining the timing of privatisation for a particular enterprises,
4. Approving the prices for shares and the appointment of privatisation advisers,
5. Ensuring that commercialised public enterprises are managed in accordance with sound commercial principles and prudent financial practices and;
6. Interfacing with public enterprises, together with the supervising ministries, in order to ensure effective monitoring and safeguard of the managerial autonomy of the public enterprises.(Igbuzor, 2003)
7. Ensuring the success of the privatisation and commercialisation exercise through effective post transactional performance monitoring and evaluation and;
8. Providing secretarial support to the council.

### **2.1.4 Challenges of Privatization**

Generally, privatization in Nigeria has suffered a number of constraints. These include policy inconsistencies of government, poor enlightenment programme, income inequality among Nigerians, ailing state of the marked enterprises for privatization, inefficiency in operations, huge debts of state owned enterprises, corruption and lack of transparency among management and staff of state owned enterprises, etc. According to 2014 research findings by NOIPolls Limited, Electricity supply in Nigeria worsened in the fourth quarter of 2013 at the peak of the privatization process. According to the report, although power supply to households worsened in the fourth quarter, majority of Nigerians were hopeful about the reform in the sector. The report indicated that 46% of Nigerians received between 1-4 hours of continuous power supply daily, while 17% received none (Vanguard 28 March, 2014). The Vanguard of March 1<sup>st</sup>, 2014 states however that



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there are specific challenges facing the Power Holding Company of Nigeria (PHCN) in the phase of privatization as follows;

- (a) **Funding:** The power sector is a highly capital intensive industry. Many of the investors that acquired the unbundled PHCN borrowed money from banks for payback, so they apply the proceeds from the business to pay back instead of applying it for the continuous financing of the project so acquired (Punch, 26 Dec. 2013). Obviously, this has accounted for their inability to improve the power sector reasonably. The distribution companies have not shown improvements in the following areas; metering, health, safety and environmental practices, reduction in power outage due to network faults, new customer connections and network expansion, improving customer services and complaints handling procedures, etc (Punch Feb. 26, 2014).
- (b) **Inadequate gas supply:** the reform of the power sector is anchored on “gas to power” system in order to meet the power needs of the country. The availability of this power has been a great challenge owing to inadequacy of the infrastructure needed for gas gathering, processing and transportation. There are the activities of vandals and saboteurs which affect the availability of gas. Unfortunately, the issue of gas to power was not factored in during the approval of the construction of some power plants like; the Alaoji 1074mw, Egbema 338mw, Geregu 848mw, and Omotosho 786mw gas turbines by the Obasanjo administration, thus these plants cannot be effectively utilized after commissioning (Ajike, & Nwakoby, 2016).
- (c) **Determining the end user tariffs:** The efficient pricing of electricity is key to a well-functioning power sector. Pricing guides investment decision and is critical for cost recovery. It signals the cost of marginal consumption to the users and encourages optimal utilization of installed capacity. However, this has not been an easy task to achieve, because the power sector is characterized by up-front fixed cost. Apart from this, cost variation over geographical areas should be taken into consideration



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when setting prices (Briceno-Garmendia & Shkaratan, 2011). Electricity prices in Nigeria are currently below production cost, therefore, the industry is barely able to generate enough revenue to cover its operating costs, let alone meet its considerable capital expenditure needs. This poses a huge challenge that the new owners are contending with because they cannot source funds from government the way PHCN did. Whatever approach adoptable by the new owners must consider the ability of the end users to pay. This is because Borenstein (2008) opines that if income challenge groups are to enjoy the benefit of power provision, policy makers must set affordable tariffs below production cost or introduce an explicit subsidy regime.

