FINANCING ENERGY DEVELOPMENT IN NIGERIA: Analysis of Impact on the Electricity Sector

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ABSTRACT

Funding provisions by policy makers are usually for two main purposes including poverty and inequality reduction as well as improvement of the situation for private sector growth. Nigeria returned to civilian rule in 1999 and has since been pursuing private sector-led growth and development and one of the sectors constituting the focus of the federal government is the energy sector especially the electricity sub-sector. This study analysed federal government spending on the energy sector with special emphasis on the electricity sub-sector to see how this spending has impacted on production, transmission and distribution of electricity using descriptive statistics. The study found that despite the significant reforms and increase in spending in the sector, the outcome in terms of its reflection on production, transmission and distribution of electricity is far from the realisation of the reform objectives. The country lags behind other countries like Libya, Kenya and Ghana in per capita power production and consumption and this lack of access to electric power, and modern energy in general has a negative effect on productivity and has limited the economic opportunities available to Nigeria. The study recommended going back to the NEEDS policy thrust and targets in the power sector and must pay attention to the environmental consequences of various options for enhancing the provision of energy services.

Key words: *Government Financing, Energy Development, Nigeria and Electricity*

INTRODUCTION

Africa (Nigeria inclusive) is currently focusing on *"Infrastructure for Growth: The Energy Challenge"* which reflects the widespread acknowledgment that access to clean and reliable energy supply is necessary for accelerated economic growth and sustained poverty-reduction. It enhances the provision of clean water as well as health and education services, which are essential for poverty reduction and eradication. However, Africa suffers significant energy deficit. Even though it represents 13 percent of the world's population and produces 7 percent of global modern energy, it only accounts for 3 percent of modern energy consumption. According to a recent report by the World Energy Council, "Africa is the least illuminated continent of the world" as less than 20 percent of its population has access to electricity. This is disturbing given the huge hydro-electric power potential of the region. The economic consequences of poor access to electricity in the region are quite high and that of Nigeria is pitiable because energy is the pivot where every activity rotates. For instance, in Nigeria the rural poor spend as much as 20-30 percent of their monthly income on fuel wood, charcoal, and kerosene, thereby reducing their ability to satisfy other basic needs (NLSS 2005).

According to the African energy ministers conference (2006) findings, if African countries are to meet the average 7 percent growth rate deemed necessary to meet the MDGs, they must increase the consumption of modern energy as there is abundant evidence of a strong and positive correlation between per capita Gross National Product (GNP) and per capita energy consumption.

The lack of access to electric power, and modern energy in general, also has a negative effect on productivity and has limited the economic opportunities available to developing countries (Cercone et al (1995) and Daniel (2005)) including Nigeria. This is compounded by the poor state of existing infrastructure, which creates the dual challenge of finding resources for maintenance of existing facilities and also to build new power plants. Consequently, improving access to modern energy is a necessary condition for boosting growth and reducing poverty in not only Nigeria but Africa in general.

In an effort to ameliorate the above suffering from the citizens, the Nigerian government have initiated and carried out some reform in the power (electricity) sector of the economy since 1999 when the country witnessed a civilian rule after over twenty (20) years of military dictatorship. This study aimed at analysing government spending on the energy sector with special emphasis on the electricity sub-sector to see how this spending has impacted on production, transmission and distribution of electricity using descriptive statistics. The study also tried compare Nigeria with other developing countries to ascertain energy usage status and improvement in energy (electricity) generation, transmission and distribution.

