

## **Implication of Estimated Electricity Billing on Consumer Satisfaction in Gwagwalada Area Council of the Federal Capital Territory**

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### **Abstract**

*This study assesses the implication of Estimated Electricity Billing on Consumer Satisfaction in Gwagwalada Area Council of the Federal Capital Territory of Nigeria. The paper is focused at presenting the adverse effects of electricity overbilling on consumers under the estimated billing system. The research work attempts a comparison of the Estimated and the Prepaid billing systems stating the weaknesses of the former and the strengths of the latter. Information for the research work was gathered using secondary sources of data which include: Journals, textbooks and the internet. The Neo Liberalism theory, by was adopted as theoretical framework for the study. The study identified that the estimated billing system is not accurate and consumers are forced to pay outrageous bills compared to their monthly consumption. Hence, some advantages of the prepaid billing system are highlighted which include: Provision for consumers to know and control their electricity consumption; enables consumers to pay only for electricity consumed and not for electricity not consumed, etc. the paper recommends the total annihilation of the estimated billing system and complete enforcement of the prepaid billing system. Finally, the study concludes that the prepaid billing system would improve the welfare of electricity customers being that it makes provision for consumer regulation of electricity utilization as well as assist the consumer to imbibe the culture of discipline in electricity power consumption. Again, there would be significant improvement in output, improved revenue collection, reduced operational cost, minimized power wastage and reduced non-technical losses.*

**Keywords:** Consumer, Consumer Satisfaction, Estimated Electricity Billing System, Prepaid Electricity Billing System and Gwagwalada Area Council.

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### **1. Introduction**

Nigeria is among of the biggest economies in African continent, however, in spite of attaining this great height, it suffers one of the most monumental energy losses around the globe. The Abuja Electricity Distribution Company (AEDC) is the sole electricity distribution establishment in charge of supply electricity in the area of study. In as much as the federal government is geared at enhancing electricity access from about 45% to 90% by 2030, which has been tackled through diverse methods to realize

this enhancement (PTFP, 2013, ECN, 2013).

Among these approaches is the privatisation of the electricity sector in 2013, with the aim of improving the proficiency of the power sector, entice foreign investors and boost the volume of electricity generated by the sector. However, due to disarrayed incentives, this approach came up with results to varying extents (EGH, 2019). Some of the challenges which militated the privatisation of the power sector include

unstable supply of gas, damage, inadequate metering, etc. In the Nigerian power sector, a lot of consumers are without meters (Ofonyelu and Eguabor, 2014), and the Nigerian Electricity Regulatory Commission (NERC) has endeavoured to decrease the gap in metering in recent times using several avenues which include the prohibition and outlawing of the estimated billing system, which has not contributed much in closing this vacuum given the fact that the issue of metering still perseveres (Ofonyelu and Eguabor, 2014).

According to the energy policy report (2019), it was stated that the eleven Distribution Companies (Discos) provided a total of 79,850 prepaid meters in 2018, but failed to close the metering vacuum being that about 4.6 million consumers are still unmetered compared to the 4.7 million in 2017 which is just 1% increase (EGH, 2019, Anyaehie, Nwadike & Iwuamadi, 2018, Sunday and Mac-Leva, 2019). The existence of unmetered consumers has promoted the usage of asymmetries, which is usually to the disadvantage of the customer.

Among the asymmetries is estimated metering, which is also referred to as as estimated billing (Ofonyelu and Eguabor, 2014). This billing system is a foremost facilitator to non-technical shortfalls as consumers have resorted to unlawful and shady practices to avoid footing the ridiculous bills aroused by estimated billing, which has instigated common and regular conflict vis a vis Discos' employees and consumers (Aremu, 2019). These outrageous bills have been connected to Discos making effort to recover or improve their profits due to loss of revenue (Ofonyelu and Eguabor, 2014, Arimoro, Oyetunji and Odugboye, 2019). This is as a result of absence of openness and probity between the Discos and electricity consumers.

