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Review

Overview of electric power development gaps in Cross River State, Nigeria

Ndem Ayara, Uwem Essia and Peter Ubi

Department of Economics, University of Calabar, Calabar, Cross River State, Nigeria.

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This paper reviews generally the situation with electricity supply in Nigeria, and more specifically focuses on analyzing access, generation, and utilization of electricity by households in Cross River State. Using descriptive statistics obtained from primary and secondary sources, it was found that electric power was the most limiting factor and major business obstacle in Sub-Saharan Africa (SSA). It equally identifies poor maintenance culture, inefficient distribution networks, and low revenue collection performance as major constraints. In Nigeria, electricity supply fluctuates between 2,000 to 4,000 MW and is at best barely able to meet 1/3 of the estimated demand for power. For Cross River State, it was found that 47 percent of communities have access to electric power supply, but only 38 percent were connected to the national grid, and the use of high voltage electrical appliances was relatively lower in the rural areas. Accordingly, it was recommended that Federal and State Governments commit more funds to investments in the power generation, transmission, distribution, and sustain power sector reforms to attract more private investors. It is also needful to continually update distribution facilities and networks to ensure effective evacuation and delivery.

Key words: PHCN, national grid, electricity generators, electrical power, NIPPs, IPPs, Cross River State.

INTRODUCTION

Infrastructures, including those for the production, transmission and distribution of electrical power, enhance "functioning" of the economy and support higher quality of life. Electricity supply is quite critical as it affects all aspects of human and enterprise development in the modern world. Incidentally, however, Nigeria's effort to grow capacity for electricity production and consumption has not yielded the desired outcomes, and she lags behind less endowed countries in the development of its power sector despite the fact that the key raw materials for producing steady electricity supply is in abundance in the country. As Okafor (2008) rightly observes, while the installed capacity of electricity in Nigeria stands at about 8,644MW, only 4,000MW is operational of which only about 1,500MW is available to generate electricity on regular basis, which is grossly inadequate for a population of about 150 million Nigerians.

At the beginning of 2012, the Federal Government promised to raise electricity production to 10,000MW by the end of the year. This expectation was predicated on sundry institutional reforms, including the unbundling and privatization of the Power Holding Company of Nigeria (PHCN), ensuring seamless and unhindered flow of gas to the Independent Power Projects (IPPs) and National Integrated Power Plants (NIPPs), creating an economically sustainable metering system and a sustainable pricing regime for electricity supply, among others. While the target of 10,000MW of electricity supply was shifted to December 2013, substantial progress was made in the area of reforms.

Currently, electricity generation, transmission and distribution account for less than one per cent of Nigeria's GDP, but 54 per cent of the share of Utilities (electricity and water supply) in GDP. This is small in relation to Nigeria's size and population. The Power Holding Company of Nigeria (PHCN) dominates the power sub-sector in Nigeria, but there is widespread private provision of electricity, usually referred to as 'captive power supply', in response to irregular public power generation and transmission. Electricity generation in Nigeria is generally characterized by excess capacity and

*Corresponding author. E-mail: ndemayara@yahoo.com

inadequate supply that makes unannounced load shedding, as well as prolonged and intermittent outages recurrent occurrences. Equally, a poorly-motivated workforce, vandalism, thefts, accidental destruction of distribution lines, illegal connections and resultant over-loading of distribution lines are equally responsible for slow development of the sector. It is hoped that the situation will change with the current ongoing deregulation of the sub-sector.

According to the Transmission Company of Nigeria (TCN), Nigeria's power generation fluctuates between 4,000MW and 2,000MW. The unsteady power supply is attributable to general system failure, which has caused nearly all the power generating plants in the country to operate at less than 40 per cent capacity. About 45 percent of the population was connected to the national grid, but only 30 percent of their power demand was met. About 35 percent of Nigerians enjoyed regular electricity for up to 50 percent of the time, which adversely impacted on living standards and industrial productivity, as increasing number of industrial and residential customers provide electrical power privately at huge costs to themselves and the Nigerian economy (Oke and Subair, 2008).

