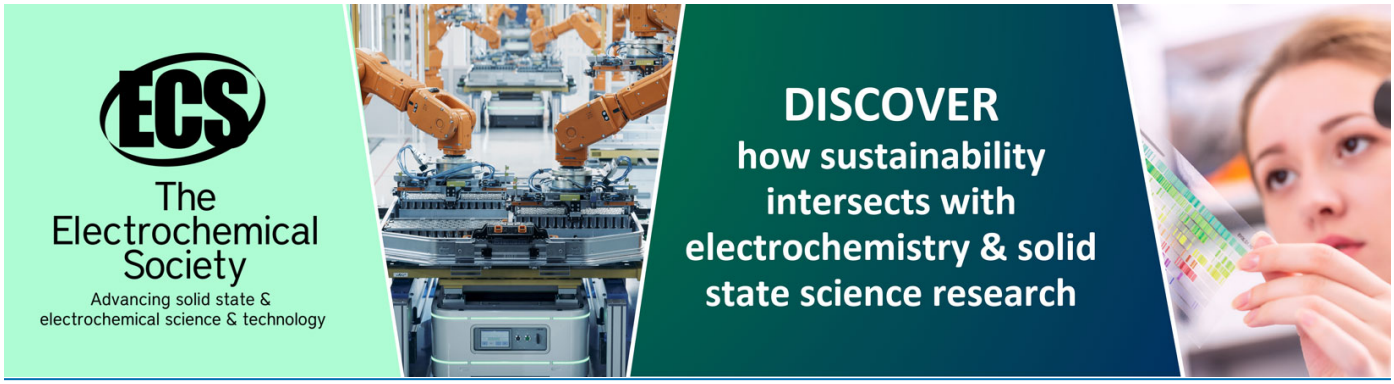
The Challenges of Estimated Billing on Electricity Consumers in Nigeria: A Review



The Challenges of Estimated Billing on Electricity Consumers in Nigeria: A Review

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Abstract. Despite Government efforts, over 4.6 million Nigerians are on the estimated billing system. Nigeria has one of the highest aggregate technical, commercial and collection losses at 43.65%, which has been attributed to low investments in distribution networks exacerbated by the slow progress of metering of customers which has posed a protracted liquidity challenge to the industry. There is a need to reduce these losses; hence this paper examined the Nigerian electricity billing system through meta-analysis of literature, with a focus on estimated billing, the metering situation, and its challenges in Nigeria. Finally, solutions such as the implementation of a cost reflective tariff scheme are proffered through recommendations to distribution companies and the Federal Government of Nigeria.

Keywords: Estimated billing, Metering, Electricity bill, Prepaid meters

1 Introduction

Nigeria is one of the largest economies in Africa - despite this great feat, it has one of the most significant energy deficits in the world. Although the government aims to improve and boost electricity access from about 45% to 90% by 2030,which has been approached using different techniques to achieve this boost [1], [2]. One of such approach is the privatisation of the power sector in 2013, which aims to improve the power sector efficiency, attract investments and increase the total amount of electrical power generated; however, due to misaligned incentives, this approach produced results to varying degrees [3]. Some of the challenges which inhibited the privatisation of this sector include unreliable gas supply, vandalism, insufficient metering amongst others.

In the Nigerian power industry, many consumers are unmetered [4] and the Nigerian Electricity Regulatory Commission (NERC) have attempted to reduce the metering gap in recent years through various means such as the banning and criminalisation of estimated billing, which has done very little in closing this gap as metering issues persist [4]. As was presented in the energy policy report of 2019, it was recorded that the 11 Distribution Companies (Discos) supplied a total of 79,850 prepaid meters in 2018, but could not close the metering gap as about 4.6 million customers remain unmetered as opposed to the 4.7 million in 2017- a mere 1% increase [3], [5], [6]. The presence of unmetered customers has encouraged the use of asymmetries, which is often unfavourable to the consumer. One of the asymmetries is estimated metering, also known as estimated billings [4].