- (d) Reconciliation of assets and liabilities of PHCN: The unbundled PHCN was poorly managed, as a result of this; it could not sustain itself by generating enough revenue to remain in operation. There is the challenge of lack of comprehensive information about the assets and liabilities of the unbundled PHCN. In order to address this, the Federal Government set up the Nigerian Electricity Management Company (NELMCO). NELMCO is to serve as a government special purpose vehicle such that it will assume the management of assets, liabilities and other obligations which are to be transferred from the PHCN to the successor company.
- (e) Workforce: One of the basic elements that deserve strict consideration when privatization is considered as an option is workforce. This is because, in most developed countries, workers are trained for redundancy and prepared for privatization, which is not the case in developing countries, Nigeria especially. As a result, workers of a firm slated for privatization will always withstand the move for privatization for fear of loss of employment considering their level of dependence on their employment, which if lost, sends a great deal of devastation to their great dependents and families.

Despite the privatization of PHCN in 2013, Nigeria's electricity generation capacity has declined from the peak generation level of about 4.5 megawatts recorded in December 2012 to about 3.6 megawatts in January 2014. The electricity generation



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forecast was 12.8 megawatts, energy generation capacity of 3.6MW/H, while actual electricity sent to the national grid was 3.5mw/h ([www.nigeriapowerreform.org](http://www.nigeriapowerreform.org)).

### **2.1.4 The Nigerian Power sector and measurement of operational efficiency: Post Privatization**

In a business context, operational efficiency can be defined as the ratio between input (what is put into a business operation) and output (what is gained from the business). When improving operational efficiency, the output to input ratio improves. Inputs would typically be money (cost), people (measured either as headcount or as the number of [full-time equivalents](#)) or time/effort. Outputs would typically be money (revenue, margin, and cash), new customers, [customer loyalty](#), market differentiation, production, innovation, quality, speed & agility, complexity or opportunities.

In order to improve operational efficiency one has to start by measuring it. Since operational efficiency is about the output to input ratio, it should be measured both on the input and the output parameters. Quite often, company management measure primarily the input side, e.g. the unit of production cost or the man hours required to produce one unit. Even though important, input indicators like the unit production cost should not be seen as sole indicator of operational efficiency. When measuring operational efficiency, a company should define, measure and track a number of [performance indicators](#) on both the input and output side. The exact definition of these performance indicators will vary from industry to industry, but typically these categories are covered:

The main economic justification for privatization is that it promotes the economic and management efficiency of privatized state-owned enterprises. Four alternative theories explain the superiority of private ownership over public ownership, and the economic efficiency gains that are likely to emerge from the transfer of ownership



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and control of assets from the public to private investors. First, the property rights theory explains differences in the performance of public and private enterprises in terms of marked differences in attenuation of property rights (Demsetz, 1966, 1967; Furubton and Pejovich, 1972; De Alessi, 1980; Davies, 1981). Property rights in public enterprises are attenuated partly because property rights cannot be easily transferable. The problem of transferability implies that the cost and rewards of economic activities do not accrue directly to individuals responsible for the property rights. The link between the average public owner (the taxpayer) and the manager of the public firm is extremely long, weak and tenuous; making monitoring of public managers' behaviour difficult. The general conclusion from the property rights theory is that the more attenuated property rights are, the less productively efficient will be the enterprise because attenuation weakens the rewards-penalties systems that are necessary for cost minimizing behaviour.

Secondly, extending the property rights approach, the principal-agent theory focuses on differences in the monitoring mechanisms and incentives which public and private managers face as agents of shareholders given welfare maximization for the former and profit maximization for the latter (Vickers and Yarrow, 1988; Bös and Peters, 1991; Bös, 1991). The change in ownership from the public to the private sector has at least two effects: a change in the objective from a weighted welfare function to profit maximisation and a change in the incentive structure by linking reward to performance under the private ownership. This shift towards profit maximisation may imply higher price, thus foregoing allocative efficiency, but there may be an increase in operational or productive efficiency.

Thirdly, the public choice theory takes the bureaucratic approach in which public enterprises are seen as an instrument of enhancing the utility functions of politicians such as maximization of votes and the budgets (Niskanen, 1972; Buchanan, 1972; Blankart, 1983; Boycko et al., 1996). Proponents of the public choice theory hold that government departments pursue objectives that do not maximize profits and



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usually pursue goals such as maximizing budget, risk aversion, employment and investment. Boycko et al. (1996) propose a model of privatization within the framework of public choice theory. The model shows that privatization will lead to effective restructuring of state-owned enterprises that are currently producing at inefficiently high levels to maximize employment, only if both cash flow rights and control rights pass from the government into private hands (particularly managers' hands). This will make it difficult for the government to bribe managers to produce at inefficient levels by offering them operating subsidies. Therefore, cutting the 'soft budget constraint' is vital to improving performance.