About eighty percent of consumer complaints received by Nigerian

Electricity Regulatory Commission (NERC) is linked to outrageous bills, estimated billing, and ineffective metering infrastructure (Arimoro, Oyetunji and Odugboye, 2019 and NERC, 2019). This issue has continued to be devil the average Nigerian as some customers have complained about non-provision of prepaid meters they have paid for and have been coerced to keep paying for electricity used or not used (Channels TV, 2012, Investigative Reporting, 2018).

The study realised that the introduction of the prepayment billing system improved openness, introduced consumer trust in the power industry, minimised non-payment of bills and eliminates the stress involved in inappropriate allotment of electricity bills.

In the light of the above, it could be deduced that Nigerians are prepared to be metered and would happily accept the prepaid metering system; as this would give them better control over their electricity consumption and enable them manage energy efficiently. On the other hand, this would, enhance efficiency, utility operational cost, revenue collection and reduce energy misuse and non-technical shortfalls. Therefore, this paper seeks to uncover the need for prepaid metering system, the implications of estimated billing, with focus on Gwagwalada Area council of the Federal Capital Territory of Nigeria being one of the most prominent area councils. The study also proffers recommendations to this problem.

### **Theoretical Framework**

#### **Neo - Liberalism**

The theoretical framework adopted for the analysis of this work is the Neo Liberal Theory. Neo Liberalism was pioneered by Fredrich Von Hayek in 1947. The strongest definition of neoliberalism comes from Marxist political economy as most straightforward presented by Harvey (2005), Dume'nil and Le'vy (2011), Overbeek and Van Apeldoorn (2012) and

others. Neo-liberalism is the ideological project of a resurgent political right, that gained ascendancy in the United States under Ronald Reagan and in Britain under Margaret Thatcher in the 1980s, after the crises of the late Keynesian era in the 1970s.

The Neo Liberalism theory is most appropriate in understanding the effectiveness of Abuja Electricity Distribution Company (AEDC) Billing System and consumer satisfaction in Gwagwalada Area Council within a privatised and liberal driven economy.

This shows vividly how these two trends: AEDC billing system and consumer satisfaction in Gwagwalada area council have interrelated and for the most part mutually reinforcing. The AEDC functions as one of the Distribution Companies (DISCOs) established by NERC and vested with the responsibility to supply electricity to consumers from the Generating Companies (GENCOs) within its area of coverage. AEDC is also charged with the responsibility of creating availability of prepaid meters to consumers in order to enforce an accurate billing system for electricity consumed. The AEDC also carries out maintenance functions on electrical facilities situated within its jurisdiction. However, the study is set to assess whether the billing system provided by the AEDC in Gwagwalada Area Council is commensurate with electricity consumed by electricity services customers. That is to say AEDC billing system fostered consumer's satisfaction and consumers satisfaction fosters AEDC.

The theory has much to contribute towards the understanding of the concept of billing system and customer satisfaction. In view of all these, there is certainly the need to understand how payment of bills by the consumers is viewed within the context of the AEDC billing system.

The Neo Liberal theory is a pointer to the understanding of the various AEDC policies, their inter-relatedness, how they affect the consumers as well as how the consumers crave the dividends of having AEDC utility. The theory is an advocate of privatisation and a free market system which promotes healthy competition among distribution companies in the power sector. The Neo Liberal theory promotes effectiveness by eliminating monopoly as was the case prior to the electricity industry reforms in Nigeria.

## **2.0 Literature Review**

Over time, various scholars have viewed the Nigerian metering issues from diverse perspectives (Ofonyelu and Eguabor, 2014), Anyaehie, Nwadike & Iwuamadi, 2018, Aremu, 2019; Fagbohun and Femi-Jemilohun, 2017; Mwaura, 2012; Adetokun et al, 2018). The significance of metering cannot be over-flogged given that consumers of electricity have become progressively uninterested in settling their electricity bills being that it appears to them that their bills are not commensurate with consumption where the estimated billing system is applied (Aremu 2019). Ofonyelu and Eguabor (2014), availed evidence on the presence of anomalies in the electricity billing system of the Distribution companies (DISCOs) in Nigeria. The work states that these anomalies are prevalent for post-paid meters and unmetered consumers than for prepaid meter consumers. The paper also points out the contributing factors of these anomalies. Anyaehie, Nwadike & Iwuamadi, (2018), juxtaposes the electricity bills of two customers in certain estate in Owerri, Imo state; one of the customers using prepaid meter billing system (consumer A) and the second on estimated billing system (consumer B). It was observed that on an average, consumer A had a much lesser bill, and electricity consumption compared to consumer B. The lesser consumption

informs that prepaid billing system promotes efficiency of electrical energy usage while the estimated billing system is on the contrary; as costumers are forced to pay for both energies used and not used.