Cross River State is one of Nigeria's 36 States, located in the South-South edge bothering the Bight of Biafra. The current Cross River State was created in 1987 when AkwaIbom State was carved out of the former State. The State has a population of about 3.4 million people (2012). Subsistence agriculture, and fast growing tourism and construction sectors are the mainstay of the State economy. Adequate electricity supply is necessary for the State to grow sustainably. Besides, successive governments since 1999 have envisioned the State as the preferred destination for business and leisure.The State Capital, Calabar, is host to two Free Trade Zones (FTZs); Nigeria's premier FTZ, and the Tinapa FTZ that was conceived as a world class leisure and business resort. Cross River State is equally rated as the most peaceful and secure conference destination in Nigeria, and many local and foreign investors are eager to locate new business within the State. Meeting the current electrical energy needs and providing spare capacity potential for new users will give the State comparative advantage in attracting and retaining new tourists and investments.

This paper reviews generally the situation with electricity supply in Sub-Saharan Africa (SSA) and Nigeria, and more specifically focuses on analyzing access, effectiveness, and utilization of electricity by households in Cross River State. Descriptive statistics obtained from primary and secondary sources was used. Secondary data was obtained from situation analyses and desk review of relevant literature – reports, studies, and journal articles, while the primary data was obtained from administration of questionnaires to households in 1,206 communities selected randomly from the 18 Local Government Areas (LGAs) of the State. Discussions based on information obtained from secondary sources form the basis of Section 2 and Section 3 of this paper. Presentation and analyses of survey data is done in Section 4 and discussion of findings in Section 5. This is followed by some concluding remarks in Section 6.

REVIEW OF ELECTRIC POWER SITUATION IN THE SSA

World Bank (2008) observes that across Africa, infrastructure contributed 99 basis points to per capita economic growth over the period 1990 to 2005, compared with only 68 basis points for other structural policies. This was attributable largely to the penetration of telecommunication services. However deterioration in electric power supply over the same period significantly retarded economic growth, constrained doing business, and depressed firm productivity by around 40 percent. As summarized in Table 1, Africa's Infrastructure deficit gap (between SSA LIC and other LICs) was highest in electricity generation density.

Note: (a) Road density is in Km per Km^2; Telephone density is in lines per thousand population; Generation capacity is in megawatts per million population; Electricity, water and sanitation coverage are in percentage of population.

(b) LIC = low-income country.

Oke and Subair (2008) classify the continent into four groups of countries on the basis of population and landmass: small countries with sufficient power such as Lesotho; big countries with sufficient power such as Ethiopia and South Africa; small countries with insufficient power such as Benin Republic; and big countries with insufficient power such as Nigeria. Further, it is held that if all African countries were to catch up with Mauritius in infrastructure, per capita economic growth in the region could increase by 2.2 percentage points, and catching up with Korea's level would increase economic growth per capita by up to 2.6 percent per year. Currently, electric power is considered as the most limiting factor and major business obstacle, as the 48 countries SSA (with a combined population of 800 million) generate roughly the same amount of power as Spain (with a population of 45 million), and the average power consumption of African countries - 124 kilowatt hours per capita per year - is only a tenth of that obtained elsewhere in the developing world.

World Bank (2013) estimates the cost of redressing Africa's infrastructure deficit in operation and maintenance at US$75 billion, of which US$35 billion is the estimated investment gap per year. The Bank recommends regional integration, timely maintenance activities, efficient distribution networks, improved revenue collection performance, optimal pricing of services and commitment to capital budget execution as

Table 1. Africa's Infrastructure Deficit.

Normalized Units	SSA LICs	Other Low Income Countries
Paved Road Density	31	134
Total Road Density	137	211
Maritime Density	10	78
Mobile Density	55	76
Internet Density	2	3
Generation Density	37	326
Electricity Coverage	16	41
Improved Water	60	72
Improved Sanitation	34	52

Source: World Bank (2008).

necessary measures for promoting infrastructural development. Bridging Africa's infrastructure funding gap is, therefore, as much about improving the performance of the relevant institutions as it is about raising additional finance. Moreover, there is growing awareness and recognition of the need for more private participation in the provision of infrastructural facilities and social amenities. This strategic policy shift has raised the tempo of reforms and privatization programmes. For Nigeria, the unbundling of the PHCN and increasing number of IPP projects are clear testimonies of increasing private sector participation. World Bank (2008) notes further that access to infrastructure in rural areas is only a fraction of that in urban areas, even when urban coverage is already low by international standards, and both the current spatial distribution and rapid urban-rural migration of Africa's population creates major challenges for reaching universal access. The atomized nation states of Africa makes infrastructure networks highly fragmentary and intraregional connectivity low; African nations, therefore, lose the benefits of large scale production, and generally spend more for electric power than elsewhere.

