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Public Electricity Power Failure and Household Adjustment Strategies: A Case Study of Urban Households in Uyo

Uduak Michael E* and Christiana Ekong U

Department of Economics, Faculty of Social Sciences, University of Uyo, Uyo, Nigeria

Abstract

The paper examined public electricity power failures and households adjustment strategies in Uyo urban, Akwa Ibom State using descriptive analysis. Fifty households with un-identical demographic characteristics identified through random sampling were included in the survey. Urban residents in Uyo are largely informal workers, hence their income is low. The survey reveals that urban households in Uyo metropolis use public electricity for unlimited households' chores, but the provision and availability and public electricity declines as day-hour increases on daily basis and, as a result, urban households in Uyo spent at least 5 percent to at most 15 percent of their mostly informally generated incomes on energy adjustments strategies ranging from generator to rudimentary fire wood and charcoal to provide alternative energy supply to their families and earned for themselves the risk and inconveniences associated with such strategies. The study also found that, through the industrialization policy of the present government, public electricity infrastructures are being provided and this has reduced the hour-day loss by urban households to public electricity power failures and recommend owning the electricity infrastructures by urban households (as it were) in Uyo as a way of reducing the security risk associated with vandalism.

Keywords: Public electricity failure; Energy consumption; Urban households; Adjustment strategies; Uyo; Nigeria

Introduction

Public electricity energy consumption is one of the important decisions facing household unit as economic agents in an economy. Households derive huge energy satisfaction (both measurable and emotional) from consuming one unit of electrical energy and it appears that the marginal utility from consuming such units is never decreasing as one would expect the conventional marginal utility to be. The benefit derivable from consuming public electricity by the household is multifaceted. Apart from serving as cooking fuel, electricity energy promotes public health as environmental protector. It is an infrastructure for income generation for the household in intertemporal time horizon. If adequately accessible, public electricity energy fits into the production function of households and make them income-independent from the government.

The literature now fashions public electricity energy consumption into the development and well-being of the households and found positive correlation between the duo [1,2]. Others have also linked it with poverty, and found the perceived negative relationship between the two. Thus, viewed from any perspective, public electricity energy is a necessary component in the consumption baskets of the household for sufficient utility maximization.

It can then be discouraged, if not deadly, when this important component of household consumption is missing or its availability is not adequate. If this happens, the household becomes socially malnourished, and economically weak to compete with her counterpart around the globe. Technically speaking, household spent a larger chunk of their mean resources on providing alternative energy type for their needs. According to Rabiu [3], the cost of electricity in Nigeria is apparently far greater than the $20 billion estimate suggested by the Debt Management Office. Other studies as well as experts put the annual spending on the purchase of petrol and diesel for running generators by Nigerians at a whopping N3.5tn, amounting to N17.5tn in the past five years [4]. It is opined that the actual cost of electricity in Nigeria will include, inter alia, the cost of creating employment; reviving distressed businesses and industries; rebuilding lost property due to fire accidents; creating stable and 'investable' political and business climate; fighting crime and educating over 50% of her population; and the cost of addressing other risks and associated contingencies [5].

Thus, inadequate electricity energy impacted negatively on household total cost function. The country's paltry power generation, which is economically low, is expectedly inadequate for those connected to the grid. As such, these Nigerians rely on generators with its attendant operational and maintenance costs for running their homes, factories, schools, universities, government offices and the entire economy. Under this scenario, it could be stated that the both marginal cost and average cost functions of households will rise with the former rising faster than the later with declining productivity and competitiveness.

Available data shows that per capita electricity energy consumption for Nigeria is low. For instances by the year 2015, the per capita electricity usage in the country remains 136 kilowatt/hour [6]. This is one of the lowest electricity consumption on a per capita basis in the world when compared with the average per capita electricity usage in Libya, which is 4,270KWH; India, 616KWH; China, 2,944KWH; South Africa, 4,803 KWH; Singapore, 8,307KWH; and the United States, 13,394KWH. An average Nigerian citizen consumes just eight per cent of the electricity used by a Brazilian and four per cent of that of a South African. Data for state level consumption is scanty, but one could argue that national statistics squarely mirror what the outcome of states could be.

***Corresponding author:** Uduak Michael E, Department of Economics, Faculty of Social Sciences, University of Uyo, Uyo, Nigeria, Tel: +23480278843067; E-mail: wills4live@yahoo.com

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The above provides the perspective to this study which centers on analyzing the adoption of the alternative options for electricity energy generation by urban households in Uyo, Akwa Ibom State, Nigeria. The rest of the paper is organized as follows: section 2 examines the theoretical issues and review of the literature; section 3 examine the method adopted for the study; section 4 analyze the data and present our findings and in section 5, we conclude the paper.