Arimoro, Oyetunji and Odugboye, (2019), examines the electricity billing system in clustered rented apartments in Nigeria in order to recommend an efficient and sustainable billing system to be used in such environments. The study realised that the introduction of the prepayment billing system improved openness, introduced consumer trust in the power industry, minimised non-payment of bills among the tenants, and eliminates the stress involved in inappropriate allotment of electricity bill between tenants.

Mwaura (2012) assessed the prepaid billing system in Rwanda with a view to implement such a system in Uganda. Problems that might influence the adoption of the prepaid billing system in Uganda were compared with the findings from Rwanda. The research realised that implementing the prepaid metering system in Rwanda lessened her non-technical losses from 40% in 1998 to 2% in 2008.

O'Sullivan, Viggers and Howden-Chapman (2014) examined the effect of prepaid metering system on domestic energy behaviour and budgeting. It was discovered that this method of billing assists in enhancing domestic budget regulation and electricity consumption. Abdulwahab (2010) examined customer views of the analogue meter and prepaid meter billing systems among consumers in Kano electricity distribution sector. It was realized that seventy-six per cent of the costumers assessed preferred to be metered electronically using the prepaid meters. It was discovered that the prepaid metering billing system improves consumption styles and conducts of the consumers.

The term “consumer” is derived from the Latin expression “Consumere” which connotes, “to take up completely or to eat’. A consumer is an individual or body that utilises or enjoys any commodity or service available either from natural sources or from a market (Suresh, 2016). Consumer by way of definition comprises every individual or body that has access to goods or services. It is the biggest economic group influencing and influenced by nearly all government and private economic policy (Suresh, 2016).

The Consumer Protection Act, 1986 refers to the consumer as ‘one who purchases any goods, requests any services or partially remunerated and partially promised or under any system of postponed imbursement.

Consumer satisfaction can be defined as the consumer's response to the perceived discrepancy between prior expectations (or some other norm of performance) and the actual performance (Tse and Wilton, 1988). Relying on the expectations approach, proved that high satisfaction with the local government's services involve low expectations, rather than simply performing public services well, while low satisfaction ratings point both to poorly performing services as well as high expectations. Gronroos (1995) supports the idea that service quality must be, above all, “what the customers perceive”. Slack (1997) tries to synthesize all the different approaches identified by Garvin (1984) by the following definition: “quality is the consistent conformity with customer's expectations”.

Customer satisfaction is a vital aspect of the objectives of any organisation not minding the nature of its business operation. Customer satisfaction can be achieved and increased in business organizations by carefully identifying and understanding the needs of the target market and providing quality goods and services that will meet and satisfy these needs to a greater extent, thereby building

and maintaining long-lasting and favourable relationship with the target market (Ibojo, 2015). Creating and maintaining the level of customer satisfaction is very crucial for electricity generation and distribution firms' survival, growth, and expansion. This is because the achievement of other business objectives is highly centered on the level of satisfaction derived by the customers (Ibojo, 2015). According to Yu (2007), advanced Consumer Satisfaction results into advanced consumer income and advanced consumer costs simultaneously, therefore consumer profits is not affected. The estimated billing scheme for electricity consumers was introduced in Nigeria by the Nigerian Electricity Regulatory Commission (NERC) to ascertain that the DISCOs have method of billing unmetered consumers, as well as consumers whose meters are broken or not accessible to the DISCOs staff for billing. In order to certify that the estimated bills are not indiscriminately inflated by the DISCOs. NERC by section 96 of the Electric Power Sector Reform Act of Nigeria, 2005, set up a guideline on the practice for the estimated billing scheme, in 2012. The guideline specifies that all metered actual reading attained until another reading is recognized. When a new reading is recognized, reconciliation shall be done to establish whether the consumer bill was over bloated or not, and make the obligatory modifications be it debit or credit in the successive bills to the consumer. consumers whose meters are inaccessible for billing or broken shall be billed based on their previous consumption (Soyemi (2021).

