

## Development Crisis of Power Supply and Implications for Industrial Sector in Nigeria

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**ABSTRACT** Development crisis affecting Africa is often anchored on poor industrial development and technological infrastructure. Technology infrastructure is a vital prerequisite for economic, industrial and technological development and growth. Technology infrastructure comprises power supply, energy, transportation, communication, water supply, etc. Most of these are lacking in the continent. Focusing exclusively but critically on the power supply situation in Nigeria, the paper argued that despite huge funds government had committed into the power sector in the past eight years (1999-2007), Nigeria with population of over 140 million was only able to generate less than 3,000 MW as against over 10,000 MW needed to transform the economy of the country. The paper identified several causes of this inadequate power supply and argued that this precarious situation has serious negative implications for the operations of industrial sector in the country, as most organizations spent fortunes generating their own power. This situation represents a major set back on the country's quest for industrial development. Against this backdrop, the paper suggested that there is urgent need to overhaul completely the power sector in Nigeria so as to place the country on the pedestal of economic and industrial development.

### INTRODUCTION

The World Bank (1991: 31) defined development as "a sustainable increase in living standards that encompasses material consumption, education, health and environmental protection". Social scientists particularly economists and sociologists, have for centuries been preoccupied with the subject matter of development. The economists have traditionally considered an increase in per capita income to be a good indicator of development (Herrick and Kindleberger 1984; Kayode 2002; Obadina 2004). They assumed that growth in per capita income induced by growing productivity is the engine of development. As regards the sociologists development refers to qualitative and quantitative changes in the structure and performance of the forces of production through eradication of poverty, disease, hunger, inequality and unemployment among other social problems (Offiong 2001; Isamah 2002). Considering the position of the economists a critical question that arises is: what drives productivity? The answer according to the World Bank (1991) lies in the *industrial development* and *technological infrastructure*.

Industrial development is a process by which a nation acquires a competence in the manufacturing of equipment and products required for sustainable development. Technology is consid-

ered the prime factor in this regard. Industrial development and technological development are interdependent and interrelated. While technological development is prerequisite for industrial development; the industrial sector is the major propelling force for technological development and innovation (Ernst, Ganiastor, and Mytelka, 1994). However, in any developing economy like Nigeria, neither can each flourish unless there is adequate technological infrastructure in place (Sutcliffe 1971; Hodder 1973; Kirkpatrick et al. 1985; Offiong 2001).

Technological infrastructure is an enabling environment required for rapid growth of technological and industrial development and comprises physical and human variables like energy, water, transport, communication, financial and human capital (Chenery 1960; Afonja 2003). Ability to provide and effectively apply these inputs is a direct indicator of the potential for the development of any nation, and it is primarily differentiating factor between the various levels of development worldwide. The role of private sector in providing technological infrastructure varies significantly between nations. On one extreme is the group of nations (for example United States of America) in which the private sector provides virtually all technological infrastructure while at other end is the group in which the government is responsible for nearly all (for example China). In between is a group comprising mainly devel-

oping countries which are in varying degrees of transition from public to private ownership of technological infrastructure. Nigeria falls in this last category (Arikpo 1967; Thirlwall 1989; Kim 1997; Offiong 2001; Afonja 2003). Against this backdrop this paper attempts to examine the problem associated with power supply as well its implications for industrial sector in Nigeria.

### The Problems of Power Supply in Nigeria and Government Responses to the Situation

Regular power supply is the prime mover of technological and social development. There is hardly any enterprise or indeed any aspect of human development that does not require energy in one form or the other - electric power, fuels etc. Nigeria is richly endowed with various energy sources, crude oil, natural gas, coal, hydro-power, solar energy, fissionable materials for nuclear energy. Yet the country consistently suffers from energy shortage - a major impediment to industrial and technological growth. The National Electric Power Authority (NEPA)<sup>1</sup>, a government parastatal, has the sole responsibility for managing the generating plants as well as distribution of power nationally. The total generating capacity is about 3000MW, approximately thrice the current level of national demand. However, the actual power available at any given time is less than 40 percent of the total capacity due to poor maintenance; hence there is a perennial shortage. This situation is exacerbated by a grossly inefficient, poorly maintained distribution system. Industry can only cope with power outages by resorting to internal generating plants (Ajanaku 2007; Adegbamigbe 2007).

However, when electricity goes on and off five times in an hour, this creates serious problems for manufacturing and industrial sectors.