Theoretical Issues

Key issues in the availability and affordability of energy use defines the level of development of the region. The Energy Ladder Theory is one such module. The energy ladder theory describes economic agent's dynamic choices in energy usage taking his region's position in the stage of development into consideration. In the ladder, economic agents use dung and other agricultural residuals as energy sources in the primary stages of development. As the economy grows, there are incidence of energy use migration from traditional energy use to modern energy use. The ladder shows that public electricity use and availability represents the most efficient energy for use. Movement in the energy ladder is movement in environmentally degrading and inconvenient energy use to a cleaner, safer, efficient and convenient energy use. Energy type at the top of the ladder is more desirable to the ones at the bottom and actual movement in a bottom-top order is a positive function of income of the region Bello [1].

Household energy use issues are now global issues and in cases of public electrical energy failures, other the energy mix, including choice of Solar-, Hydro-, Coal-, Biomass-, coal gasification-, and wind-generated electricity, which are ideal for a country, are largely available as options.

The Power Value Chain

The Power Value Chain sets forth all of the relevant steps in the energy supply industry from the inputs into the process of energy production through to energy generation and delivery to end users. This has become of ever-increasing importance as there is often a focus on solving Nigeria's power crisis by merely adding additional generation capacity without consideration as to whether and how effectively the additional electricity production can ultimately be distributed to end users [7]. In addition, significant energy losses continue to occur between sources of supply and points of distribution and due to the lack of adequate distribution infrastructure, the electric power actually delivered to end users is only a fraction of what was generated in the first place as a result of damaged power lines, transmission technical losses and illegal electricity connections. An internationally accepted power value chain follow thus;

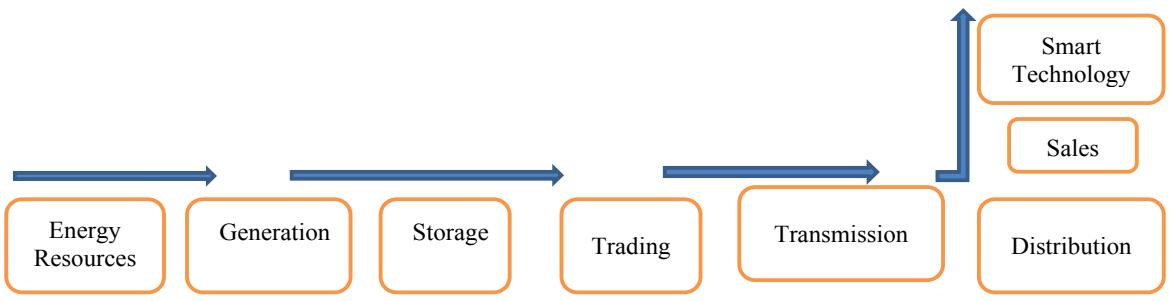
Energy Resources should form the first step of the Value Chain in Figure 1 and are a critical consideration in the energy planning process as a diversified energy resource base will increase the security of electricity supply. Generation is a crucial aspect of solving the power crisis in Sub Saharan Africa (SSA) as many countries just do not have sufficient installed capacity. The importance of growth in electricity generation is twofold – firstly, it needs to grow sufficiently in order to fill the current shortfall between electricity supply and demand. Secondly, generation needs to expand further in order to cope with the high growth rates which Nigeria is currently experiencing. As such growth in generation needs to exceed economic growth rates. Electricity storage is currently not in use in Nigeria. However, if the Power Sector is to develop, this is an area which needs to be considered, especially considering the drive towards the use of renewable energy now. The incorporation of storage facilities into the Power Value Chain in Nigeria will promote the use of renewable technologies, lower electricity costs and allow electricity grids to operate more effectively [7].

Power trading ensures that power generated is effectively sold out. The introduction of a means to trade energy on an inter-regional basis would mean that resource-sharing could be implemented between regions. Currently, there are no energy exchanges on which to trade electricity such as those available in developed markets. For example, European countries make use of the European Energy Exchange (EEX) which creates spot and derivatives markets in power and power-related commodities. Transmission and distribution should be well annex as ineffective transmission and distribution network will mean that electricity will struggle to reach the end user, increases transmission and distribution losses well in excess of what is commonly acceptable worldwide. Smart technologies such as smart grids and smart meters installed at the end user can also add to the efficiency of the process by more accurately determining how much electricity is consumed by users for billing purposes and the best ways to utilize power generation.