Prepaid billing system is a technique where the customers pay for electricity consumed before it is used. According to Mathenge (2015), the prepaid electricity billing system does not allow for credit because the customers have to procure and pay for electricity before they can

consume. It is against this back drop that scholars argue that the prepaid metering method gives more control to customers to regulate their expenditure, and their electricity consumption rate. Some other advantages of the prepaid electricity billing system include: It assists customers to consume less electricity, no room for manual disconnection of consumers, It does not give room for financial inducement by both Discos and consumers, Customers are given opportunity to track their level of electricity consumption, and it decreases operational expenses being that it provides a paperless revenue collection (Mathenge, 2015; Martin, 2014 and Miyogo, Nyanamba & Nyangweso, 2013).

Gwagwalada Area Council is among the six area councils situated in the Federal Capital territory of Nigeria which is positioned between 8° 56' 29" North and 7° 5' 31" East. It shares borders in the South with Kwali Area Council, in the North, it is bordered by Niger State; Kuje Area Council in the East and AMAC in the North-East. The area under study covers a land mass of about 1,043km<sup>2</sup>. The landscape of the study area is outlined with several valleys view hills, which include Zuba hills located at the north west of the region and is watered by river Usuma. The climate is tropical, and the temperature ranges from 30°--37°C, with the highest temperatures experienced in March with an annual average temperature of 1,650mm. The estimated population of the area is 402,000, with population density of 385.4/km<sup>2</sup> (Omotoso and Akanbi, 2018). The ethnicity of the residents is largely Gwari, Bassa, Hausa-Fulani, koro and Gede, who are predominantly farmers which is the main stay of the local population (Irechukwu & Chima, 2012).

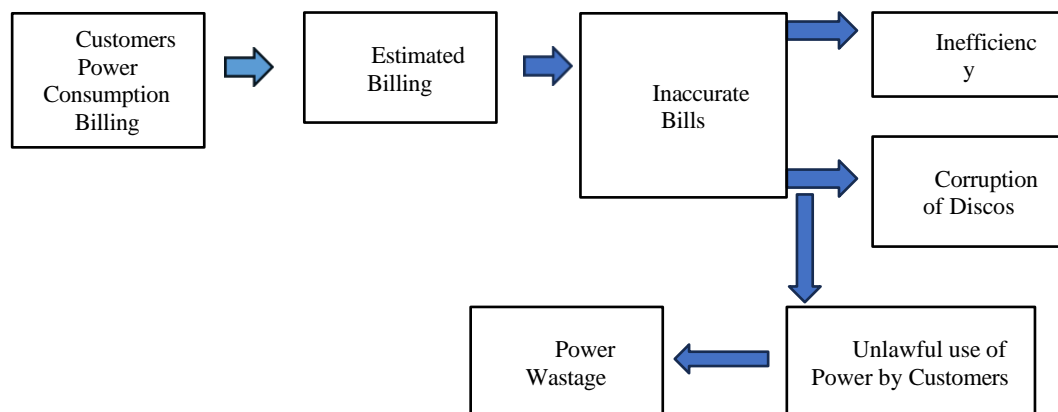
### 3. Results and Discussion

#### Estimated Billing and the Prepaid Billing System

Post-paid billing system entails the payment of electricity consumed by customers after usage; this practice has informed a high rise in failure in payment of electricity of bills by consumers. While Estimated billing system is said to be comparable to extortion where customers are forced to pay outrageous bills compared to their monthly consumption (Anyahie, Nwadike & Iwuamadi, 2018). Majority of consumers under this billing method operate without using meters, their houses are not visited by the power sector personnel to monitor power consumption within the billing period. An estimated population of six million electricity customers in Nigeria were observed to operate without meters to track their monthly energy usage (Anyahie, Nwadike & Iwuamadi, 2018). (Anyahie, Nwadike & Iwuamadi, 2018). This development promotes estimated billing assigned to the customers, which gives room for extortion of the

consumers, default in payment of bills owing to the outrageous estimated bills, huge debts are accumulated by Discos who in turn are unable to pay for electricity purchased from the GENCOs resulting in insufficient power generation and distribution. Again, the insufficient power generated is wasted by electricity consumers promoted by the estimated billing system adopted by DISCOs (Anyahie, Nwadike & Iwuamadi, 2018). This billing method should be proscribed and substituted with the prepaid billing system. The negative effects of the estimated billing system on electricity customers is illustrated in Fig. 1 below:

**Figure 1: Effects of Estimated Billing on Customers Electricity Consumption**



Source: Fagbohun and Femi-Jemilohun (2017).