Equipment is damaged by power surges that usually accompany epileptic power supply and goods at various stages of manufacturing are damaged. Industry's response has been to run permanently on internal generating plants and use NEPA supply as standby. It is ironical that, in spite of the enormous power generation potential, about 60 percent of the country still has no access to electric power supply (UNDP 2001; Ajanaku 2007; Adegbamigbe 2007).

The Table 1 shows a *comparative analysis of consumption of electricity worldwide*. Based on the table for instance, Libya with a population of only 5.5 million has generating capacity of 4,600 megawatts, approximately the same as Nigeria which has a population of about 140 million (Lohor and Ezeigbo 2006; Oloja and Oretade 2006). There are plans to build seven more plants in Nigeria (Atser 2007). All the stations are oil or gas fired and the country is selling power to other African countries. South Africa with a population of only 44.3million has a generating capacity of 45,000 megawatts, almost eleven times the generation capacity in Nigeria which has three times the population of South Africa (Agbo 2007).

Studies and experiences have shown that power generation in the country has been dismal and unable to compare with what obtains in smaller African countries. The recent survey on power distribution to the industrial sector in Nigeria showed that average power outage in the industrial sector increased from 13.3hours in January 2006 to 14.5 hours in March 2006. In a worsening experience, the outage increased to 16.48 hours per day in June. In other words, power distribution in the month of June, 2006 to the industrial sector, on the average, was 7.52 hours per day (Odiaka 2006).

In Sharada/Challawa industrial area in Kano,

**Table 1: Comparative analysis of consumption of electricity worldwide**

Country	Population	Power Generation	Per Capita Consumption
United States	250.00 Million	813,000MW	3.20KW
Cuba	10.54 Million	4,000MW	0.38KW
United Kingdom	57.50 Million	76,000MW	1.33KW
Ukraine	49.00 Million	54,000MW	1.33KW
Iraq	23.60 Million	10,000MW	0.42KW
South Korea	47.00 Million	52,000MW	1.09KW
South Africa	44.30 Million	45,000MW	1.015KW
Libya	5.50 Million	4,600MW	1.015KW
Egypt	67.90 Million	18,000MW	0.265KW
Nigeria	140.00 Million	4,000MW	0.03KW

Source: Agbo (2007)

the outage increased from 15.4 hours in January, 2006 to 17.6 hours in March of the same year. In Bompai area in Kano State, power outage increased from 10.3 hours in January to 13.0 hours in March, while in Enugu/Anambra zone it increased from 17.2 hours to 18.5 hours within the same period. In Edo/Delta zone the average power supply to industrial area is put at 4.4 hours per day. The Ikeja industrial area of Lagos enjoyed power supply for 12.5 hours per day, the highest in the country. Industrial estates in Bauchi, Benue and Plateau zone receive power supply for 4.5 hours per day which amounted to near black-out in real sense (Nwaoshai 2006; Odiaka 2006).

Studies further revealed the power supply in virtually all the states in Nigeria has been very dismal. For instance, in Benue State, only Makurdi the state capital receives electricity supply for about five hours a day. Also in Delta State some communities never had power supply for upwards of six months. In Lagos, the commercial nerve centre of the country, the situation is also bad as power supply in many residential parts of Lagos is about four hours per day with cuts at short intervals. It is a total black out in some areas for about three days or more (Akpan 2005; Odiaka 2006; Ogunmodede 2006).

In recognition that the problem of power supply is a challenging one scuttling socio-economic activities across the country, the civilian administration in Nigeria since its advent in 1999 started making huge investments in the energy sector. Available records showed that by the end of 2001 the generating capacity had increased from 1824 MW (from 19 generating units) in March 2000, to about 4000MW (from 40 generating units) and a new peak generation of 2934 MW was recorded in the process. This was made possible through rehabilitation of existing generating units, installation of new generating plants and the procurement of power from independent operators (Makoju 2002; Adegbamigbe 2007; Agbo 2007).

In the area of transmission, efforts were made to extend and reinforce the transmission grid through the construction of 14 transmission lines (and associated sub station) and the reinforcement of 26 substations. In view of the fragile nature of the grid, an additional 23 lines and 33 substations were executed in 2002. The primary objective was to extend the grid and transport bulk power supply to areas not adequately covered by the then existing transmission network.