Nigeria's Power Sector (Electricity) Reform – The Journey So Far

Prior to the democratic dispensation in 1999, the power sector was in comatose with no new investment in plant overhauls, generation and transmission while daily generation declined to an all time low of 2000 megawatts. The sector was poorly funded leading to drastic decline in capacity utilization in the industrial sector which undermined attempts to diversify the Nigerian economy in the non-oil sector. Oil has remained the dominant mono-product accounting for over 90% of foreign exchange earnings and over 85% of federal government revenue. With high inflation (above 10%), government focused on reversing the trend with the implementation of its core reform programmes targeted at prudent fiscal management; strengthening institutions to reduce waste and fight corruption; ensuring transparency, accountability and good governance in a sustainable environment that will reduce poverty; generate employment; and create wealth. This formed the basis for the so-called Nigeria's home-grown, people-centered, socio-economic strategy for economic empowerment and development - the *National Economic Empowerment and Development Strategy (NEEDS)* of 2003-2007 and the current *Vision 20:2020.*

NEEDS had a policy thrust and targets of increasing generation capacity by additional 5,800 megawatts from 4,200 MW to 10,000 MW, transmission from 5,838 megavolt amperes (MVA) to 9,340 MVA and distribution from 8,425 MVA to 15,165 MVA in 2007 but unfortunately this was not met. The government in her bid to meet the target proposed the need to unbundled PHCN to encourage private sector participation and investment in power sector. This informed the enactment of the Electric Power Sector Reform Act (EPSRA) by the Federal Government of Nigeria of unbundling PHCN into distinct business units, establish regulatory agency for the electricity industry, establish a rural electricity agency and fund, in a bid to increase access to electricity and privatize business units that will emerge from the new PHCN. The Electric Power Sector Reform (EPSR) Act 2005 was drafted to provide a legislative framework for the reform of the Nigerian power sector in accordance with the policies set out in the National Electric Power Policy by providing the legal backing for the unbundling of PHCN, formation of successor companies to take over the various functions, assets, liabilities and staff of PHCN. This is envisaged to be the background that will enable the development of a competitive electricity market, creation of a regulatory body that will license and regulate the generation, transmission and distribution and supply of electricity. The act is aimed at spelling out modalities for determining tariffs and provide for other related matters.

Essentially, the National Council on Privatisation in 2002 approved the implementation blueprint for the restructuring of PHCN. This restructuring involved the creation of six Generation Companies (Gencos), an independent Transmission Company, that is also responsible for System and Market Operation; and eleven (11) Distribution/Marketing Companies (Discos) matching PHCN's existing zonal structure, with the exception that the Lagos Zone (which takes 45% of supply and provides as much as 60% of revenues) was restructured into two separate companies which would emerge as a number of business units in the areas of generation and distribution together with a single transmission company and a Special Purpose Entity (SPE) created to hold and pay off PHCN's major financial and trading liabilities. The objective is that each one of these companies will become a commercially viable independent company hence the restructuring programme is envisaged to be followed after by a shadow trading period during which the new Wholesale Electricity Market will remain government-owned and work up to establish some track record of performance. This is to be followed by the divestiture later in 2005 and into 2006 of the Federal Government's interests in the Discos (Distribution Companies) followed by the Genco (Generating Companies).

The BPE has been quite proactive by considering a post-restructuring strategy of evolving management contracts in place in some of the new companies; and is also considering the strategy to adopt for the forthcoming sector privatisation programme. These two strategies of course are interconnected with each other. With the passage of the EPSR Act by the National Assembly and the signing by the President on 11th March 2005, BPE took necessary steps to incorporate the initial holding company called Power Holding Company of Nigeria, PLC (PHCN). The PHCN has taken over the assets, liabilities and personnel of PHCN while Initial Holding Company (IHC) was incorporated and called Power Holding Company of Nigeria (PHCN). As outlined in the Act, the assets, liabilities and staff were transferred to the PHCN. The Vice President of the Federal

Republic of Nigeria and Chairman of the National Council on Privatisation inaugurated the new Board of Director of PHCN on 31st May 2005 with the Minister for Power and Steel as chairman. Members of the Board were mandated to provide the overall direction and supervision to ensure the effective setting up and evolution of the holding company and the successor companies in line with the relevant legislation.

The EPSR Act 2005 provides for the establishment of an independent regulatory agency to that would be called Nigerian Electricity Regulatory Commission (NERC). The agency would be required to carry out the monitoring and regulation of the electricity industry, issuance of licences to market participants and would ensure compliance with market rules and operating guidelines. To date, PHCN is building additional 17 stations with 12 funded by the Federal Government while the remaining 5 are funded by some oil companies to be completed in 2007 though as at January 2012, only about 2 or 3 have been completed.