#### Advantages of Prepaid over Postpaid/ Estimated Billing Methods

Substituting the estimated billing system with the prepaid billing will provide the customer the accuracy of paying for the

exact amount of electricity utilized the advantages of this method as stated by Aremu (2019), Channels Television (2012), Investigative Reporting (2018) and Mwaura (2018), include the following:] are listed below:

- i. It allows for ease of collecting revenue by power sector officials and gives room for consumers to know and control their electricity consumption in accordance with their income.
- ii. The prepaid billing system decreases the extent of physical dealings between the power sector officials and the customers, also the level of unlawful connection to electricity facilities committed by some corrupt individuals being very rampant in the estimated billing system owing of the outrageous electricity bills.
- iii. Customers enjoy immediate restoration of electricity if they purchase their token after the exhaustion of the previous token. Unlike the postpaid system, which gives room for disconnection, consumers could wait for days or even weeks before they are reconnected.
- iv. Prepaid meter has an installed sensor to warn consumers on the amount of electricity left for consumption which enables them to control the consumption and expenditure.
- v. Prepaid billing system enables consumers to pay only for electricity consumed and not for electricity not consumed.

#### **Advantages of the Prepaid System to Electricity providers**

The poor financial state of DISCOs in Nigeria which has given rise to inefficient output in terms of electricity distribution, is attributed to the high level of poor or non-compliance of a good number of energy customers in Nigeria with regards to payment of electricity utilized, owing to the outrageous or over bloated bills. It is unbelievably true MDAs are the most notorious offenders in this act. The electricity debt level of MDAs has attained the highest position to about of

forty - five billion Naira according to reports provided by by DISCOs (Utazi and Obuka, 2014, O'Sullivan and Viggers, 2014). This reality could have been averted if the prepaid billing method was strictly implemented. According to Utazi and Obuka, (2014); and Abdulwahab, (2010), the advantages of prepaid billing systems to electricity providers include the following:

1. Enhancement of income
2. Decreases the amount of operational cost
3. Reduces the level of unsettled (bad) debts
4. Electricity Distribution companies are in charge and sure of their accurate revenue
5. Eliminates the act of consuming electricity on credit by customers.

#### **Implication of Electricity Over billing in Gwagwalada Area Council on Sustainable development**

The estimated billing system is a cardinal enforcer of non-technical shortages resulting from consumers resorting to unlawful and sharp practices in order to evade settling outrageous bills accrued. Consequently, this has resulted in, regular violent clashes between the Discos' officials and consumers (Aremu, 2019). The outrageous bills levied on customers have been attributed to Discos making efforts to recover and enhance their profits owing to loss of revenue (Ofonyelu and Eguabor, 2014; and Arimoro, Oyetunji and Odugboye, 2019).

This occurrence stems from the issue of lack of clarity and probity in billing viz a viz the consumers and Discos. An estimated eighty percentt of customer complaints recorded by NERC are linked to outrageous bills, estimated billing, and unmitering of customers Arimoro, Oyetunji and Odugboye, 2019; and NERC, 2019). This outcome has persisted in frustrating the average Nigerian electricity consumer, as well as lack of supply of prepaid meters. This has left them with no choice but to keep paying

for both electricity utilized and electricity not utilized (Channels TV, 2012, Investigative Reporting, 2018). Over time, a lot of scholars have viewed the metering issue in Nigeria from various perspectives as pointed out in Adetokun, Somefun, Adekitan, Aligbe, and Orimogunje (2018), Ofonyelu and Eguabor (2014), Anyaehie, Nwadike & Iwuamadi, (2018), Aremu (2019), Mwaura (2018), Fagbohun and Femi-Jemilohun (2017).