In the area of distribution, available NEPA records showed that the distribution network undertook the deployment and installation of;

- One hundred and thirty six 15 MVA 33/11 KV power transformers and associated equipment nationwide
- Fifty two 7.5 MVA 33/11 KV power transformer and associated equipment nationwide
- Various sizes of distribution transformers and equipment nationwide (Makoju 2002; Ajanaku 2007)

In all, 1191 projects were completed by 2001. These comprised of 267 injection sub-stations projects and 924 distribution sub-station projects. Also 346 transformers were locally procured and allocated for replacement of units lost in circuit, to ensure prompt restoration of supply to affected customers. Other materials and equipment for network maintenance such as transformer oil, conductors and cables, test and safety equipment, work vehicles, communication equipment etc. were also procured and distributed to various parts of the country (Makoju 2002).

In the recent times, the Authority had embarked on a number of special projects geared towards increased involvement of the private sector as a necessary ingredient for long-term sector viability. It was expected that these projects would not only improve the overall electricity power situation in Nigeria, but should instill in the authority practices which would be invaluable in deregulated energy sector (Agbo 2007). These initiatives arose out of the basic realisation that government is increasingly becoming unable to fund this heavily capital intensive sector. For instance, The ROT<sup>2</sup> programme for Sapele and Afam power stations is an attempt by government to get AES Frontiers Limited and Shell Petroleum Development Company Ltd respectively - private sector - to invest and participate in provision of power. With this, it is expected the about \$700 million of private capital would be injected in the rehabilitation/modernisation of both power stations over a period of time (Johnson 2007).

In addition an Operation and Maintenance (OM) programme was conceptualised to provide improved technical and managerial expertise at power stations via the introduction of short-term private participation especially in stations such as Delta, Egbin, Jebba, Shiroro and Kanji. Since improved generation can only be sustained by corresponding improvements in revenue generation; the Authority sought and received approv-

al for the outsourcing of parts of its marketing activity in a limited number of districts under the Revenue Cycle Management (RCM). Given the paucity of funds for electricity, infrastructure rehabilitation and expansion, the Authority sought for and received approval from the World Bank for \$100 million credit under very concessionary terms (Makoju 2002; Agbo 2007).

At present the current nation's energy demand is estimated at 10000MW. However, existing power stations and their installed capacities as shown on Table 2 are: Oji Thermal Station, Enugu State (30MW); Delta Thermal, Delta State (900 MW); Ijora Thermal Lagos State (60MW); Sapele Thermal, Delta State(1020 MW); Kainji Hydro Station, Niger State (760 MW); Jebba Hydro Station, Niger State (578.4MW); Afam Thermal, Rivers State (969); Egbin Thermal, Lagos State (1320MW) and Shiroro Hydro, Niger State(600MW). With the installed capacity of about 6000MW, the country manages to generate only a meager (of more or less) 4000 MW of electricity (Atser 2006b: 28).

The current per capita consumption of electricity in Nigeria is about 106KWh/person compared to Ghana's 430, India's 470 or Brazil's 1800. Expected increase in consumption is 379MW

annually at 2.5 percent population annual growth rate and five percent annual growth of the economy. Available records showed that government has set 10000 MW target to be achieved by the end 2007 as it has invested in new power projects that would be privatised after completion (Owan 2005). However, it is instructive to note that these huge investments have not improved the situation of power supply in Nigeria for some obvious reasons which will be highlighted later (Ajanaku 2007).

To further demonstrate its commitment towards provision of electricity, the Federal government in 2007 awarded the construction of 2,600MW Mambilla plateau hydropower station to Chinese company, Gezhouba Group Corporation, at the cost of \$1.46billion. The Mambilla station is part of Nigeria' National Integration Power Plant (NIPP). This project is one of the targets set by government in August 2003 to, among others, establish a sustainable electric power industry, develop capacity to reliable transmit and distribute the increased generation and develop a medium term investment plan for the sector. Other projects of NIPP as presented on Table 3 are; Odukpani, Cross River State, 561MW; Egbama, Imo State, 338MW; Ihovobor,

**Table 2: Old power plants and generation capacities**

Station	Type	Inauguration date	Installed capacity MW	Current output MW
Oji	Thermal	1956	30	-
Delta	Thermal	1966-1999	900	366
Ijora	Thermal	1978	60	-
Sapele	Thermal	1978-1981	1,020	62
Kainji	Hydro	1968-1978	760	445
Jebba	Hydro	1983-1984	578.4	339
Afam	Thermal	1978-1982	969	85
Egbin	Thermal	1985-1987	1320	241
Shiroro	Hydro	1989-1990	600	281
Total			6237.4	

Sources: Atser (2006b) and Agbo (2007).