The power value chain shows that all stages in the process is important and unique in its own way. Adopting the chain approach for power development in nigeria is necessary for holistic development.

Public Power Infrastructure in Nigeria

Nigeria has experienced the worst public electricity infrastructure decay in recent history and it appears the end to such deterioration is not in sight. Energy statistics for Nigeria shows that over 83 million Nigierians live without electricity. As shown in Figure 2, compared to other counterpart nations in Africia, many nigerians still live without public electricity and may be using othersources of energy that are either cost ineffective and inconvenience.



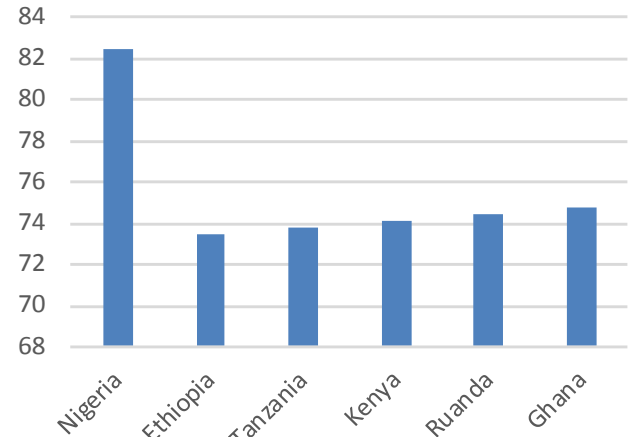
Source: Adopted and modified from Scott, Lindfeld, Martin, Pitso and Engelbrecht, 2016.

Figure 1: The Power Value Chain.

Even in the urban area, where one would have expected fair improvement in public electricity availability and hence utilization, the situation remains the same. Access to electricity by urban dwellers is still low. Figure 3 shows urban population in nigeria with access to electricity and its growth rate.

As seen in Figure 3, the access to public electricity by urban residents in Nigeria did not grew significantly between 1990 and 2014 [8]. Urban access to electricity fell from 82.4 percent of urban population from 1990 and will never to that fit or even surpass it until 1999 when it was 84.3 percent of the population. It fell again from that year onward, until it was 84.9 percent in 2003. The only year that urban access to electricity surpassed that fit was in 2001, when 87.1 access was recorded. This left its growth rate to wallow around negatives and zero-positive growth rates for most years within the period, with only few significant positive growth rates of 10%, 9.8%, 9.5% and 8.4% for years 1999, 2003, 2008 and 2011 respectively. As will be expected from such scenario, electricity consumption by urban consumers will be low. This is shown in Figure 4.

Figure 4 shows that Nigeria is the least consumer of public electricity among four-nations comparison. What is more worrisome is that few years ago, the country ranked herself as the richest nation in Africa against South Africa. We still remember when the nation was using South Africa for comparison during the period. Poor public electricity infrastructure in Nigeria create development gap in the country. In effect, Figure 4 shows that there is a gap in electricity energy consumption by Nigerians (147 Kilowatt per hour per capita) and Kenyans (153 Kwh per capita) and South Africans (4047 Kilowatt per hour per capita) within Africa and Indians (699 Kilowatt per hour per capita) a developing nation like ours.



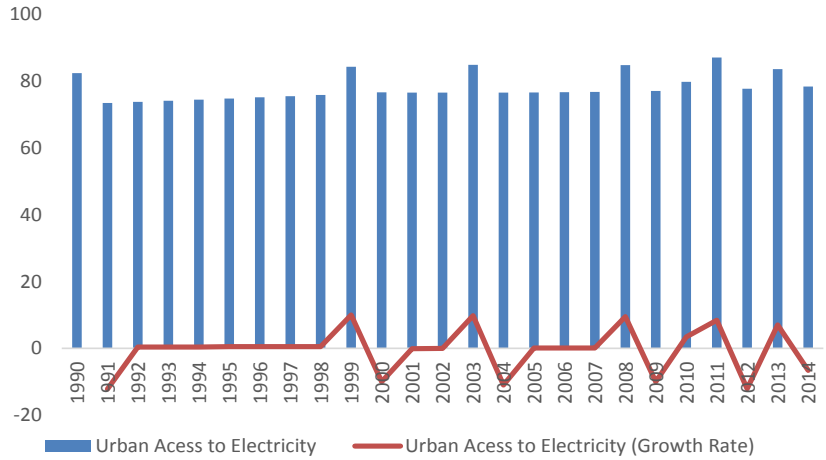
Sources: Authors, based on data from International Energy Agency, 2017.