Finally, organizational theories emphasize the role of organizational characteristics in determining the performance of firms (Hartley and Parker, 1991; Dunsire, 1991; Bishop and Thompson, 1994; Martin and Parker, 1997). Proponents of organizational theories argue that differences in the performance of public and private firms are influenced by differences in management, goals, labour, communication and reporting systems, organisational structure, and the nature and location of business. In all the four theories of privatization, there is a consensus that ownership matters and does affect the internal efficiency of firms (cost minimizing behaviour) and the allocative efficiency in the market place.

The controversy about the economic efficiency effects of privatization becomes apparent when we explicitly introduce issues of product market competition in form of either number and size distribution of firms or market contestability and regulation. It is generally agreed that without product market competition, privatization per se may not significantly alter the performance of the firm. Others argue that it is competition in the product market that provides the strongest incentives towards economic efficiency. Models of public enterprises in oligopolistic industries tend to shed more light on the uncertainty in the economic efficiency effects of privatization (Cremer et al., 1989; De Fraja and Delbono, 1989; Fershtman, 1990; De Fraja, 1991; George and La Manna, 1996; White, 1996; Pal, 1998). These



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models show that public ownership in imperfectly competitive markets can be an instrument of moderating private sector oligopolistic behaviour and the economic efficiency effects of privatization will depend on the tradeoff between productive efficiency gains and the allocative efficiency losses.

The empirical support for the impact of privatization on enterprise performance, on one hand, has mainly been motivated by a wide body of empirical evidence on the comparative performance of public and private ownership. The empirical results from comparative studies of private and public enterprises are mixed although largely supporting the propositions that emerge from the property rights and public choice theories that private enterprises are more efficient than state enterprises in achieving lower costs and higher productivity and profitability where firms operate in competitive environments. In monopoly environments, especially where regulation exists, incentives for efficiency are eroded and most studies do not support the hypothesis that private enterprises are more efficient than State Owned Enterprises (SOEs) except in health-related services and manufacturing sector where competition and absence of regulation may largely account for the superiority of private enterprises. Most studies in highly regulated utilities sector cast doubt on the private enterprise superiority over SOEs. Therefore, state regulation and limited competition may weaken management incentives to operate their firms efficiently irrespective of the form of ownership. Nonetheless, Vining and Boardman (1992) argue that it is in competitive markets that the superiority of private firms is unambiguous compared to the evidence in the uncompetitive and regulated markets, reflecting the complexity of the effects of market structure and regulatory policies.

## **2.2 Theoretical Framework**

### **2.2.1 The Resource Based View**

The Resource Based View (RBV) is one of the most widely accepted theoretical perspectives in Strategic management field (Powel, 2001; Priem & Butler, 2001).



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RBV assumes that resources are heterogeneously distributed among firms and that they are imperfectly mobile. This theory was developed as a complement to the Industrial Organization (IO) view with Bain (1968) and Porter (1979) as some of its main proponents. With its focus on structure, conduct and performance, the Industrial Organization view puts the determinants of organizational performance outside the firm while the Resource Based View looks for internal sources and aims to explain why firms in the same industry might differ in performance. The RBV rather complements the Industrial Organization (Barney, 2002; Mahoney & Pandian, 1992; Peteraf & Barney 2003)