**Table 3: Seven New federal government power projects in the Niger Delta**

S. No.	Power station	State location	Units	Total Output	Commissioning dates
1.	Odukpani, Calabar	Cross River	5	561MW	July 2007 November 2007
2.	Egbema	Imo	3	338	July 2007 December 2007
3.	Ihovobor	Edo	4	451	June 2007 September 2007
4.	Gbarian/Ubie	Bayelsa	2	225	June 2007 September 2007
5.	Sapele	Delta	4	457	May 2007 December 2007
6.	Omoku	Rivers	2	230	December 2007 December 2007
7.	Ikot Abasi (ALSCON)	Akwa Ibom	3	300	Yet to be awarded
	Total Output			2562MW	

Source: Agbo (2007) and Atser (2007).

Edo State, 451MW; Gbarian/Ubie, Bayelsa State 225MW; Sapele, Delta State, 451MW; Omoku, Rivers State, 230MW and Ikot Abasi, Akwa Ibom State, 300 MW (Agbo 2007; Atser 2007b).

With Power Reform Act already passed into law by the National Assembly and accented by the erstwhile President Obasanjo in 2005, the former National Electric Power Authority was renamed *Power Holding Company of Nigeria* (PHCN). With this arrangement it was expected that by end of 2007 PHCN would have been broken up into 18 companies in a takeover that was expected involve private sector in the generation, transmission and distribution of electricity and further improve on the performance of the sector. The offshoot companies of the PHCN would be made up of *one* transmission company, *six* power generation companies and *eleven* distribution companies. (Chiedozie 2007).

Also the Act attempts to encourage private investor in the sector. With this arrangement different Independent Power Projects are expected to be embarked by some state governments and multi-national organisations that may be interested to generate their own power and may extend to the members of the public who may be interested (Oladimeji 2005; Ikechukwu 2005). In line with this, government established National Electricity and Regulatory Commission (NERC) to facilitate government divestment from the power sector. The role of the commission, among other things, is to promote competition and private sector participation in the sector. Further it has the responsibility to establish or approve appropriate operating codes and safety, security, reliability and quality standards and to monitor the operation of the electricity market (Owan 2005).

Several reasons have been adduced on why the various efforts made over the years by government in the last eight years have not yielded any significant improvement on power supply in Nigeria. Some of these are;

First, is the constant vandalism and attack on Escravos gas pipelines especially Chonomi Creek in Delta State by militant groups operating in the Niger Delta. The channel is feeding Egbin Thermal Station. Another pipeline, Escravos Lagos Pipeline owned by the Nigeria Gas Company (NGC), which feeds Afam with gas has been vandalised several times over. This has brought power generation to all time low (Nwachukwu 2007).

Second, PHCN is indebted to NGC in the sum of N7billion for gas supplies. To recover their money NGC several times had to halt supply of gas to the organisation to recover the debts (Atser 2007a).

Third, besides the low gas supply to the thermal stations, the worst and major cause is the activities and conduct of the PHCN personnel. This age long problem in the sector persists in the organisation. For instance, those personnel in the marketing Department hardly read the meter. Billing in such cases is largely by estimation. The result is often spurious bills. In some cases where bills are estimated instead of the actual consumption, most of the consumers are often hostile to the officials or personnel of the organisation. Some even refuse outrightly to settle such bills, claiming that they cannot pay for services not rendered (Ikechukwu 2005; Agbo 2007; Johnson 2007).

In a survey conducted by Oladimeji (2005: 45) in Lagos metropolis, one of the consumers complained: *NEPA is an extortionist; their bills are not just certified bills. They bring crazy bills to people, not based on what they consumed but based on what they think, that is estimation. It is not good for any man to pay for what he has not used and when you go to their office to complain, they will not listen. We are helpless. If there is any other source we can get our supply from, we will go and get it. Power supply from NEPA is not regular. If it is regular people will better off in their businesses.*

Fourth is the endemic corruption in the sector. It has been argued that besides the Nigeria Police Force the next government parastatal that is ridden with the cankerworm is PHCN. Writing in one of most circulated national dailies, Umuanah (2005: 35) wrote: *Take for instance the case of Mr. Bassey Festus Bassey. He runs a computer firm at Edgerly Road in Calabar. He was indebted to the Power Holding Company of Nigeria (formerly NEPA) and had gone to negotiate with a top official of the institution on a possible instalment payment to avoid being disconnected. He was shocked to hear that, rather than pay the money to PHCN, he could actually give half of the entire sum to an official for the bill to be written off. Just like that. But Bassey suspected that the game could backfire. So, he politely turned down the official's offer and chose to do the right thing. But the official was to fight back. He attempted to ensure that Bassey*

was disconnected. He only gave way when it dawned on him that his superior had approved an instalmental payment of the sum for the consumer.