Figure 2: Population without Power by Countries (Millions).

Review of Related Literature

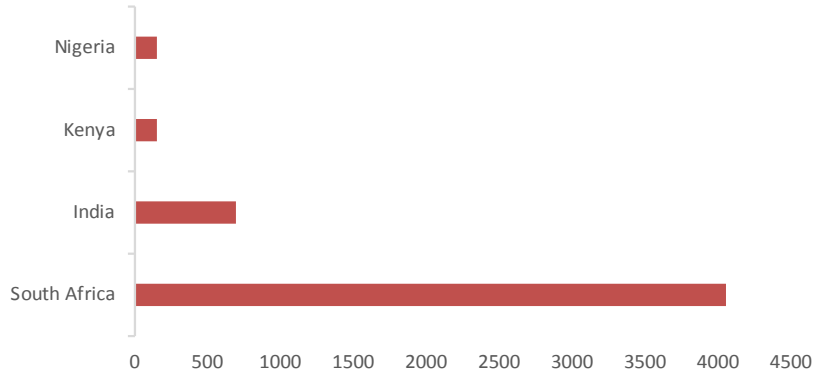
The use of public electricity by households in Nigeria for admissible ventures has been on a decline. In a study of such usage for cooking in Nigeria between 1980 to 2009 by Ogwumike and Ozughalu [9], they found that whereas the use of public electricity for cooking was 2.6 percent in 1980, the usage declined to a paltry 0.4 percent in 2009. The reason for the decline is not far-fetch. Access to public power supply is low in Nigeria on the one hand and supply is inadequate or even inexistent on the order. Adebayo [10] showed that public power failure is discomforting to household units in Nigeria. Investigating the effect of erratic power supply on household equipment reliability he found that erratic power supply reduces household equipment reliability. Erratic power supply increases failure rate of household equipment such as television, washing machine, radio set, refrigerator, air condition among others and shorten their life span- leaving households to other options of energy usage, some of which may not be efficient.

Assess the economic implication of power outage in Nigeria for small industries using relevant data obtained from various operators of small industries for one-year period [11]. The data were analyzed using spread sheet analysis. Their results reveals that poor power supply to industrial consumers has contributes to the increase of prices of consumer goods and services in Nigeria and affect the standard of living and thus placing the average household of the present day Nigeria in a pitiable condition. More specifically, it was found that the total monthly cost of generating power for each industry was ₦45,811,859, however, if the industry could benefit from public electric power supply, the industry could safe cost by as much as 30 percent. They thus conclude that increase in the cost of power generated lead to a corresponding increase in the prices of goods and services for households.



Sources: Authors, based on data from World Bank.

Figure 3: Access to Public Electricity by Urban Dwellers in Nigeria (1990-2014).



Sources: Authors, based on data from International Energy Agency,2017.

Figure 4: Electricity Consumption by Country (Kwh per Capita).

Amadi [12] investigated the consequences of power outages on the social-economic life of rural households in the Niger Delta region of Nigeria in the year 2015. The study utilized primary data collected through semi-structured questionnaire circulated among unemployed youth, students, housewives, businessmen and professionals in the area. Thereafter, descriptive research technique was used to analyze how public power outage affect the rural and urban households of the area. Of the 44 household randomly selected for the study, he concluded that incessant power outage stunted economic growth of the households in the area and reduced their leisure time. More than that, other social vices such as crime and insecurity heightened around rural households in the Niger Delta. Thus, power outages have severe negative impact on the social and economic lives of the people.

Forkuoh and Li [13] showed that such poor quality electricity supply increases the foldup of SMEs in Ghana. In their effort to assess the impact of the power insecurity on the growth of SMEs with a particular study on cold-store operators in Asafo Market of Kumasi, using case study approach, they found that power outages negatively affect the growth of SMEs in Kumasi, while the cost of operating businesses biffed up under the power outages. Alternative cost of generating power also significantly markup operation cost of doing business in the area. Public power outages caused SMES in Kumasi to lose over US $686.4 million sales annually since the beginning of 2009.