The Resource Based View (RBV) theory emphasizes the internal resources of the organization in formulating strategy to achieve a sustainable competitive advantage in its markets. Firms that possess and exploit resources and capabilities that are valuable and rare will attain a competitive advantage Barney (1991). If the organization has resources which can be restructured to give it competitive advantage then its perspective does indeed become inside out i.e. its internal capabilities determine the strategic choice it makes in competing in its external environment. Organizational capabilities are combinations of human skills, organizational procedures and routines, physical assets, and systems of information and incentives that enhance performance along a particular dimension' Chandler (1982). Organizational capabilities are products of constant learning and relearning, from and about the firm's activities, its suppliers and customers, and its own members. Moreover, capabilities are firm-specific: they reside in the organizational setting wherein they were developed and used Chandler (1982). Capabilities may take the form of particular areas of technological expertise, or the ability to translate changes in demand quickly and effectively into new products, or the capacity to adjust and speed the flow of materials through a particular kind of production process. Dynamic capabilities on the other hand refer to a firm's ability to integrate, build and reconfigure its resource base both internal and external



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competences as well as its ability to deploy or release resources in order to address the rapidly changing environments (Eisenhardt and Martin, 2000; Teece *et al*, 1997). Dynamic capabilities are often related to corporate agility of the firm, the capacity to sense and shape opportunities and threats and to maintain competitiveness.

### 2.2.2 The Neoliberal School of Thought

This work is based on the neoliberal school of thought led by Adam Smith and John Locke. They believe in the doctrine of competition, operation of market forces and collapse of all artificial barriers and dismantling of official regulations to a global economy which will produce growth in trade, efficiency and expectedly reduce unemployment (Ugbam, 2013). This theory is based on competition and profit motive funded on free market pricing and freedom from the interfering hands of state regulation. According to Odey (2012), Privatization in this theory could reap the advantage of the market system and competition namely, effectiveness, productivity, and efficient service. It would strengthen the market forces with some degree of deregulation, economic liberalization, relaxation of wage and price control.

Dimgba (2011), stresses that Privatization is a phenomenon which has a necessary concomitant to the principle of liberalization, which involves the transfer of control in terms of ownership and management from the government to private investors. However, the relevance of this theory has not been free from challenge in the sub-Saharan Africa, and in Nigeria, in particular. Aluko expressed in Odey (2012) that the assumption of the inherent efficiency of the private sector should be questioned. According to him, in Nigeria, most of the private sector profits are not always the result of efficient operations and increased productivity, rather, money made through inflated frivolous contracts, patronage and corruption, and argues that most



rich people in Nigeria’s private sector make their money through their public sector connections and influence.

**3.0 Methodology**

Descriptive survey design was used in this study aimed at collecting detailed and factual information that describes an existing phenomenon (Ezeani 1998).

The element of the population includes all users (consumers) of energy in Nigeria. A random sample of 120 consumers was selected for this study. A structured questionnaire based on the objectives of the study, was administered to the selected sample. Both descriptive and analytical approaches were utilized in the treatment of data. Descriptive technique employed included simple percentages and cumulative percentages; and the analytical tools adopted to test the hypotheses include Simple Regression and analysis of variance.

**4.0 PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA**

This segment is dedicated to the presentation, analysis and interpretation of data obtained by the researcher in the conduct of this research. Primary data was obtained through the instrument of questionnaires administered to a total of one hundred and twenty respondents. Information presented was done in tables to aid understanding.

Hypothesis 1:

H1: Privatization has led to poor technological operation of the Power Sector

**Effect of Privatization on technological efficiency**

<b>Effects</b>	<b>SA</b>	<b>A</b>	<b>UD</b>	<b>SD</b>	<b>D</b>
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Improved technological tools		29	4	87	
Improved working tools		27		93	
acquisition of higher capacity transformers		35			85
acquisition of functional vehicles			2	89	29
rebuilding of fidda pillars				120	
effective separation of loads on pillars				107	13

Field Survey, 2017

**Descriptive Statistics**

	Statistic	Std. Error	Bootstrap <sup>a</sup>			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
N	120		0	0	120	120
Minimum	2.00					
Maximum	4.00					
Sum	304.00					
Mean	2.5333	.07933	.0015	.0786	2.3917	2.6917
Std. Deviation	.86901		-.00382	.04278	.77134	.93923
N	120		0	0	120	120
Minimum	2.00					
Maximum	4.00					
Sum	294.00					
Mean	2.4500	.07656	-.0006	.0760	2.3000	2.6000
Std. Deviation	.83867		-.00543	.05090	.71714	.92036
N	120		0	0	120	120