World Bank (2008, 2013) encourage African economies to focus on raising effectiveness of the existing budget envelope by allocating more resources to specific areas of infrastructure, raising commitment to capital budget implementation, and addressing the institutional bottlenecks that inhibit capital budget execution. Achieving these call for better planning of investment projects, earlier completion of feasibility studies, more efficient procurement processes, and commitment to medium term multi-year budgeting. African countries also need to check under-collection of revenues and distribution losses, as about 70 percent of billed revenues were collected, and distribution losses was twice as high as technical best practice. But even with relatively high tariffs, most African nations often fail to cover more than operating costs and the revenues that fail to be collected due to under-pricing of power and water services amount to as much as US$5 billion per annum. This implicit subsidy is very regressive because around 90 percent of piped water or electricity services are accessed by the richest 60 percent of the population. Equally, the scope for raising additional tax finance is limited by high marginal cost of tax collection; the cost of raising one dollar of tax revenue in Africa is estimated at US$1.20 due to economic distortions associated with levying. Clearly SSA countries need external finance to address its wide infrastructure funding gap.

In Nigeria, statistics show that small and medium-sized enterprises (SMEs) are the highest employers of labour, and currently the major constraint to their growth and sustainability is poor public electricity supply (Barros, Ibiwoye and Managi, 2011). Arising from erratic power supply from the national grid, Nigeria's per capita electricity consumption is 4 times less than the African average and 19 times less than the world's average. High cost of electricity supply equally raises production costs and make locally produced goods less competitive compared to imported substitutes (Okereke, 2010).

At the conceptual level, Albert Hirschman's theory of unbalancing development can be used to justify the treatment of electricity as a 'lead' sector or activity whose expansion promotes and supports the development of other sectors. In Hirschman's view, since no less developed country (LDC) has sufficient resources for investing simultaneously in all sectors of the economy, "investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave the way to further economic development". Hirschman (1958) identifies convergent and divergent series of investments; convergent investments appropriate more external economies than they create while divergent investments create more external economies than they appropriate. Accordingly, Hirschman recommends a deliberate strategy of unbalancing the economy by investing first in social overhead capital (SOC) activities, like electricity production, transmission and distribution, which permits and invites directly productive activities (DPA).

Electricity Power Infrastructure in Nigeria

Nigeria has an installed power generation capacity of 8,644MW of which 6,905MW is government owned. Over the past two decades, population has increased to over 150 million, and in the last 5 years GDP growth rate has averaged at 6 percent. Low commitment to raising generation and distribution capacities and poor maintenance of existing power generation stations have given rise to severe electricity power shortages in the country. It is estimated that 26,561MW will be required in the next 9 years to meet demand as envisioned in the Nigeria Vision 20: 2020 document. Currently electricity supply fluctuates between 2,000 to 4,000 MW and the demand for electricity in Nigeria is expected to double in the next 10years, an even greater supply gap is expected in the future if the current gap is not bridged.

Currently, power generating capacity in Nigeria has the following components: Federal Government of Nigeria (FGN) power generation facilities; Independent Power Projects (IPPs); and the National Integrated Power Projects (NIPPs). Table 2 identifies the Hydro electricity generating facility by year of construction, location, installed capacity, and available capacity. The oldest is Kainji/Jebba constructed in 1968 with installed capacity of 760MW and available capacity of 480MW, while the latest is Shiroro constructed in 1989 with installed capacity of 600MW and available capacity of 450MW. Given the several rivers crisscrossing Nigeria, it can be stated that the opportunities for generating hydroelectricity have been grossly under-utilized.

Table 3 lists the existing FGN thermal power stations; their years of construction, location, installed capacity, and available capacity. The oldest is Calabar Thermal Power Station constructed in 1934 while the latest, Olorunsogo Power Company, was constructed in 2008. Again investment in thermal electricity generation capacity by the Federal Government was quite low before 2010.