Ado and Josiah [4] similarly examined the impact of deficient electric power supply on the operations of small scale businesses operating in North East of Nigeria. They generated primary data through the use of structured questionnaire personally distributed to the respondents by the researchers and their assistants. From the population of 468 small scale businesses, a total of 312 questionnaires were distributed, and samples were selected based on stratified random sampling to ensure the effective representation of the population. Their result indicates the severity of electricity supply outages and the costs imposed by power supply outages on the operation of this class of businesses in the region. Among the recommendations proffered were the need for policy attention towards revitalizing the electricity sector of Nigeria for enhanced supply of electricity to the national economy. When this is achieved, the small business subsector will be in a position to effectively lead in the drive towards industrializing the Nigerian economy, the study argued.

Andersen and Dalgaard [14] examined the total effect of power outages on economic growth in Sub-Saharan Africa over the period 1995-2007 using satellite-based data derive through night lights and lightning densities and found that a substantial growth drag of a weak power infrastructure exists in Sub-Saharan Africa. Specifically, a one percent increase in outages reduces long-run GDP per capita by 2.86%, the study showed.

Reinikka and Svensson [15] analyzed the impact of poor provision of infrastructure on firm performance in Uganda using a discrete choice model on business survey data. They concluded that unreliable power supply causes firms to substitute complementary capital (for backup generators) as a response to deficient public services.

Method of Study

The study investigates urban households' adjustment to public electricity failures in Uyo, the Akwa Ibom State Capital. Akwa Ibom State is largely a civil service state with a large quantum of informal sector. As estimated by Akpan and Umoh [16], over 39.13% of the informality are whole sale businesses and 31.18% followed retail trade related businesses. This position is further supported by the National Bureau of Statistics as is shown in Table 1, where agriculture, trade and services topped the chart of economic activities of the state. As at 2004, the sector employs about 95 percent of her citizenry (see for instance AK-SEED, 2004:8), and that figure may not change markedly today, especially considering the recessive economy in the period of the analysis. However, there are strong potentials for growth in social infrastructure, given strong revenue derivation from the federal government. Sincerely speaking, urban residents in Uyo are largely made up of these two category of citizens. It is estimated that over 500,000 individuals are resident in Uyo metropolis [6].

Our study obtains primary data through the use of structured questionnaire personally distributed to the respondents by the researchers and two other assistants who were themselves guided on proper questionnaire administration.

The questionnaires contain items on the general information about the households; how the failure of public electricity affect their households; and what their adjustment strategies are in dealing with the situation. Information about the cost of the adopted strategy(ies) compared with public electricity supply were also examined in the questionnaire. The questions were constructed to capture some options on household electricity needs and the respondents were merely asked to tick the ones that best represent their situation. Where necessary, personal observation and oral interviews were used to obtain some information on the demographic character of the respondents and other related issues.

State	Agric.	Manuf.	Fishing	Trade	Construction	Transport	Education	Services	Others
Akwa Ibom	35	2	2	26	2	5	3	20	2

Source: Extracted and Modified from National Bureau of Statistics, 2005: Social Statistics in Nigeria.

Table 1: Distribution of employed working population by activity and region 2005.

Respondent Demography	Frequency	Percentage
Number of respondents	50	100%
Sex		
Male	37	74%
Female	13	26%
Age Range		
21-30	3	6%
31-40	24	48%
41 and above	23	46%
Marital Status: Single	4	8%
Married	37	74%
Divorced	8	16%
Widow	1	2%
Education: No School	0	-
FSLC	13	26%
SSCE	21	42%
B. Sc.	16	32%

Source: Authors, based on field survey, 2017.

Table 2: Demographic characteristics of the respondents.

In all, 50 questionnaires were administered on 50 households along Nwaniba road, one of the major district in Uyo Metropolis. Because of the relatively small size of the respondents, the researchers ensured that all administered questionnaires were retrieved for analysis, producing a 100 percent response rate. The data collected was subjected to descriptive analysis (such as percentages, mean, frequency standard deviation) and reported on.

Analysis of Research Findings

Table 2 present the demographic characteristics of the respondents in the study.

The demographic composition of our households showed that male-headed families were frequently contacted or located within the study area. However, most of the families were in their bloom of life (within fifty year brackets) and so may need electricity more. More than that, most families were still living together (over 70%) and relatively few (above 30%) had tertiary socializations.