In retrospect, Nigeria's economic performance has improved considerably since, as real GDP growth rate increased from 0.9% in 1999 to 10.2% in 2003, dropping to 6.1% in 2004 and slight increase to 7% in 2011. This laudable performance was a result of improvement in non-oil sector with agriculture contributing about 7% to the Gross Domestic Product (GDP).

Agricultural activity was enhanced by the import prohibition policies on some agricultural products, a supportive pricing policy and favorable weather. Improved output from the industrial sector was largely attributed to increased crude oil production based on OPEC quota and rise in crude oil prices from the crisis in the Middle East. The social effects of these economic improvements will take some time before they can reflect on the welfare of Nigerians.

Analysis of Power Sector (Electricity) Spending and Production (1999-2012)

The trend in public spending to the power sector in the last twelve years has been quite inconsistent with 2001 witnessing huge spending of 15.79% of the total federal government spending for 2001 when compared with years before it. However, 2002 and 2003 saw drastic cuts in spending in the power sector by 37% and 50% respectively when compared to 2001. See Table 1 below for detailed federal spending to the power sector for the years 1999-2012.

Table 1: Breakdown of the budgetary allocations to Power (1999-2012)

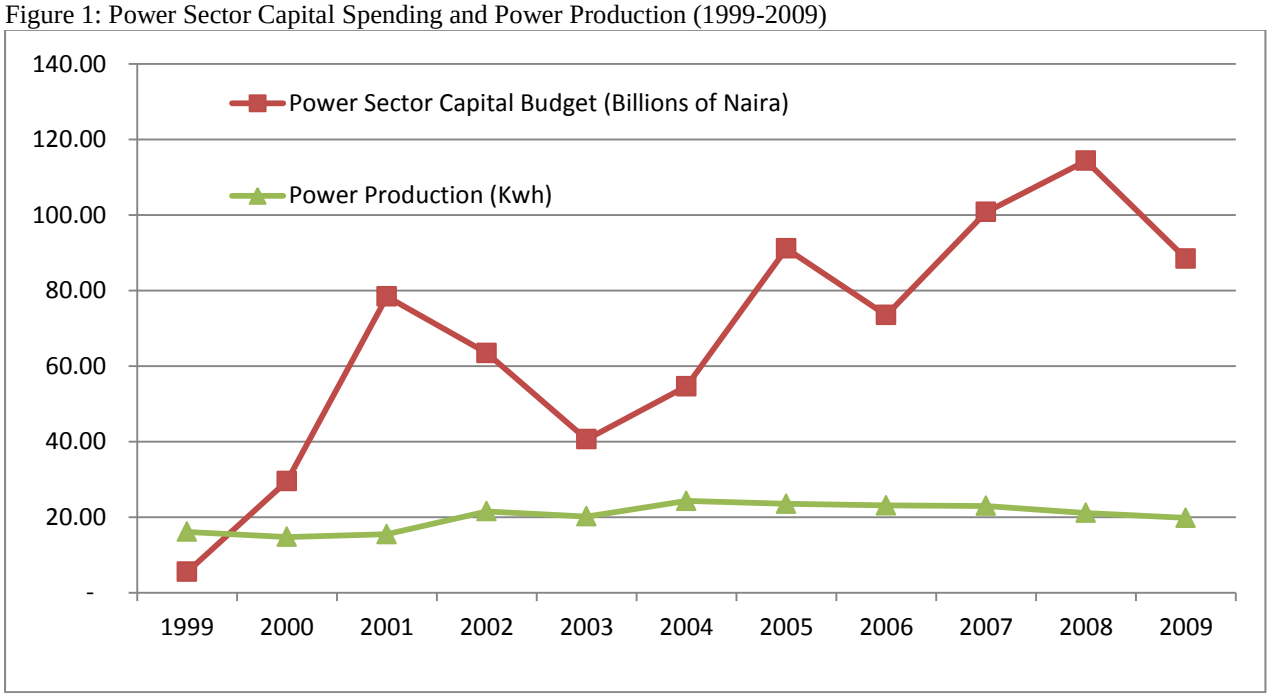
	Federal Spending (₦ Billion)	Power Sector total spending (₦ Billion)	Power Sector Capital Spending (₦ Billion)	Total Federal Capital Spending (₦ Billion)	Power Sector Spending as a percentage of Total Federal Capital Budget (%)
1999	315.22	6.96	5.50	189.13	2.91
2000	537.57	31.97	29.54	321.12	9.20
2001	851.75	80.41	78.40	496.36	15.79
2002	840.85	69.96	63.44	486.71	13.04
2003	765.13	46.68	40.59	382.35	10.62
2004	918.30	58.94	54.62	349.87	15.61
2005	1,617.63	93.29	91.11	617.28	14.76
2006	1,876.30	75.85	73.51	539.23	13.63
2007	2,266.39	104.65	100.78	781.53	12.90
2008	2,492.08	139.78	114.38	673.16	16.99
2009	2,870.51	93.44	88.47	796.74	11.10
2010	4,608.62	194.52	189.78	1,853.91	10.24