Table 4 shows the various IPPs in the country as at 2010; of the 5 identified here 3 are in Rivers State with total installed capacity of 900MW and available capacity of 704MW, while the other 2 are in Lagos and AkwaIbom States respectively. Table 4 below describe the existing IPPs power generation facilities owned by State Governments and private concerns. Table 5 shows NIPPs that are funded and owned by the three tiers of government (Federal, States and the LGCs.). These facilities are currently being constructed and will initially be operated under Operations and Maintenance Contracts (OMCs) prior to being privatised. A major factor delaying commissioning of these power projects is sustainable arrangements for the supply of gas to the various stations and expansion of the nation's electricity storage and distribution network to facilitate evacuation of the anticipated increase in power output.

ELECTRICITY POWER INFRASTRUCTURE IN CROSS RIVER STATE

The growing gap between demand for power and electricity available from the national grid to Cross River State has led to widespread self-generation of power by enterprises and households. World Bank (2008) estimates that about 85 percent of businesses own electricity generators, and privately-owned power accounts for roughly 40 percent of the total generating capacity in Nigeria. The power situation is poorer in Cross River State because of near total reliance on electricity generated from other States of the federation, which is also sub-optimally delivered due to ill-maintained distribution facilities. Currently, the Calabar Thermal Power Station is the only public electricity generating facility (with installed capacity of 6.6MW) generating about 4.4MW of electricity to the national grid. The Calabar Power Station primarily serves as a booster station to the Afam and Oji River Power Stations in Rivers and Enugu States respectively. It is hoped that when the on-going NIPP in Odukpani, Cross River State is completed, the 500MW that is expected to add to the national grid will significantly raise electricity supply to Cross River State. On its part, Cross River State Government is partnering with major private sector players from the finance industry and the Oil & Gas sector to actualize the "Calabar Energy City" project that is meant to provide households and enterprises with adequate electricity supply (Table 5).

The Calabar Energy City is a $350 million logistic support project initiated by Cross River State government for oil, gas and energy corporations in the Southern part of Nigeria and the Gulf of Guinea. The Port Evolution Management of the United Kingdom is one of the major international partners. The envisioned energy city is a 375 hectare facility, complete with 500metres of quay, warehousing, accommodation, offices and state of the art infrastructure located in Calabar around a seaport and an international airport. Access to gas for powering the generating facility is provided by OandoPlc; a leading indigenous energy group that has extended its gas grid network to Calabar via the 128 kilometre transmission pipeline from AkwaIbomState. The pipelines will also deliver gas to United Cement (UNICEM) factory, other industries in the Energy City, the proposed Calabar Independent Power Plant (IPP) for the Calabar Water Works, IPP for Tinapa; IPP for the Calabar Port and proposed monorail projects.

Table 6 summarizes selected statistics on electricity coverage in Cross River State. The number of communities connected to the national grid increased from 115 in 2009 to 137 in 2010 and 159 in 2011. 106 new transformers were installed in 2009, 211 in 2010, and 260 in 2011. Both inter-town connection and urban distribution network (in Km) increased significantly over the 3-year review period. Average household electricity downtime per day reduced significantly indicating steady growth in electricity consumption demand over the time period, and the increase in electricity generated in the State was largely accounted for by self-generated electricity by enterprises and households at very high private and

Table 2. Existing Government Owned Power Stations – Hydro.

S/No	Name of Generation Company	Year of Const.	Location	Installed Capacity (MW)	Available Capacity (MW)
1.	Kainji/Jebba Hydroelectric PLC – Kainji Power Station	1968	Kainji, Niger State	760	480
2.	Kainji/Jebba Hydroelectric PLC – Jebba Power Station	1985	Jebba, Niger State	540	450
3.	Shiroro Hydroelectric PLC	1989	Shiroro, Niger State, Nigeria	600	450
TOTALS				1,900	1,380

Source: Nigerian Bureau of Public Enterprises, 2010

Table 3. Existing FGN Power Stations – Thermal.

S/No	Name of Generation Company	Year of Const.	Location	Installed Capacity (MW)	Available Capacity (MW)
1	Egbin Power Plc	1986	Lagos State	1320	1100
2	Geregu Power Plc	2007	Kogi State	414	276
3	Omotosho Power Plc	2007	Ondo State.	304	76
4	Olorunsogo Power Plc	2008	Ogun State	304	76
5	Delta Power Plc	1966	Delta State	900	300
6	Sapele Power Plc	1978	Delta State	1020	90
7	Afam(IV-V) Power Plc	1963	Rivers State,	726	60
8	Calabar Power Station	1934	Cross River State	6.6	4.4
9	Oji River Power Station	1956	Enugu State	10	0
TOTALS				5004.6	1982.4

Source: Nigerian Bureau of Public Enterprises, 2010.