Further, the problem of power supply is traceable to the usual gross inefficiency and bureaucracy that are evident in most parastatals. Sabotage is also a significant factor. High tension lines and transmission and generating equipment components are stolen regularly. Revenue collection is poor and the greatest debtors are government establishments and parastatals (Adegbamigbe 2007).

Another problem confronting PHCN is the low investment in power generation over the years. All the plants are very old. Thirty six percent of them are over twenty five years old, 48 percent are over twenty old, and no new plant has been installed in the last fifteen years prior to the advent of civilian administration in 1999. With this it is pertinent to note that the power supply situation in the country has not improved in the last eight years despite huge investments government claimed to have made on it<sup>4</sup>. However, because of its dismal performance, plans are underway to restructure and privatise PHCN (Agbo 2007).

Frustrated and provoked by PHCN's crazy bills, ineptitude, dismal performance plaguing the organisation and the spate of corruption going on, it understandable why public disenchantment against the performance of the sector has increased over the years (Ameh 2006; Arowolo 2006).

#### IMPLICATIONS FOR INDUSTRIAL SECTOR IN NIGERIA

Without doubt constant power supply as well as the provision of other infrastructural facilities usually facilitates the industrial development of any economy. In Nigeria, the near absence of these has affected most industries negatively.

According to Adeyemi (2007) the state of the manufacturing industries in Nigeria at the end of Obasanjo's administration on May 29, 2007 can be classified as follows: 30 percent have closed down, 60 percent ailing and 10 percent operating at sustainable level.

As shown on Table 4 the firms in the *ailing category* according to sectoral analysis include; textile firms, vehicle assemblers, cable manufactures and paint manufacturers. Others are steel and petrochemical firms. Also firms operating on the *sustainable level* are those in the food, beverages and tobacco sector, leather sub-sector and household products such as detergents and cleaning materials, and toothpaste among others, Companies in the *closed down group* cut across all industrial products, but most affected are products such as chalk, candle, dry cell and automobile batteries, shoes polish, matches, etc.

Reflecting on the plights of industrial sector in its 2007 first quarter review of the economy, Lagos Chamber of Commerce and Industry (LCCI) noted that: *this is not the best of times for manufacturers in Nigeria, particularly those in the small and medium Enterprises category... manufacturing costs had gone up astronomically, industrial capacity declined and many businesses collapsed*. Problems identified by LCCI to have contributed to this include, deficiencies in infrastructure especially power supply, acute funding problems, policy inconsistency, import dependence and influx of substandard and cheap products.

It on record that irregular power supply is one of the greatest challenges facing the industrial sector in Nigeria (Offiong 2001; National Planning Commission, 2004). Take the case of textile sector, when the federal government banned importation of textile, the policy thrust was to improve on the productivity of the local factories. But the sector has continued to record worse performance. For instance, the popular Kaduna – based United Nigeria Textile Plc shed

**Table 4: State of manufacturing industries in Nigeria**

<i>Industries that have Closed down</i>	<i>Ailing industries</i>	<i>Industries Operating at sustainable level</i>
Chalk Manufactures	Textiles Firms	Food, beverages and Tobacco sector
Candle Manufacturers	Vehicle assemblers	Leather sub-sector
Dry cell and Automobile batteries Industries	Cable manufacturers	Household products
Shoe Polish	Paint manufacturers	-
Matches	Steel Firms	-
-	Petrochemical firms	-

Source: Adeyemi (2007)

its 1200 workforce in 2005 due to high cost of production attributed to lack of power supply for production (Adegbamigbe 2007; Ogunjobi 2007).