transformers	Minimum	1.00					
	Maximum	4.00					
	Sum	225.00					
	Mean	1.8750	.12500	.0024	.1246	1.6500	2.1250
	Std. Deviation	1.36931		-.00588	.05827	1.24110	1.45846
	N	120		0	0	120	120
	Minimum	1.00					
non provision of adequate work vehicles	Maximum	3.00					
	Sum	213.00					
	Mean	1.7750	.04178	.0016	.0422	1.6917	1.8583
	Std. Deviation	.45766		-.00324	.03067	.38856	.51422
	N	120		0	0	120	120
	Minimum	2.00					
	Maximum	2.00					
non rebuilding of pillars	Sum	240.00					
	Mean	2.0000	.00000	.0000	.0000	2.0000	2.0000
	Std. Deviation	.00000		.00000	.00000	.00000	.00000
	N	120		0	0	120	120
	Minimum	1.00					
	Maximum	2.00					
	Sum	227.00					
inefficient fiddler pillar separation	Mean	1.8917	.02849	.0007	.0283	1.8333	1.9498
	Std. Deviation	.31210		-.00439	.03669	.21928	.37424
	N	120		0	0	120	120
Valid N (listwise)	N	120					

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

### Model Summary



Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.913 <sup>a</sup>	.834	.833	.34322

a. Predictors: (Constant), privatization

**ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	69.799	1	69.799	592.516	.000 <sup>b</sup>
	Residual	13.901	118	.118		
	Total	83.700	119			

a. Dependent Variable: technological efficiency

b. Predictors: (Constant), privatization

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.217	.097		2.243	.027
	privatization	.881	.036	.913	24.342	.000

a. Dependent Variable: technological efficiency

R = 0.913

R (Square) = 0.834

Coefficient of 0.913 indicating a positive significance. Privatization is 0.913 indicating positive significant effect of the variables. Regression sum of squares is greater than the



residual sum of squares, meaning that the model does not explain all the variations. R (0.913) shows a relationship between privatization and operational efficiency.

The hypothesis that privatization of the Nigerian power sector has led to no efficient position and technological operation in the sector was tested to find its relationship among the identified variables, and the result showed that there was significant effect at 0.05 level of error. This implies that poor technological tools, unimproved work tools, non acquisition of transformers, meters and other materials that would help in the improvement of services were prominent in the sector.

**Decision:** Regression of squares was greater than residual sum of squares, meaning that the model does not explain all the variations. R (.913) showed a relationship between privatization and variables of technological efficiency. We therefore accept the alternate hypothesis that privatization has led to poor technological operation of the power sector.

Hypothesis 2:

H1: Privatization has led to unaffordability of power to energy users

**Effect of Privatization on customers**

Effects	SA	A	UD	SD	D
Increased power supply		37	31	52	
Prompt rectification of electricity faults		27		82	11
Prompt customers' attention		35		54	31
Reduction of frivolous billing			1	99	20
Affordable user tariff				120	
Improved billing system		57		63	

Source; field survey,2017.



**Descriptive Statistics**

		Statistic	Bootstrap <sup>a</sup>			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
erratic power supply	N	120	0	0	120	120
	Minimum	2.00				
	Maximum	4.00				
	Sum	345.00				
	Mean	2.8750	.0001	.0784	2.7250	3.0333
	Std. Deviation	.85565	-.00494	.02585	.79807	.89801
	N	120	0	0	120	120
delayed fault rectification	Minimum	1.00				
	Maximum	4.00				
	Sum	283.00				
	Mean	2.3583	-.0030	.0863	2.1917	2.5250
	Std. Deviation	.93302	-.00565	.05591	.80852	1.02623
	N	120	0	0	120	120
	N	120	0	0	120	120
delayed customer attention	Minimum	1.00				
	Maximum	4.00				
	Sum	279.00				
	Mean	2.3250	-.0032	.1068	2.1167	2.5333
	Std. Deviation	1.15346	-.00602	.04639	1.04757	1.22885
	N	120	0	0	120	120
	N	120	0	0	120	120
increased frivolous billings	Minimum	1.00				
	Maximum	3.00				
	Sum	221.00				
	Sum	221.00				