Table 4. Independent Power Projects.

S/No	Name of Power Plant	Location	Installed Capacity (MW)	Available Capacity (MW)
1	AES Power Station	Egbin, Lagos State	224	224
2	Shell- Afam Vi Power Station	Afam, Rivers State	650	650
3	Agip – Okpai Power Station	Okpai, Delta State	480	480
4	ASG- Ibom Power Station	AkwaIbom State	155	76
5	RSG- Trans Amadi Power Station	Port Harcourt, Rivers State	100	24
5	RSG- Omoku Power Station	Omoku, Rivers	150	30
TOTALS			1,759	1,484

Source: Nigerian Bureau of Public Enterprises, 2010.

social costs.

ACCESS, FUNCTIONALITY, AND USAGE OF ELECTRICITY IN CROSS RIVER STATE

As explained earlier, primary data obtained from baseline survey of households in 1,206 sampled communities drawn from the 18 LGAs in November,2010 was used here. For purposes of easing discussions, this Section is summarized under the following sub-heads: community access to electricity; types (sources) of electricity supply; and sources and uses of energy by households.

Table 5. National Integrated Power Projects (NIPP).

S/No	Name of Power Plant	Location	Designed Capacity (MW)	Current Capacity (MW)
1	Calabar Power Project	Calabar, Cross River State	563	Nil
2	Egbema Power Project	Egbema, Imo State	338	Nil
3	Ihovbor Power Project	Ihovbor, Edo State	451	Nil
4	Gbaran Power Project	Gbaran, Bayelsa State	225	Nil
5	Sapele Power Project	Sapele, Delta State	451	Nil
6	Omoku Power Project	Omoku, Rivers State	225	Nil
7	Alaoji Power Project	Alaoji, Abia State	961	Nil
8	Olorunsogo–Phase-2 Project	Olorunsogo, Ogun State	676	Nil
9	Omotosho-Phase-2 Project	Omotosho, Ondo State	451	Nil
10	Geregu-Phase-2 Project	Geregu, Kogi State	434	Nil
TOTALS			4,775	Nil

Source. Nigerian Bureau of Public Enterprises, 2010.

Community Access to Electricity

Data on access to public electricity supply is summarized in Figure 1. It shows that 567 communities (47 percent) in the Cross River State accessedpublic electricity supply, while 639 communities (53 percent) were without access.Aside from funding challenges, dispersed settlement pattern,poorly maintained roads, andlackadaisical attitude of the people towards government infrastructures and facilities have additionally limited communities' access to electricity and other social amenities. This is analyzed further in Table 6, which explains why some communities were unable to access public electricity facilities. As indicated, many communities were actually linked to the national grid but the wires (lines) were not powered, and othershad power supply irregularities and voltage challenges. Fewer communities in Boki, Akamkpa, and Biase LGAs accessed public electricity supply, while more communities in Bekwarra, Etung, Obanliku, and Yakurr complained of irregular electricity supply and low voltage. Very few communities (2 in Abi, 5 in Obanliku, 8 in Odukpani, and 5 in Yala LGAs) acceded to having regular electricity supply and full voltage.

Sources of Electricity Supply

Table 7 shows that 36.5 percent of households in the State accessed electricity supply from PHCN; 19 percentrelied wholly on private generators, 19.7 percent used a combination of PHCN supply and electricity from private generators, and another 19 percent had no access to any form of electricity. Effectively, about 38 percent were poorly reached by electricity supply of PHCN.

Sources and Uses of Energy (Electricity, Gas, Fuel, etc) by Rural Dwellers

Table 8 shows that the largest proportion of respondents in the State used fuel wood (64.4 percent) and kerosene (29.6 percent) as primary sources of energy; principally for lighting, cooking and burning.