Public Electricity Supply and Consumption by Urban Households in Uyo

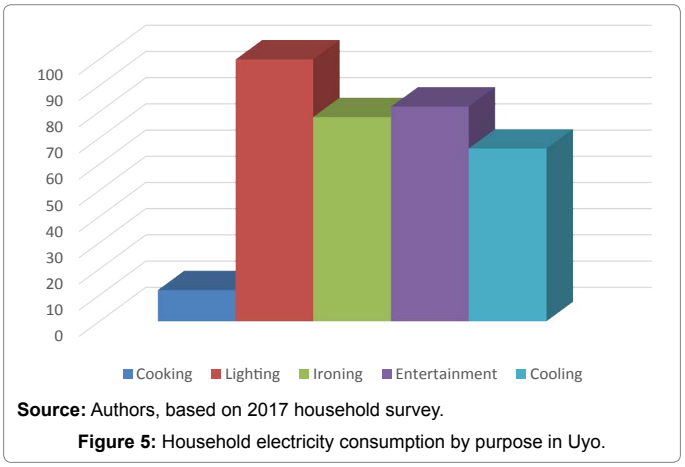
Table 3 present the results of analysis of household consumption of electricity in Uyo metropolis.

As can be seen in Figure 5, households in Uyo metropolis generally accepted of using public electricity for various purposes at the time of investigation. However, whereas all households accept of using public electricity for lighting, generally very few use public electricity for cooking purposes. Only 12 percent of the respondents made such claim. Other purposes for which urban households in Uyo metropolis uses public electricity for and at increasing propensity include entertainment (listening to radio, television, cellular phone etc-82 percent), dry cleaning services (78 percent) and refrigeration (66 percent). However, the availability of public electricity for such use is limited, or even restricted by on-control outages by public electricity operators as Figure 6 next show.

Nature of use	Frequency	%
Cooking	6	12
Lighting	50	100
Ironing	39	78
Entertainment	41	82
Cooling	33	66
24 Hours	-	-
18 Hours	2	4
12 Hours	3	6
8 Hours	13	26
6 Hours	13	26
≥ 6 Hours	19	38
Responsibility on power use		
Pay full bill	7	14
Outstanding	42	84
Power quality		
Improved	9	18
No change	41	82

Source: Authors, based on 2017 household survey .

Table 3: Public electricity consumption by urban households in Uyo.



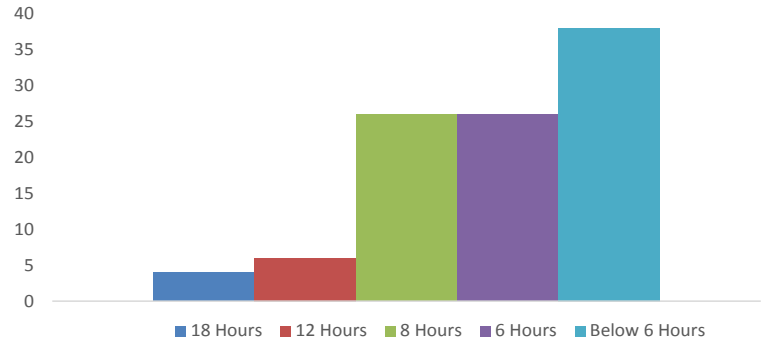
Source: Authors, based on 2017 household survey.

Figure 5: Household electricity consumption by purpose in Uyo.

Figure 6 shows that only 4 percent of Uyo residents agreed to have seen and make use of public electricity daily for at most 18; 6 percent accepted to have done so daily for say 12 hours; 26 percent alluded to have seen and use public electricity on daily basis for between 6 to 8 hours and about 38 percent accepted to have seen and use public power supply on daily bases for not more than 6 hours. Thus, whereas the need for public electricity uses by urban households in Uyo increase ascendingly, the day-hour availability of public electricity for use by urban households decreases in Uyo. One could not hide his feeling than to imagine where the equilibrium point of such opposing movements could be. Such equilibrium may well define micro demand for, and supply of public power supply in Uyo.

Households Adjustment to Public Power Failure in Uyo Urban

The perceived response of urban households in Uyo to public power failure is reported on numerically in Table 4. According to Table 4, nearly all urban households in Uyo urban adjusted to sustain



Source: Author, based on 2017 household survey.

Figure 6: Hours of Public Electricity available for urban households in Uyo.

Nature of Adjustment	Frequency	%	Cost	Frequency	%
Adjust	47	91	Income		
No adjustment	3	9	2-5 % 6-10 % 11-15%	35 11 4	70 22 8
Type of Adjustment			Opportunity cost		
Fire wood	17	34	Yes	46	92
Kerosene- Stove/Lantern	28	56	No	-	-
Generator	33	66	Material	7	14
Solar Energy	2	4	Time	34	68
Gas	21	42	Security	27	54
Bio-fuel	-	-			
Risk assessment			Emotional test		
Carbon-monoxide	17	34	Satisfied	7	14
Burn	13	26	Not satisfied	-	-
Stains on Utensils	28	56	Indifferent	29	58
Waste of time	21	42		14	28

Source: Authors, based on 2017 household survey.