	Federal Spending (₦ Billion)	Power Sector total spending (₦ Billion)	Power Sector Capital Spending (₦ Billion)	Total Federal Capital Spending (₦ Billion)	Power Sector Spending as a percentage of Total Federal Capital Budget (%)
2011	4,226.19	90.03	86.25	1,005.99	8.57
2012[1]	4,749.10	73.42	70.30	1,319.78	5.33

Source: Federal Ministry of Finance & Central Bank of Nigeria (CBN)

Analysis of the above table shows a nominal consistent increase in the capital spending to the power sector from 2007 to 2008 until the sector witnessed a nominal drop in 2009, an increase in 2010 and drops in 2011 and 2012. It is interesting to note that such capital increases over the years have not resulted to a corresponding increase in power generation or production in Nigeria as depicted by figure 1 below.

Figure 1: Power Sector Capital Spending and Power Production (1999-2009)



Sources: *Federal Ministry of Finance and World Development Indicators Dataset*

There is an argument that production picked up in 2004 and 2005 with spending of ₦54.6 and ₦91.1 Billion respectively towards projects like Papalanto, Geregu and Alaoji and the seven Niger Delta power plants. These projects were meant to strengthen distribution and transmission infrastructures and it was expected that such development will make the unbundling of PHCN for privatization very attractive. The new investments in the periods 2004-2006 were expected to have added additional 6,000 megawatts to the national grid and meet the projected figure of 10,806 megawatts by December 2007. However, it is unfortunate to note that this has remained a mirage because this target is yet to be met four years after its duration lapsed. Production in 2009 was a little bit above the status at 1999.

The spending of ₦75.8 Billion representing 14% of the total federal capital spending of ₦539.23 Billion in 2006 on the power sector alone was to consolidate the efforts in 2005 to meet the generation, transmission and distribution targets as encapsulated in the NEEDS document. The passage of the Electric Power Sector Reform Act in March 2005 paved way to the creation of the Nigerian Electric Regulatory Commission (NERC) to streamline the legal and regulatory framework that will clearly articulate and spell out market rules, tariffs that reflect cost and improvements in tariff collections.

[1] 2012 is budget allocation

These institutional structures were put in place to ensure the enabling environment for full privatization and commercialization of the PHCN. The focus on industrial clients and huge establishments in the PHCN metering programme will improve the revenue drive. The Revenue Collection Management (RCM) programs with established international firms have improved the revenue drive of PHCN from ₦1.9 billion a month to ₦7 billion as stipulated by the President in his budget speech of 2006. Unfortunately, all these development have not reflected in the output of the power (electricity) sector neither has the citizens witnessed any positive outcomes from them.

The 2012 capital budget details as presented in Table 2 below revealed intensification of funding of ongoing projects across the length and breadth of Nigeria to the tune of over N14 billion while the rest is for new projects to boost power generation, transmission and distribution capacities to meet targets.

