

# **PREPAID ELECTRICITY BILLING AND THE FINANCIAL PERFORMANCE OF KENYA POWER AND LIGHTING COMPANY**

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## **Abstract**

*The main purpose of the paper was to determine the effects of prepaid electricity billing on financial performance of Kenya Power. The study was informed by The Technology Acceptance Model, TAM and Socio-technical model. The study employed cross sectional research design. The target population consisted of Kenya Power Company Coast Branches of Ukunda, Voi, Kilifi and Mombasa. Study collected data from annual report, financial report and other relevant documents on a monthly basis from January 2013 to December, 2015. The observations were 4 branches multiplied by 36 months (3 years) giving 144 observations. Census technique was used to get information from all the branches in Coast region. The data collection instrument used in this study was content/document analysis guide. Descriptive statistics such as mean, median, maximum, minimum, standard deviation and inferential statistics such as regression and person correlation were used to analyze data. The study was modeled along an ordinary least squares regression method. The study findings indicate that collection costs had a negative and significant influence on profitability of Kenya Power at the Coast region. Billing accuracy had significant influence on profitability of Kenya Power at the Coast region. In order to achieve this, Kenya Power should increase the coverage of the prepaid meters at the coast region and if possible across the country. Findings there is need to ensure billing accuracy in order to positively influence financial performance of the company.*

*Keywords: Prepaid Electricity Billing, Financial Performance, Collection Costs, Billing Accuracy, Profitability*

## INTRODUCTION

Kenya Power is a public utility company that is mandated by Kenyan government to distribute electric power throughout the country. The government is the major shareholder, controlling about 49% of shareholding. The company's shares are trading on the NSE and are therefore a mandatory requirement by law to publish and release annual financial statements to the public and other stakeholders (Kioko, 2013). KPLC, since its inception in 1975 has been on post-paid method of collecting revenue. The system allows consumers to enjoy the services and pay later at the end of the month when billing has been done. As a result the company exposed itself to risks of bad debts and revenue collection related costs such as meter reading costs, disconnection and reconnection costs, estimation of bills or readings not taken, and meter tempering (Kenya Power Annual Report, 2009). This led to establishment of the debt collection department with a budgetary allocation for hiring staff and using contracted debt collectors who earn commission. All these costs may have direct impact on the financial performance of the company (Mwaura, 2010).

A prepayment meter is a special type of energy meter that can be installed in domestic properties. Prepaid meter records active energy Customers according to their demand, and purchase of a certain quantity of energy from the local electric power company. Management system with kindly man-machine interface is easy to collect, analyze and store data. Historically, prepayment meters have had a reputation for leaving people quite literally 'in the dark', but measures have now been put in place to ensure 'black-outs' only occur at times that it's perceived safe to do so for example when the shops are open and you can nip out to buy more credit (Hangzhou Pax Electronic Technology, 2012).

Globally there has been an increase in the number of customers preferring prepaid meters. For instance, in the U.K. which has a long tradition of offering prepaid metering as an option to any customer, have up to 15-20 percent of its customers signed up (Chartwell, 2003). Northern Ireland Electricity, which has a new, customer-friendly prepayment system, has increased prepayment enrolment to 25 percent (Energywatch, 2005). At Arizona's Salt River Project, more than 50,000 customers (about 6 percent) are prepaid meters (Chartwell, 2008) In Ontario, Woodstock Hydro reports participation by 25 percent of residential customers.

Ariel and Luciana (2009), indicated that the prepayment technology was initially developed in South Africa in the late 1980's with the objective of supplying energy to a large number of low income and geographically dispersed users. The system was initially geared towards minimizing difficulties arising from irregular incomes, and to overcome limited infrastructural development required to dispatch and receive credit slips (bills). A study by Casarin and Nicollier (2008) among local electricity users indicate that prepayment leads to

consumer welfare and reduction of arrears in accounts receivables, operational and financial costs on the part of service providers and better allocation of resources for the user. Similarly, a study by Mwaura (2010) in Rwanda about electricity payment billing system shows that revenue rose in tandem from US\$ 261,000 in 1996 to US\$ 22.9M in 2008. Other associated benefits discovered include increased and timely revenue collection and improved service delivery to electricity users. Some other studies on the global stage have been done on efficiency in revenue collection, its effects on profitability and other stakeholders. Moreover, similar surveys have been done on such studies and their impact on users and arrears in accounts receivable.