The need for metering is very crucial and should not be downplayed or handled with levity as electricity consumers have become progressively non-complaint in regards to settling their electricity bills being that they are convinced that their bills are not commensurate to consumption where the estimated billing system is applicable Aremu (2019)].

Ofonyelu and Eguabor (2014), substantiate the claim of malpractices in the electricity billing system by Nigerian Discos. The scholars affirm that these malpractices are more pronounced in post-paid metering and unmetered customers than for prepaid meter consumers. Further, the authors pointed out the reasons for these practices Anyaehie, Nwadike & Iwuamadi, (2018), juxtaposed the electricity bills of two customers in a residential area located in Owerri, Imo state; one of the electricity customers uses the prepaid meter billing system (referred to as consumer B) while the other customer is placed on the estimated billing system (referred to as consumer A). It was realized that averagely, consumer B accumulated a much lesser bill, and electricity usage than consumer A. The lesser electricity usage informs that the prepaid billing method promotes efficient utilization of electric power and the estimated billing method is the contrary. This justifies the fact that electricity consumers placed on the estimated billing system are made to pay for both utilized and unutilized energy.

Arimoro, Oyetunji and Odugboye, (2019) examined the electricity billing technique in a building containing several apartments rented by different households in Nigeria, with the aim of coming up with a cost-efficient and transparent billing system which could be applicable in multi-apartment rented structures. The research work realized that the application of the prepaid metering system improved openness and accountability, introduced consumer confidence in the distribution companies, decreased apathy to paying of bills among the occupants, as well as the strain entailed in incommensurate allocation of electricity bills among occupants.

Mwaura (2018) analysed the prepaid billing system in Rwanda with a view of adopting this system in Uganda. Challenges that might mitigate the implementation of the prepaid billing system in Uganda were taken into cognizance as well as the benefits of the outfit in Rwanda. The study discovered that the application of the prepaid billing system enabled Rwanda minimize its non-technical shortages from forty percent in 1998 to two percent in 2008.

O'Sullivan, Viggers and Howden-Chapman (2014), examined the effect of the prepaid billing system on residential electricity management and expenditure. The study realized that the prepaid billing system assisted to enhance household expenditure regulation and electricity management. Abdulwahab, (2010), investigated customers rating of the estimated billing and prepaid billing systems among consumers of the Kano electricity distribution area. It was discovered that seventy-six percent of customers studied, felt very comfortable using the prepaid meters. It was also realized that the prepaid billing technique enhanced the electricity utilization behaviours of users.

#### 4. Conclusion and Recommendations

In the light of the discussions above, it is therefore observed, that Nigerians are willing to comply to payment of electricity bills and would gladly embrace the prepaid metering system. The prepaid system would allow room for consumer regulation of electricity utilization as well as assist the consumer imbibe the culture of discipline in electricity power consumption, which will definitely assist in the improvement of their socio-economic welfare. On the other hand, on the part of the electricity distribution companies, there would be significant improvement in output, improved revenue collection reduced operational cost, minimized power wastage and reduced non-technical losses. Further, the study recommends the following:

1. There is apparent need for AEDC to increase the level of availability and ease of access to prepaid meters. This will be achieved by expanding distribution networks, ensuring efficient service points, and improving customer support services to address issues promptly. Collaborations with local vendors and community centers could also facilitate easier access.
2. AEDC should launch comprehensive educational campaigns to inform consumers about the benefits and functionalities of prepaid meters. Regular updates, clear communication about procedures, and easy-to-understand guides could help in reducing misconceptions and increasing consumer satisfaction.
3. AEDC should invest in upgrading and maintaining their infrastructure. Regular maintenance checks and prompt responses to technical issues will prevent many of the problems currently faced by the consumers. Implementing a robust feedback system where consumers will report issues directly will also help in identifying and resolving problems more efficiently.

4. The high dissatisfaction rates indicate a need for greater accountability and transparency from AEDC. Establishing clear metrics for service quality and regularly publishing performance reports will build trust with consumers. Additionally, setting up independent oversight committees to monitor AEDC's performance and handle consumer complaints will ensure that issues are addressed fairly and effectively.

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