Table 2: Breakdown of On-Going Projects captured in 2012 Power Budget Proposal

S/No	Items	Location	Amount
1	Renewable Energy For Electricity Generation Eg. Biomass, Biofuels	Nation Wide	240,000,000
2	10MW Katsina Wind Farm	KATSINA	800,000,000
3	Outstanding Liabilities on REA – For FED.GOVT.	Nation Wide	3,000,000,000
4	215 MW Kaduna Dual Fired (LPFO/GAS) Power Plant	Kaduna	3,703,244,239
5	IT Infrastructure, Net Working & Software Development	FCT	192,942,385
6	Completion of Oyan Dam Hydro Power	OGUN	2,000,000,000
7	Sectoral Contract Management	All States	350,271,982
8	Establishment of Coal Fired Power Plants (Feasibility Studies)	Enugu, Kogi, Benue, Nasarrawa & Gombe	2,222,524,424
9	Connection Of Gurara To National Grid	Kaduna	556,737,622
10	Electricity Management Services	All States	203,657,393
11	Presidential Task Force On Power	FCT	523,586,881
12	Take-Off Grant of Hyperdec Act	Niger	100,258,107
13	Completion of The U-Vision and The Payment of Outstanding Liabilities	FCT	225,000,000
	TOTAL		**14,118,223,033**

The whole concept is to complete ongoing projects to unbundling the PHCN for full scale commercialization if they are really on-going. This development is welcomed and is attributed to the Presidential budget speech of 2012 thus:

> *"My Administration is pressing forward with key structural reforms. We are implementing the privatization of the power sector based on the Power Roadmap which I unveiled last year. We believe that the power sector can benefit from liberalization and privatization by attracting investors in the same manner as the telecommunications sector has done."*

There is also evidence on ground showing that the private sector especially the oil companies are funding some of the independent power plants. The commissioning of the AGIP independent Power plants in Kwale Delta state is a clear testimony of private sector initiative to play active part in the power sector.

In the 2012 budget, some major new projects that appeared in the power sector budget include construction, rehabilitation, inspection, supply of spare parts and excitation transformers to power plants in Afam, Ugheli, Egbin, Kainji, Jebba, Sapele and Shiroro to the tune of N51.855 billion. Likewise generation, transmission and distribution attracted the sum of N1.034 billion for works at Geregu, Omotosho and Olorunshogu in 2012 power sector budget. The Transmission Company of Nigeria (TCN) attracted the sum of N35.119 billion for various transmissions across the country in 2012 while National Rural Electrification Agency (NREA), Nigerian Electricity Regulatory Commission (NERC) and Nigeria Electricity Liability Management Limited/GTE (NELMCO) attracted the sum of N650 million, N1.504 billion and N101 million respectively. Provision and releases in the power sector has never been the main issue in Nigeria but its attendant output, outcome and impact. Evidence from figure 1 above shows that spending in the sector though may not have been up to the

recommended expenditure given the size and coverage of Nigeria has not resulted to improvement in generation, transmission and distribution.

Despite these actual spending in the power sector between 2001 to 2011, the generation, transmission and distribution infrastructures remain grossly inadequate. While countries like South Africa with a population of below 50 Million people are generating over 210 Billion Kwh, as at 2009 Nigeria is still lagging behind with a capacity of less than 40 Billion Kwh. The comparative analysis as shown by the Table 3 below reflects gross inadequacies of our power generation capabilities.