Allen, (2009) argues that there is an increase in accuracy and customer trust with the deployment of these new prepayment meters. Since metering and billing are automated, customers will be given a fair bill. This will also make energy consumers more eager to pay their bills. One reason that some Consumers give for not paying their electric bills is that the billing is not fair. They complain that electricity companies supply very little power only to bring huge estimated bills at month end. An Electronic electrical energy prepayment meter will only bill consumers for actual electric power consumed. This is fair enough for most energy consumers. According to Bloem and Gorter, (2001), though issues relating to bad loans may affect all sectors, the most serious impact is on firm such as service firms, which tend to have large loan portfolios. Besides, the large bad loans portfolios will affect the ability of firms to provide credit. Huge non-performing loans could result in loss of confidence on the part of depositors and foreign investors who may start a run on firms, leading to liquidity problems

According to Kioko (2013), for every day bills are unpaid, businesses must find a way to cover payroll, employee benefits and other operational expenses. By reducing the collection period, i.e number of days it takes from the end of the billing or accounting period and invoices sent to clients and the date the payment is received- businesses can decrease the average collection period and reduce their dependence on additional sources of funds Consequently, there are certain costs that may be avoided for billing a given service or good in advance (Ogujor and Otosowie, 2010). For instance, costs associated with meter reading, i.e salaries of meter readers, purchase of motor bikes for readers, fuel costs and time taken to and from reading the meters. In this study collection costs represents fuel costs used by motor bikes for readers, bill printing costs, and disconnection costs whose data is available and was obtained from management accounts of Kenya Power Coast branch. If these costs are properly managed, it will lead to increased levels of revenue as well as reduce some operational costs for a given organization. Misra and King (2012) noted that human handling should be eliminated from billing process to prevent fraud and billing errors.

A number of studies have been done locally and internationally in relation to strategic responses adopted by firms to achieve organizational performance. Miyogo, et al. (2013) studied the effect of prepaid service transition in electricity bill payment on Kenya power customers. The findings show that customers have embraced the pre-paid billing system and that prepaid billing system has brought with it some advantages like making them more careful with their consumption. Kioko (2013) conducted a study on perceived effects of prepaid meters on revenue collection efficiency at Kenya Power. Study findings indicated that perceived risk was negatively correlated to revenue collection, while perceived ease of use, perceived low cost and perceived usefulness were positively related and had a significant effect on revenue collection. Moki (2012) did a research on the relationship between prepaid electricity billing and working capital management in the Kenya Power company between 2009 and 2012. His study found that there exists both negative and positive relationship between prepaid billing system and working capital management in that prepaid billing has a significant negative relationship with average collection period. Average payment period and cash conversion cycle was found to have negative but non-significant relationship with prepaid billing system. However, despite the very few studies have attempted to address the link between prepayment metering on financial performance of Kenya Power. This study therefore sought to establish the effects of prepaid metering on financial performance of Kenya Power. Thusm the study tested the following hypothesis

*H<sub>01</sub>: There is no significant effect of collection costs on financial performance of Kenya Power*

*H<sub>02</sub>: There is no significant effect of bill accuracy in prepaid system on financial performance of Kenya Power?*

## **LITERATURE REVIEW**

### **The Technology Acceptance Model, TAM**

The Technology Acceptance Model was developed by Davis (1989) and bases its arguments on the fact that perceived use and perceived ease of use are relevant aspects for computer acceptance behaviors (Davis, et al., 1989; Igbaria, et al., 1997). Broadly this model can be applied in the context of any other technological advancement in the context of perception and acceptability. In the basic TAM model system use is normally determined by a person's attitude towards the system. According to Davis, (1989) TAM is a theoretical model that explains how users come to accept and use a technology. Prepaid meters assumes perceived usefulness or the degree to which a person believes that using a particular system would be free of the influence of pre-existing external variables such as security concerns, convenience as a primary determinants for adoption of a new technology (Lu et al., 2004).