Estimated billing is a major contributor to non-technical losses as customers have resulted in illegal and corrupt practices to get out of paying these bills they considered exorbitant, which has led to constant and frequent clashes between the Discos' employees and customers [7]. These exorbitant bills have been linked to Discos trying to recover or improve their profits due to loss of revenues [4], [8]. This is due to a lack of transparency and accountability between the discos and their customers. About 80% of consumer grievances received by NERC is related to exorbitant bills, estimated billing, and poor metering infrastructure [8]–

[10]. This practice continues to be a thorn in the flesh of the average Nigerian as some have reported non-delivery of paid prepaid meters and are forced to continue to pay for electricity whether or not it was consumed [11][12].
Over the years, several researchers have looked at the Nigerian metering problem from different viewpoints as seen in [4], [5], [7]–[9], [13]–[18]. The importance of metering cannot be over-emphasised as electricity consumers have become increasingly apathetic to paying their electricity bills because it seems to them like they are paying for darkness whenever estimated billing systems are used [7].

The author in [4] provided proof on the existence of irregularities in the electricity billing system of the Power Holding Company of Nigeria (PHCN). The authors found that these irregularities are higher for post-paid meter and unmetered users than for prepaid meter users. They also highlighted the causative factors of these irregularities. In [5], the author compared the electricity bills of two consumers in an estate in Owerri, Imo state; one on prepaid meter billing system (consumer B) and the other on estimated billing system (consumer A). They found that on an average consumer B had a much lower bill, and electricity consumption than consumer A. The lower consumption infers that prepayment billing system encourages efficient use of electrical energy while the estimated billing system does not; as consumers are expected to pay for all consumed and unconsumed energy. In [8], the authors analysed the electricity billing system in shared living spaces in Nigeria with a view of delivering efficient and sustainable billing system which could be adopted in multi-tenanted buildings. The authors found that the introduction of automated prepaid meters improved transparency, instilled customer trust in the electricity authorities, reduced non-compliance among the tenants, and the stress involved inappropriate allotment electricity bill between tenants. In [13], the authors examined the prepayment billing system in Rwanda intending to implement such a system in Uganda. Issues that might affect the adoption of the prepayment billing system in Uganda was placed side by side against the lessons from Rwanda. The authors found that through the system, Rwanda reduced her non-technical loss from 40% in 1998 to 2% in 2008. The authors in [15] investigated the influence of prepayment meters on household energy behaviour and budgeting. They found that this kind of billing system helped to improve household budget control and electricity consumption. The authors in [16]assessed consumer perception of the analogue meter and prepaid meter billing systems among customers of the Kano electricity distribution zone. They found that 76 per cent of consumers surveyed preferred to be metered digitally via prepaid meters. They also found that digital or computerised billing methods improve consumption patterns and habits of the consumers.

From the review, it is seen that Nigerians are ready to be metered and would readily accept prepaid or prepayment meters; as this would give them more control over their consumption and help instil in them energy management. This would, in turn, improve efficiency, utility operational cost, revenue collection and reduce energy wastage and non-technical losses. Therefore, this paper seeks to uncover the hindrances to electricity metering in Nigeria, the problems of estimated billing, and its impact through an investigation of the metering situation. Solutions in the form of recommendation would be proffered to the metering problem in Nigeria.

2 Metering Situation in Nigeria

Electricity metering started in Nigeria due to the Power Holding Company of Nigeria (PHCN) inability to adequately collect revenue [5].There are three ways of billing electricity consumers, and these are post-paid, estimated, and prepaid billing systems. To a great extent, the metering gap in Nigeria is being met, but the gap remains significant.

2.1 Estimated and Prepaid Billing Systems

Estimated billing system involves meter estimation instead of an accurate meter reading; the calculation of electricity consumed is based on uninterrupted electricity supply and use. For this reason, the estimated billing system is seen as a fraudulent system by the consumers because they are forced to pay for darkness; since uninterrupted power supply is yet to be achieved in Nigeria [7]. The type of bills is identified by a number followed by the letter 'E'. The practice of estimated billing has made consumers less compliant in paying their electricity bills and more prone to engage in corrupt practices such as bribing Discos officials, energy theft through illegal connections, and many others highlighted in [9].

While the prepaid billing system involves the use of digital meters and smart cards with the customer's information on it. The system requires consumers to make upfront payments before electricity can be supplied and consumed at the consumer's residence. According to the third quarter NERC report, approximately 59.74% of the Nigerian populace are unmetered; which means the average compliance to NERC directive to meter customers is extremely low [10], [19].