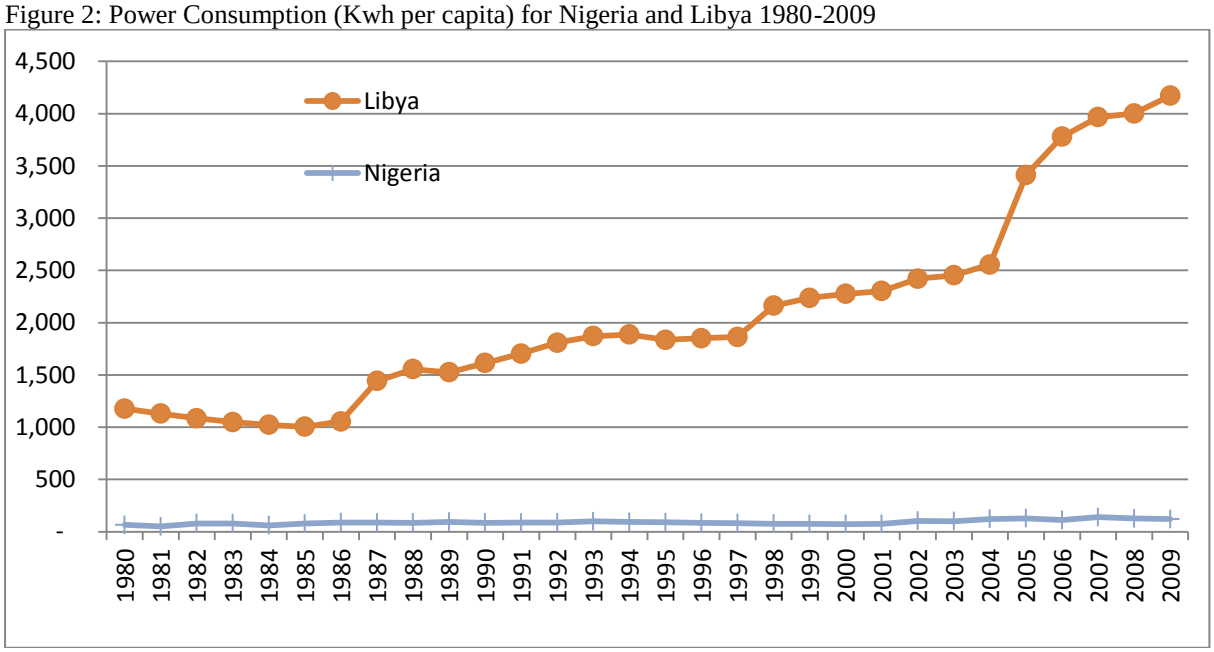
Table 3: Power Output for Selected Countries

Country	GDP (PPP) US $ (2004 Estimated)	Electric Energy Production Billion Kwh (2001 Estimated)	Electric Energy Consumption Billion Kwh
India	3,033	533.3	497.2
Indonesia	758.8	95.78	89.08
Mexico	941.2	198.6	186.7
Brazil	1,375	321.2	335.9
South Africa	456.7	195.6	181.2
Egypt	295.2	75.23	69.96
Nigeria	114.8	15.67	14.55

Source: Manufacturers Association of Nigeria

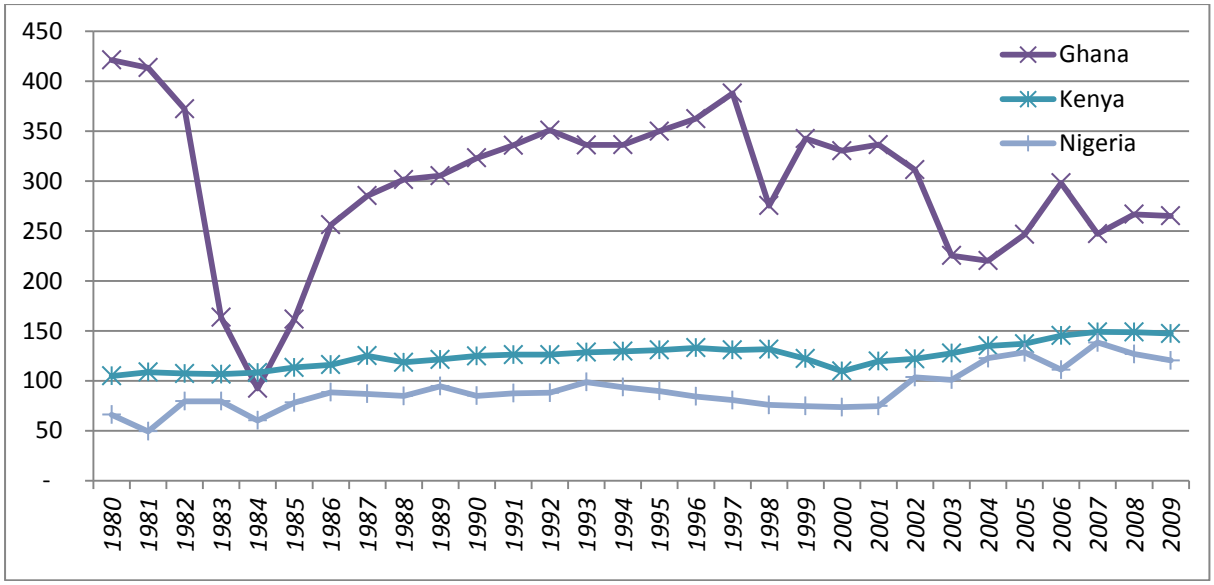
Analysis of cross country comparison as shown in the above table reveals that Nigeria is yet to meet up with countries like Mexico, Indonesia, India, Egypt, South Africa, and Brazil in Electric power production against the background of not seeing the output and outcome of new investments in the last twelve years of democratic dispensation and our large population. A study by the Manufactures Association of Nigeria (MAN) have shown that the average consumer is yet to understand how increased power generation capabilities to 4500 megawatts have impacted on uptime rate in electricity service. The verdict is that consumers across board in the country are dissatisfied with the level of electricity service in the country and a look at figures 2 and 3 below will tell why it is so.