Table 4: Urban Households Adjustment to Public Power Failure in Uyo urban.

their families in times of public power outage with various strategies or combination of strategies in the Appendix. The result shows that over 30 urban households in Uyo (about 60 percent of the inhabitants) use at least two adjustment strategies in cases of public power failures within the period. As shown in Table 4, majority of urban households in Uyo adjusted to public power failures by generator use (about 66 percent of the population), although there are still strong indications of attachment to rudimentary power energy adjustments (as seen by over 30 percent use of fire wood). Such indications have given scholars the free will to describe our urban economy as "generator economy" [3,17].

A thorough examination of urban households' adjustment to public electricity failure in Uyo indicates that power outages reduces urban residents to lower energy welfare. In times of public power failures, urban households in Uyo, resorted to use fire wood (34 percent), kerosene facilities (56 percent), generator (66 percent) and gas (42 percent), with less or no use of other cleaner, more convenient energy source (as indicated by only 4 percent solar energy use and no bio-fuel use). In-fact, renewable energy use is alien to urban households in Uyo.

Perhaps a more serious issue posed by public power outages to urban households in Uyo are income related challenges. Urban households in Uyo spends variously from 8 percent of their income to as high as 70 percent of the income. This challenge could be better appreciated if we state, at the risk of repetition, that majority of urban households in Uyo are informal sector workers whose income is paltry, irregular and cyclical. Worse still, viewed under the present economic circumstances of pronounce recession, it could be seen that truly, a vast chunk of urban households income drift providing alternative energy for families in times of public power failures-a major cost implication for urban households in Uyo.

There are other costs implied by public power failures to urban households to which they themselves may be aware of, but may not likely take into account in their course of livelihood unless surveys like this brings to their fore. These are the opportunity cost of time wastage, security of properties and material loss or wastages. Our study reveals 68 percent time loss, 54 percent loss on security and 14 percent material loss respectively to urban households in Uyo. Akpan [18] described the sad consequences of time loss to urban households in Uyo when he asserted that, "… given the absence of electricity or with unstable power supply, women spend more time going to foodstuff markets on a daily basis because the raw food items and cooked food cannot store for any reasonable period. Lack of electricity, therefore, reduces women's labour time allocated to productive income activities and, on the converse, increases the time devoted to non-income household activities…"

Some urban households argued that public power failures increase the rate of car-battery theft in their environment and utter vandalization of their vehicles, amidst clothes and other material possessions, especially in the dark.

As noted earlier, at least 66 percent of urban households in Uyo use generator as alternative source of providing light energy for their families when public power fail. They also alluded to the fact that there is health risk associated with the smoke emitted by generators, even though none of the sample population have themselves been victims. About 34 percent of the respondents ascribed to this fact [19]. And, because the adjustment strategy had often been complemented by other rudimentary energy alternatives, 56 percent of the urban households faces other challenges as black stains in their cooking utensils and other related risk of using such energy options as burns (26 percent). In all, this increases the time lost as a result of public power failures.

There are however, indications that better days are ahead in terms of public electricity supply in Uyo urban. This is made possible by the industrialization policy strategy of the present government. To be more concrete, the state government has provided a 33 by 11KV, 2X15 MVA electricity injection sub-station in 4-lane, Uyo, in a drive towards industrialization, to, among other unmentioned areas, feed Ewet Housing, Shelter Afrique, Nwaniba and Osongama Estates with improved public power supply. Similar public electricity infrastructures, and perhaps a more expanded ones are underway in Ekim in Mkpat Enin Local Government, and Oron LGA to service other urban areas of the state [20].

This public power infrastructures, and hence the improved public electricity supply has been felt by Uyo urban dwellers. According to our 2017 survey, over 58 percent of the citizens accepted of improved public electricity supply to Uyo urban, 14 percent rejected such claims and only 28 percent of the respondents declined response on the issue (Table 4). Overall, a larger population of Uyo urban has witness decline in public electricity failures. Further, the perception of Uyo urban is an indication that the state government's industrialization policy actually feeds into the federal government's growth trajectory. For instance, the National Bureau of Statistics announce that the 0.55 percent growth rate recorded for second quarter of 2017 in Nigeria is supported by over 35 percent growth in electricity supply in Nigeria during the period, and may have included the power generation of Akwa Ibom State.