Convenience in use of prepaid meters may be as a result of the efficiency created through adoption of new technology. Perceived ease of use may have a direct effect on perceived usefulness and both determine the consumer's attitude towards use. As a result, this leads to behavioral and actual use of the system. An information systems theory suggests their decision about how and when they will use it. this study will assume that perhaps the derived convenience and efficiency derived from adopting a new technology (in this case the prepaid electricity meters) will be the basis of reducing all costs associated to demand and supply of electricity and impact positively on profitability.

## **Empirical Review**

### ***Collection Costs on Financial Performance***

Some local researches have also been done on similar subject. A study by Electricity Regulation of Uganda (2011) found that the prepaid billing system implemented by Umeme has certainly played a vital role in loss reduction. Umeme, in its loss reduction strategy for 2006-2009 had acknowledged that non-technical losses would be reduced after the implementation of prepaid system. As part of this study, the following parameters were analyzed to determine the impact of the prepaid billing system on loss reduction: the billing efficiency ratio is an important parameter based on which Umeme performance can be monitored.

Another related study done by Mwaura (2010) on adopting electricity prepaid billing system to reduce non-technical energy losses in Uganda and found that the prepaid system reduced power theft and the benefits surpasses cost. Although the study by Mwaura compared Rwanda's experience with that of Uganda, it was noted that apart from non-technical losses, prepaid meters had an effect on financial losses such as revenue collection losses including bad debts.

Moki (2012) studied the relationship between prepaid electricity billing and working capital management at Kenya Power Company between 2009 and 2012. The study used a three year period data and found that there exists both negative and positive relationship between prepaid billing system and working capital management in that prepaid billing has a significant negative relationship with the average collection period. The average payment period and cash conversion cycle was found to have a negative but non-significant relationship with prepaid billing system.

Moki (2012) did a research on the relationship between prepaid electricity billing and working capital management in the Kenya Power company between 2009 and 2012. He used a three year period data and found that there exists both negative and positive relationship between prepaid billing system and working capital management in that prepaid billing has a

significant negative relationship with average collection period. Average payment period and cash conversion cycle was found to have negative but non-significant relationship with prepaid billing system. His empirical findings conflicted with theoretical and general expectation that there is a positive non-significant relationship with regard to inventory turnover in days. He concluded that this system should initially be introduced as a means of revenue collection or debtor management until a significant number is achieved when the relationship with other working capital elements such as average payment period and cash conversion cycle are perfected.

### ***Billing Accuracy on Financial Performance***

Globally, there exists empirical literature on use of prepaid meters in electricity supply and demand with a special focus on financial performance of the supplying companies. Dadzie (2012) studied customers' perception and acceptability on the use of Prepaid Meter in Accra West Region of ECG. The main aim of this study was to improve customer acceptability by determining the level of acceptability of Prepaid Meters, analyze the factors customers considers before accepting the use of Prepaid Meters, and determine management strategy in promoting prepaid usage. A descriptive method of research design adopted for the study. Both primary and secondary sources of data were used with questionnaire as the main instrument for collecting primary data on customer acceptability, factors customers perceive before accepting the use of prepaid meters. The stratified sampling method was used to categorize customers into the type of tariff whether domestic or commercial. A total sample size of 391 was drawn out of 18,000 customers in a district. He established that one of the major findings of the study is that customers consider a number of factors before accepting the prepaid meter for use and these include billing accuracy. He recommended that management should consider improving durability and access to prepaid meter vending points in order to improve customer acceptability on the use of prepaid meters.