According to Manufacturing Association of Nigeria's (MAN) survey in 2005, only 10 percent of industries operated. But then, the 10 percent could, on the average, only function at 48.8 percent of their respective installed capacities. According to the survey, 60 percent of the companies were in comatose while another 30 percent had completely closed down. The following year, 2006, a survey conducted by MAN in the first quarter indicated that most of the industrial areas around the country suffered an average of 14.5 hours of power outage per day as against 9.5 hours of supply. Further the figure released by the MAN indicated that the cost of generating power supply accounts for 36percent of production. About 1500 firms (60 percent) of the association's 2,500 members are in dire strait principally because of the additional operating cost of alternative power generation. Over 750 companies (30 percent) have closed shop outrightly due to the problem (Udejah 2006, Adegbamigbe 2007).

As a result power supply and other related factors, industrial sector contribution to the Gross Domestic Product (GDP) has continued to drop since 1990 from 8.2 per cent, got to 4.7 percent in 2003; 4.06 percent in 2004 and 4.2 in 2005 percent, the lowest figure since the country got independence in 1960 (Ajanaku 2007).

With poor power supply situation almost all manufacturing companies that have remained in business run private power plant at great cost and this is evident on the amount spent on the importation of generators into Nigeria. A London based magazine, *African Review of Business and Technology* in its April 2006 edition revealed that Nigeria topped the list of generator-importing countries for the fourth year in a row, having surpassed others since 2002. According to the report, Nigeria accounted for 35 per cent or \$152 million of the total \$432.2 million spent by African countries on generator imports in 2005. The Report, which focused on diesel generator of between 2,000KVA and 5,000KVA capacity, said the country imported three times as many generator than the closest African importers – Sudan and Egypt – that spent \$40.6 million and \$32 million respectively on the product in 2005 (Atser 2006a: 28).

In buttressing the above report, a survey conducted in Lagos showed that the *British American Tobacco* (BAT) Plc spent about N67.5 million in 2005 on diesel and maintenance of its private power generation plant. *Dunlop Nigeria Plc* similarly spent N96 million on annual average, while *West African Portland Cement* spent N90million on the average. Others are *Friestland Foods Plc*: N50 million; *Nigerite Plc*: N36million and *Cadbury Nigeria Plc*: N49million. By MAN's statistics, nine companies within its fold spent a total sum of N69.5 billion to generate their power (Odiaka 2006; Oke 2006). Against the backdrop of the epileptic power supply and the desire of the companies to remain in the business, some multinational companies have devised other alternative sources of power generation. In the recent times quite a number of multinational companies operating in Nigeria generate own power through Independent Power Project (IPP) (Udejah 2006). However, even with this situation it is on record that some of these companies have continued to post impressive profits and meeting the obligations of their shareholders. But such performance is a reflection of the fact that more and more of production costs are shifted to the final consumers most of whose disposal incomes have declined steadily as a result of inflation generated by government's tough economic policies. This has the tendency to reduce consumers' effective demand and may force some companies to close shop or even relocate to a more investment friendly environment on the long run as recently demonstrated in the case of *Michelin* (Ogunjobi 2007).

A critical assessment of the performance of the power sector by the World Bank best captures its implication for industrial sector in Nigeria. The World Bank Report (2004: 135) on the nation's difficult investment climate states: *Manufacturing firms in Nigeria consider inadequate infrastructure, particularly power supply, as their most severe constrain. Dealing with the inadequate power supply and other infrastructure problems absorbs far more of management's attention than any other business problem.*

Also summarising the effects of dismal electricity supply situation in Nigeria between 1999 and 2007, Johnson (2007: 22) argued that: *At inception in 1999, Obasanjo's administration promised Nigerians steady power supply. Former Minister of Power and Steel...assured Nigerians that the nation would have steady*

*power supply by 2001.... The promise of increasing the nation's output from 1,700MW in 1999 to 10,000MW by 2007 has remained largely unfulfilled. Despite government investment of over N574 billion in the sector, power output continues to dip, a situation that has killed many business ideas and is costing investors hefty sums to run generators. The implication is that unemployment and crime remain high in Nigeria.*