Conclusion

The study examined urban households adjustment strategies to public electricity power failures by urban residents in Uyo, Akwa Ibom State. Evidences indicate that public electricity infrastructures and hence public electricity supply is on the decline in urban centers in Nigeria including Uyo urban. Hence, urban households in Uyo spent at least 5 percent to at most 15 percent of their mostly informally generated incomes on energy adjustments strategies, ranging from generator to rudimentary fire wood and charcoal to provide alternative energy supply to their families and earned for themselves the risk and inconveniences associated with such strategies. Urban households in Uyo metropolis use public electricity for unlimited households' chores, but the provision and availability of public electricity declines as day-hour increases on daily basis. Positive indication however appears at the end of the tunnel as the present government, in a bid for industrialization, drives public power infrastructural provision that left urban households in Uyo to have a relief from public power failures in recent months. In such drive, more than two sub-power stations have been provided, that has help the residents improved on their position, in the energy-use ladder. One recommendation is possible, urban households in Uyo should provide the needed protection for the electricity infrastructures. In-fact, urban households in Uyo should own the electricity infrastructures. That way, its security will become spontaneous, rather than demanded from them. This recommendation becomes plausible in the light of the acknowledged risk associated with public power failures that urban households in Uyo themselves have already faced.

References

1. Bello M (2011) Fuel Wood Consumption, Poverty and Sustainable Development: The Case of Gombe State, Nigeria. Atlantic Books.
2. Sunday OO (2011) Energy and Sustainable Development in Nigeria: The Way Forward. Atlantic Books.
3. Rabiu A (2009) The Cost of Electricity in Nigeria. International Association for Energy Economics.
4. Ado A, Josiah MM (2015) Impact of Deficient Electricity Supply on the Operations of Small Scale Businesses in North East Nigeria. International Journal of Business and Economic Development 3: 20-30.
5. Businessnews (2015) Power failure: Nigerians burn N17.5 tn fuel on generator in five years.
6. Ekot GE (2010) Small Business Ownership and Management in Uyo Metropolis, Akwa Ibom State, Nigeria: Problems and Prospects. International Journal of Economic Development Research and Investment 1: 123-134.
7. Scott D, Lindfeld C, Martin A, Pitso P,Engelbrecht M (2016) KPGM Sub-Saharan Africa Power Outlook, South Africa, KPGM Service Proprietary Limited.
8. International Energy Agency (2014). Nigeria: Indicators for 2014.
9. Ogwumike FO, Ozughalu UM (2011) Energy Consumption, Poverty and Environmental Linkages in Nigeria: A Case of Traditional and Modern Fuels for Cooking. Atlantic Books.
10. Adebayo AA (2015) Erratic Power Supply and Its Effects on Household Equipment Reliability. American Scientific Research Journal for Engineering, Technology and Sciences (ASRJETS) 12: 204-211.
11. Airoboman AE, Amaize PA, Ibhaze A E, Ayo OO (2016) Economic Implication of Power Outage in Nigeria: An Industrial Review. International Journal of Applied Engineering Research 11: 4930-4933.
12. Amadi HN (2015) Impact of Power Outages on Developing Countries: Evidence from Rural Households in Niger Delta, Nigeria. Journal of Energy Technologies and Policy 5: 27-38.
13. Forkuoh SK, Li Y (2015) Electricity Power Insecurity and SMEs Growth: A Case Study of the Cold Store Operators in the Asafo Market Area of the Kumasi Metro in Ghana. Open Journal of Business and Management 3: 312-325.
14. Andersen TB, Dalgaard C (2013) Power Outages and Economic Growth in Africa. Energy Economics 38: 19-23.
15. Reinikka R, Svensson J (2002) Coping with Poor Public Capital. Journal of Development Economics 69: 51-69.
16. Akpan GE, Umoh OJ (2008) Informal Sector Survey of Akwa Ibom State, Uyo. Abaam Press.
17. Ekpo AH (2009) The Global Economic Crisis and the Crises in the Nigerian Economy. Presidential Address to the 50th Conference of the Nigerian Economic Society, September, Abuja-Nigeria; pp: 22-24.
18. Akpan GE (2015) Empowering Women and Youth in Micro- and Small-Scale Enterprises (MSSEs) for Wealth Creation. International Journal of Asian Social Science 5: 52-63.
19. World Bank (2014). Access ot Electricity % of Populatoion.
20. National Bureau of Statistics (2005). Social Statistics in Nigeria. Federal Republic of Nigeria.