Figure 2: Power Consumption (Kwh per capita) for Nigeria and Libya 1980-2009



Source: World Development Indicators (WDI) accessed in January 2012

Figure 3: Power Consumption (Kwh per capita) for Nigeria, Ghana and Kenya 1980-2009



Source: World Development Indicators (WDI) accessed in January 2012

The above figures have shown that power (electricity) consumption (Kwh per capita) for Nigeria has been rather flat since 1980 and comparing that with countries like Libya, Ghana and Kenya shows that Nigeria has not made any improvement in the power sector in the last thirty years.

Going forward, the achievement of additional 6,000 megawatts to the National Grid will boost production and stimulate the ailing industrial sector in Nigeria. Vision 20:2020 has singled out the power sector as the most critical infrastructure in the expected industrial renaissance. With realization of such targets, government will likely surpass the target of GDP growth rate of 7% resulting in creation of jobs in the economy. This will impact positively on the standard of living and curb crime and lawlessness in the society.

Policy Implications and Conclusion

The lack of access to electric power, and modern energy in general has a negative effect on productivity and has limited the economic opportunities available to Nigeria. This is compounded by the poor state of existing infrastructure, which creates the dual challenge of finding resources for maintenance of existing facilities and also to build new power plants. Consequently, improving access to modern energy is a necessary condition for boosting growth and reducing poverty in not only Nigeria but Africa in general.

It should be remembered that top on the list of NEEDS policy thrust and targets in the power sector before 2007 were to:

- Increase generation capacity from 4,200MW to 10,000MW (an increase of 138 percent;
- Increase transmission capacity from 5,838 megavolt amperes (MVA) to 9,340MVA, an increase of 60 percent;
- Increase distribution capacity from 8,425MVA to 15,165MVA, an increase of 80 percent;
- Increase tariff collections from 70 percent to 95 percent;
- Reduce transmission and distribution losses from 45 percent to 15 percent; amongst others.

If the above targets were not met before the end of 2007, that doesn't mean that they are no longer necessary and plan should not be put in place towards meeting them. The above targets are interesting because of its contributions to the overall growth and development of the Nigerian economy and hence should be vigorously pursued.

It should also be noted, however, that energy will enhance the overall economic development goals of Nigeria only if it is supplied in sufficient quantity, at an affordable price, and in a form and quality that support human well-being without threatening the environment. Therefore, the Nigeria government must pay attention to the environmental consequences of various options for enhancing the provision of energy services. Other key challenges facing the energy sector include: the weak development of infrastructure; the high capital cost of energy projects; lack of technical expertise; poor energy service quality and inefficient technologies; and lack of financing and investment for energy projects. These are issues that should be tackled using the budget.

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