increased user tariff	Mean	1.8417	-.0017	.0369	1.7667	1.9165
	Std. Deviation	.38883	-.00308	.03448	.31366	.44900
	N	120	0	0	120	120
	Minimum	2.00				
	Maximum	2.00				
	Sum	240.00				
inefficient billing system	Mean	2.0000	.0000	.0000	2.0000	2.0000
	Std. Deviation	.00000	.00000	.00000	.00000	.00000
	N	120	0	0	120	120
	Minimum	2.00				
	Maximum	4.00				
	Sum	354.00				
Valid N (listwise)	Mean	2.9500	-.0015	.0937	2.7667	3.1333
	Std. Deviation	1.00294	-.00452	.00772	.97647	1.00419
	N	120	0	0	120	120

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

### Descriptive Statistics

	Mean	Std. Deviation	N
customers' service	2.4500	.83867	120
privatization	2.5333	.86901	120

### Model Summary





1	(Constant )	.217	.097		2.243	.027	.025	.409
	privatization	.881	.036	.913	24.342	.000	.810	.953

a. Dependent Variable: customers' service

R = 0.913

R (Square) = 0.834

Coefficient of 0.913 indicates a positive significance. Privatization is 0.913 indicating positive significant effect of the variables. Regression sum of squares is greater than the residual sum of squares, meaning that the model does not explain all the variations. R (0.913) shows a relationship between privatization and efficient customers' services.

The hypothesis that privatization of the Nigerian power sector has led to poor service to customers was tested to find its relationship among the identified variables, and the result showed that there was significant effect at 0.05 level of error. This implied that hike in electricity tariff, frivolous billing, lack of good metering system, poor and erratic power supply, among others were prominent incidences in the sector.

**Decision:** Regression of squares was greater than residual sum of squares, meaning that the model did not explain all the variations. R (.913) showed a relationship between privatization and variables of efficient customers' service. We therefore accept the alternate hypothesis that privatization has led to unaffordability of power to energy users in Nigeria.

**5.0 SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSIONS:**

**5.1 SUMMARY OF FINDINGS:**



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1. That there is no technological improvement in the Power sector since after its privatization.
2. That there is insignificant improvement in service delivery in the power sector in terms of power supply, prompt rectification of electricity fault and attention to customer's complaints in Nigeria.

### **5.2 CONCLUSION:**

The components and the complexities of deregulation and privatization in Nigeria, with special reference to the power sector were examined, which led to an understanding that it may be wrong to assume that these ideas are good or bad in themselves. The paper shows that measuring the performance of Public Enterprises by juxtaposing objectives and outcome of one on the other is problematic. The research therefore approached the assessment of the power sector deregulation by appraising its impact on the technological efficiency and Nigerian citizens. In the end, it was observed that the government must engage on the transformation process, aimed at ensuring the provision of basic power technologies like higher capacity transformers, meters, etc. Therefore, whether seen as an ideology or a reform, deregulation and privatization are economic principle of structural balancing – not a quick fixer, but as an idea to be diligently pursued consistently and transparently for its intended outcomes and benefits.

This means that the outcome of deregulation and privatization in Nigeria is mixed, having both positive and negative socio-economic consequences.

### **5.3 RECOMMENDATIONS**

Based on the findings above, the study recommends among other things, that



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1. Government should consider strictly all the stakeholders involved in any restructuring plan in terms of how the exercise will affect them and in turn affect the economy of the general populace. In the light of this, should embark on technological efficiency through investment in basic power technologies like higher capacity transformers, meters, etc. Also, that available relevant mechanism should be put in place for prompt customers' attention and faults rectification aimed at improved customers' service.
2. Similarly, when organisations are privatized, government should through its agencies monitor the activities of the successor company in line with the agreed plan for the privatization. There is need therefore, for government to reduce the sufferings of the masses through reduction in electricity user tariff for the affordability of the citizens considering the importance of electricity to economic building. This will help in the achievement of the good reason for the deregulation exercise.

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