What all these suggest is that the cost of doing business in Nigeria is not only very high but at same time very painful. Small and medium scale industries are the drivers of economy, but instead of the sector expanding, it is collapsing. Besides, multinationals most others have since disappeared from Nigeria's industrial landscape. Even the collective performance of multinational companies is not sufficient to lift the industrial sector out of the doldrums. A number of measures taken by government to revive the sector showed not much has been achieved. Statistics from the Central Bank of Nigeria (CBN) indicated that manufacturing value added tax declined from 5.5 percent of Gross Domestic Product, (GDP) in 1998 to 3 percent in 2005. Further CBN indicated that capacity utilisation, which was 32.4 percent in 1998, increased to 53.4 percent in 2004 and dropped to 22.7 percent in 2006, far less than the National Economic Empowerment and Development Strategy (NEEDS) target of 70 percent. The CBN's statistics also indicated that export of manufactured goods accounted for only 7.4 percent of non-oil exports in 2005. Foreign direct investment into the sector is still considered low despite the fact it rose from N165 billion in 2003 to N276 billion in 2005. Besides, the sector contributed less than 10 percent to the country's GDP. In all these dismal power supply situation has been identified as the main factor for the poor performance of the industrial sector. This is evident in the figures released by MAN which showed that in 2006 the PHCN supplied only 41.7 percent of the power required by manufacturers, while 58.3 was met through generating sets (National Planning Commission 2004; Central Bank 2006; Ogunjobi 2007).

### CONCLUSION

From all indications the performance of power sector in Nigeria as represented by PHCN activities in the last eight years has been dismal

and, by extension, accentuated the economic and industrial underdevelopment situation of the country. It shows that Nigeria as developing country is not even at the stage of take off since the stage would imply that basic infrastructural facilities are in place.

Considering the strategic importance of this sector in socio- economic development of the country and with the attendant problems that have characterised it, it appears that public- private partnership in virtually all aspects including generation, transmission and distribution seems to be the better option now rather than outright privatization. To achieve these, following steps must be taken into consideration.

First, competition and appropriate regulatory framework which are prerequisites to achieve better services delivery must be put in place. Competition should be promoted by introducing functional segmentation by separating transmission companies; the establishment of a number of competing privately owned generation companies from existing PHCN generation facilities and the opening of a number of distribution and marketing companies.

Second, because of the strategic importance of power sector and as a result of security concerns, it will be ill advised for government to opt out of the sector completely. Provision of uninterrupted power supply should be seen as part and parcel of social services provided by government to the masses. However, in advocating public-private partnership, affordability and service delivery should be the watchword. Considering that in many places people are not connected to power supply and with emphasis on a vibrant informal sector, cottage industries and semi manufacturing, it is obvious that much is still required to be done in the power sector to make this a reality. Therefore if their rates are not affordable, the impoverished masses will continue to consume energy illegally or adjust their metre arbitrarily thereby making the parastatal to lose vital revenue required to keep its equipment in form.

Third, another important issue government is expected to address is to pay adequate attention to is the legitimate concern of the workforce of the parastatal. In an emerging economy like Nigeria where there is massive unemployment, it is understandable if workers, for some obvious reasons oppose public-private partnership and privatisation. Therefore to forestall labour unrest, there is the need to get all relevant stake-



holders involved in the reform of power sector process. This will mitigate the political and social costs in restructuring and privatisation of the sector. Against this background, there is the need to design and implement redundancy policies transparently so as to provide fair and equitable treatment and compensations for all affected personnel. In this regard, the policy option may include; severance package, pension scheme, retraining of workers and employee share ownership scheme.

Moreover, there is the need to re-orientate PHCN's personnel to work in parastatal that is commercially driven and consumer probity, productivity and efficiency and sanction reoccurring anti-customer behaviours. In addition, PHCN is one of the hotbeds of corruption in Nigeria, hence the need to establish anti-corruption and transparency units in the parastatal so that the activities of corrupt officials will be reduced to the barest minimum. Also members of the public should be sensitised to desist from offering bribes/ inducement to the PHCN staff as a way of securing favours or accelerated service.

Generally the power sector in Nigeria should have been the engine for industrial and economic growth but unfortunately it has performed dismally despite huge investments made by government in the last eight years. It is expected that with coordinated private participation in power generation, transmission and distribution a lot of changes will occur in the sector. Hence, it is only when Nigeria can boast of uninterrupted power supply that one can truly say that the country has been set on the part to industrialisation and technological development in line with the global demands.

### NOTES

1. Although the name was changed to Power Holding Company of Nigeria, (PHCN) since 31st May, 2005, most people still refer to it as NEPA.
2. ROT means Rehabilitate, Operate and Transfer
3. As at the time of updating this paper late July, 2007 this process was yet to be completed.
4. Acknowledging the problem in the power sector, President Umaru Musa Yar'Adua
5. Adua in his inaugural speech on May 29, 2007 said he would tackle the problem head on and may declare state of emergency in the sector if the situation did not improve.

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