2.2 Challenges to Metering by Discos

Over the years, several problems have been identified as the challenges to metering in Nigeria with each subsector of the Nigerian Electricity Supply Industry (NESI) pointing fingers at the other. Discos have been extremely vocal about the challenges they face in metering the Nigerian populace, and these include high inflation rates, low generation and transmission capacities, huge inherited profit deficit from unpaid bills, lack complete customer data, low investments, and high losses [10], [20]. They have also voiced that the current tariff structure is not cost reflective; hence they could not recover the cost of investing in metering [12].

2.3 Efforts at Metering by Government

The Federal Government of Nigeria through NERC have attempted to ensure that the Nigerian people are all metered by making decrees and implementing different programmes. Some of which are highlighted below, while others can be found in [20].

2.3.1 Credited Advance Programme for Metering Implementation (CAPMI)

This was introduced back in 2013 through NERC order NERC/05/0001/13, which was an attempt to close the metering gap in the NESI. The scheme required that customers bear the cost of meter procurement either by paying upfront or in instalments. While the distribution companies compensated the customer via reductions to their electricity bill. However, this program was stopped in 2016 by the then Minister of Power, Works, and Housing, Babatunde Fashola; stating that it had become a significant source of customer concern and stressed that discos are responsible for providing meters to customers as stipulated in the performance agreement between the discos and the Bureau of Public Enterprises (BPE) [21], [22].

2.3.2 Meter Asset Provider (MAP)

CAMPI was replaced by the MAP regulations due to its failure to close the metering gap. This regulation (NERC/181/112) placed the onus of meter procurement on customers who request for them, which this is done through licensed meter asset providers. At the end of 2019, Discos through the MAP had only met 5 per cent of the metering targets [6].Its slow pace has been attributed to the unaffordability of the meters and NERC's untimely release of the tariff order for customers who got meters through the scheme [21].Under the MAP program, only three discos had metered over 50 % of their registered customers by the end of September 2019 [10]. Despite this, the metering gap in each distribution zone is still significantly high, as shown in table 1.

Table 1: Metering Progress and Gap in %. Source:[10]

Distribution Companies	Sept 2019	Metering Gap as at Sept 2019
Abuja	54	46
Benin	55	45
Eko	48	52
Enugu	42	58
Ibadan	33	67
Ikeja	46	54
Jos	33	67
Kaduna	22	78
Kano	24	76
Port Harcourt	47	53
Yola	19	81

Other effort made by the Federal Government includes a methodology on estimated billing, estimated billing capping for unmetered consumers, smart meter regulation, and many others which can be found in [19], [20], [23], [24].

3 Recommendations to Discos and Federal Government of Nigeria (FGN)

The estimated billing system has been likened to fraud because most electricity customers cannot reconcile the monthly bills gotten from the discos with their energy consumption. The customers under this billing system are generally unmetered, which has encouraged the continued use of the estimated billing system, thus resulting in customer apathy to pay the estimated bills, corrupt and fraudulent acts. The recent ban and criminalisation of the estimated billing system would give the distribution companies time to map out a strategy for metering their customers as required by NERC; the following recommendations could be taken into consideration:

1. Targeted distribution of prepaid meters, i.e. areas which experiences the highest collection losses in each distribution zone should be metered first. This would greatly improve the distribution companies' revenue, close the metering gap, reduce the high collection loss which stands at 30.95%, and ensure that at least 50% of the populace is metered.
2. Implementation of a cost-reflective tariff structure so that discos recover their investments in metering.
3. Creation of an independent body to oversee and monitor the types and quality of meters being distributed and report on the overall progress of metering in the country.
4. The FGN should investment heavily in the distribution subsector of the NESI, so as to improve the efficiency of the subsector.

4 Conclusion

The paper describes concisely electrical energy billing system with a focus on the estimated billing system, the metering situation and challenges to metering in Nigeria- via a review of the literature and some NERC regulations and orders. The paper proffers some solution to the metering problem through recommendations which could serve as a guide to the distribution companies' metering endeavour. From the review done, it is evident that the Nigerian populace is ready to be metered and are willing to accept digital or prepayment billing system. Finally, the Nigerian Electricity Regulatory Commission needs to closely monitor the discos to ensure they are fulfilling their metering obligations.

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