Table 9 shows that access to more sustainable and modernized energy sources like gas and electricity was quite low. More rural communities dependedon firewood, which has severe adverse health and environmental implications. Table 10 reviews how households commonly use electrical power (in terms of the key electrical appliances used). The types of electrical appliances commonly used are a pointer to the power consumption needs of households and communities in the State.About 43.3 percent of respondents in the State used electric iron, while 30.7 percent, 61.1 percent, 7.9 percent, and 82.3 percent used refrigerators, television sets, personal computers, and radio sets respectively. Clearly, the use of computers needs to be further encouraged to promote e-learning and communication, and regular supply of standard voltage electrical power would increase procurement and usage of high voltage appliances like electric irons, refrigerators, air conditioners, grinding machines, washing machines, and dryers that support higher quality of life.

Table 11 shows comparative data on households owning electricity generating sets and charcoal irons. Households owning electricity generating sets was 48.1

Table 6. Selected Statistics on Electricity Coverage in Cross River State.

CumulativeCoverage	2009	2010	2011
No. of Communities	115	137	159
No. of New Transformers	106	211	260
No. of New Substations	46	63	89
Inter-Town Connection (Km)	235.98	292.19	368.35
Town Distribution Network (Km)	346.98	474.03	681.38
Average household electricity downtime per day	15KWH	10KWH	7KWH
Overall megawatt being generated in the State	20	25	25

Source: Cross River State (2011).

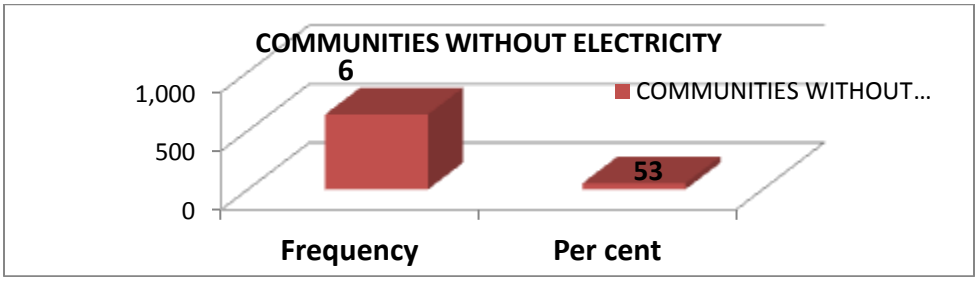

Figure 1. Coverage of Electricity in Cross River.

Table 7. Access to Electricity, Reliability of connection and strength of current.

Local Government Area (LGA)	No of access to electricity (%)	Connection exist but no power (%)	Not regular and half voltage (%)	Regular and half voltage (%)	Not regular and full voltage (%)	Regular and full voltage (%)
Abi	100	0	32	10	57	2
Akamkpa	47	93	7	0	0	0
Akpabuyo	100	3	0	0	97	0
Bakassi	80	15	5	7	73	0
Bekwarra	100	0	73	0	27	0
Biase	55	52	5	0	43	0
Boki	42	60	40	0	0	0
Calabar Municipality	90	20	5	5	70	0
Calabar South	90	20	5	5	70	0
Etung	97	3	80	17	0	0
Ikom	80	25	45	25	5	0
Obanliku	95	5	80	2	8	5
Obubra	60	45	55	0	0	0
Obudu	70	25	33	37	5	0
Odukpani	67	32	5	2	53	8
Ogoja	50	45	43	5	7	0
Yakurr	85	10	72	2	17	0
Yala	50	50	30	0	15	5

Source: Baseline Survey (November 2010).

Table 8. Sources of Electricity Used by Households.

Description	Frequency	Valid (Percent)	Cumulative (Percent)
None	301.0	19.0	19.0
PHCN Only	579	36.5	55.5
Rural Electrification Only	94	5.9	61.4
Private Generator Only	301	19.0	80.3
PHCN/Rural Elect./Plant/Generator	312	19.7	100.0
Total	1587	100.0	

Source: Baseline Survey (November 2010).

Table 9. Sources of Energy.

Description	Frequency	Valid Per Cent
Electricity	10.0	0.6
Gas	27	1.6
Kerosene	486	29.6
Wood	1056	64.4
Coal/Charcoal	59	3.6

Source: Baseline Survey (November, 2010).

Table 10. Household Electrical Appliances.

Household Electrical Appliances	Response	Frequency	Valid Percent
Electric iron	Yes	687	43.3
	No	901	56.7
Refrigerator	Yes	469	30.7
	No	1057	69.3
Television	Yes	993	61.1
	No	633	38.9
Personal Computer	Yes	118	7.9
	No	1379	92.1
Radio	Yes	1361	82.3
	No	292	17.7
Satellite Dish	Yes	171	11.22
	No	1361	88.8
Fan	Yes	950	59.3
	No	652	40.7

Source: Baseline Survey (November, 2010).

percent, while those using charcoal iron was 48.5 percent. There were some who had electricity generating sets and also used charcoal iron probably because the generating sets could not support sustained use of electrical irons. Clearly, private electricity generating sets cannotbe substituted for public electricity supply in Cross River State.

DISCUSSION OF FINDINGS

Some rural communities in Cross River State depend mainly on firewood for energy, which has serious environmental implications on forest trees and other earth covers. Scaling up of power infrastructure provisions through the budget process, effective and efficient imple-

Table 11. Households' Electrical/Non-Electrical Equipment.

Household Furniture	Response	Frequency	Valid Percent
Generator	Yes	760	48.1
	No	821	51.9
Charcoal Iron	Yes	768	48.5
	No	815	51.5

Source: Baseline Survey (November 2010).

implementations and maintenance can minimize these rural energy limitations.The existing gaps between required wattage and available wattage, for both domestic and industrial use in the power sector has far reaching implications for improving the business climate, sustaining economic growth and the social wellbeing of Crossriverians. Alternative electric power supply sources and distributional issues are still contestable in Nigeria. Constitutional provisions are inadequate and legislative oversight activities are still not effective enough to monitor and evaluate ailing power projects at the federal and state levels.

The historic gap between the demand for power and the electricity available from the national grid to Cross River State has led to widespread self-generation of power both in the industrial and residential sectors. Most businesses must generate their own power in order to ensure an adequate and reliable supply. However, it was observed that some communities currently without electricity had their power line vandalized by unknown persons or destroyed by windstorm. This inadequacy is largely attributed to fiscal challenges facing the State, as result of declining revenue inflow to support power infrastructure that is highly capital intensive. There is lack of standard practice and effective regulations in the use of electric power across the country including Cross River State.

Howbeit, there are indications that the Government of Cross River State is highly committed to the transformation of the power sector in the state and set to contribute to solving the power crisis generally experienced in the country. The federal government is not left out in this regard as efforts have been made in recent past to place Cross River State strategically on the power sector map of the nation, with the much awaited commissioning of the NIPP Calabar Power Plant in Odukpani LGA of the State. The NIPP Project in Calabar (precisely located in Odukpani LGA) of Cross River State, South-South region of Nigeria, is designed to generate 2,744 Megawatts to be added to the national grid. The project is funded and managed by the federal government under the auspices of the Federal Ministry of Energy and National Integrated Power Project (NIPP) scheme.

The power plant is structured in such a manner that ownership is divided between the Federal, Cross River state, and local governments. The NIPP power plant at Odukpani LGA (the expected core power generation component of the Calabar Energy Project) has a dedicated 132 KV line for Calabar. There is also an 11KV dedicated line for the immediate community/environs within a 5-kilometreradius of the power plant. This satisfies the current local content requirements in power and energy contract requirements, as well as encourages greater responsibility towards maintenance and vandalism of electrical property. In the privatization scenario, the power plant should be able to charge directly for whatever quantity of electricity is generated and fed into the national grid, leaving the transmission/distribution companies the task of collecting retail revenue from the end-users.

CONCLUDING REMARKS

The foregoing indicates the following key characteristics of electricity access and utilization in Cross River State:

a. 47 percent of communities in Cross River State had access to electric power supply, while 53 percent do not have access.

b. 38 percent of communities in the State were unreached by the national grid, and the use of high voltage electrical appliances was relatively lowerin the rural areas.

In addition to the above, it was found that the Federal and State Governments need to commit more funds to investments in the power generation and distribution, thereby reducing the associated private and social costs of individually generated electricity. This calls for more capital allocation to developing power infrastructures, improved fiscal governance of the energy sector, and commitment to reforms that support public private partnerships and foreign investments.It is hoped that when the NIPP project in the State is on stream the supply of electrical power would increase substantially. But there is urgent need to continually update the distribution facilities and networks to ensure effective evacuation and delivery of electricity to households and enterprises in all parts of the State. Lastly, strict sanctions for vandalism and non-payment of bills, enforcement of sound legislative oversights onpower sector projects, and more transparent budget implementation processes will

raise effectiveness and efficiency of the power sector in Nigeria.

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