Salihu and Pamela (2010) did a research on evaluating the effect of ICT on development focusing on prepaid electricity billing in Nigeria by concentrating on the introduction of the prepaid billing system in Nigeria and the supporting arrangements to enable citizens have access to electricity supply. The study highlighted the extent to which the prepaid electricity system contributed to enhancing people's freedom to participate in development activities and then derived some implications on economic development. The outcome of a research conducted by the Allen Consulting Group (2009) indicates that there are two main attributes of prepayment meters that distinguish them from the Standard credit meters. And one of these unique attributes is that customers are required to pay for electricity before consumption can

take place. The other is that the prepayment system more actively involves customers in their electricity supplies. These attributes of prepayment meters have important implications for electricity residential customers

A study in Ghana by Dzamboe (2009), indicated that there used to be payment options available to customers with a standard credit meter other than simply paying bills in arrears. Although the amount of the prepayments under these options smooths the customer's payments, it is not directly linked to the electricity consumption. These payment options did not provide the same immediate link between electricity consumption decisions and the resulting frequency and amount of prepayment. Prepayment meters also changed the relationship that existed between customers and electricity retailers, with customers assuming greater responsibility for managing their own electricity.

Casarin and Nicollier, (2008) conducted a survey among local electricity users and found an improvement in welfare through use of prepaid meters. In addition, the study establishes extra advantages of the prepaid system which include; reduction of arrears in accounts receivables, operational and financial costs on the part of the service provider and better allocation of resources for the user. Estache, *et al.* (2000) conclude that a disadvantage of the prepaid system is that it would increase administrative collection costs accuracy which would lead to higher tariffs and reduce the profit margins.

Shaw, (2011) asserts that the new prepayment meters reduce corruption within ranks thus are more accurate therefore allowing consumers to depend solely on the method thus trust the electricity companies. Since customers will pay their bills upfront, the era of collecting bribe to connect defaulting customers is gradually ending. This new energy meters have capability of automatically disconnecting consumers once they run out of energy credit. Bell, (2004) argues that the prepayment meter is more accuracy to the consumer because it enhances more control. Energy consumers can hence control their energy consumption. If they find themselves using more energy, they can decide on what to cutout in order to reduce their energy consumption.

Tewari and Shah (2003) believe that prepaid system results in mixed financial fortunes to energy provider and consumers. For instance, prepayment systems may result in a decrease in metering, billing and disconnection and reconnection costs to energy provider. This is brought on by the fact that payment is made prior to consumption, which implies a significant accuracy in revenue collection and a reduction in working capital. From the consumer's perspective, prepayment systems may result in a better understanding of how much energy is being consumed, inducing more control of energy use and budget management.

Liao and Cheung (2002) empirically identify convenience as a significant quality attribute in the perceived usefulness of prepaid metering, which positively influences consumers' willingness to use prepaid metering. Wan, Luk and Chow (2005) confirm that convenience has a significant impact on customers' adoption of prepaid metering in Hong Kong. Lee et al. (2005) find that consumers perceive convenience to be an important determinant of intention to adopt prepaid metering services. Likewise, Yu and Lo (2007) discover that perceived convenience significantly influences consumers' actual behavior to prepaid metering.

### **Critique of Literature Reviewed and Gaps**

The concept of prepaid system is relatively new in Kenya. From the foregoing discussion, several studies have been carried out in reference to prepaid billing. However, little has been done in Kenya showing the effects of such a system on financial performance as shown in the review of local literature. Evidently, while majority of global and local literature have concentrated on the qualitative aspects of prepayment, such as opinion and perceptions of the prepaid users and acceptability of the prepaid system, quantitative aspects of prepaid billing system have not been adequately explored. To the best of our knowledge no such work has been done on the effect of prepaid billing on financial performance. (Ontomwa, 2014) This study therefore seeks to assess the effect prepaid billing has had on revenue collection costs which influence financial performance at Kenya Power and disclose any link that may exist between these parameters.

## **RESEARCH METHOD**

### **The Study**

The study used cross sectional study because most of the data was observational and all the measurements for a sample were obtained at a single point in time. The target population consisted of Kenya Power Company Coast Branches of Ukunda, Voi, Kilifi and Mombasa. The study collected data from annual report, financial report and other relevant documents on a monthly basis from January 2013 to December, 2015. Thus, the observations were 4 branches multiplied by 36 months (3 years) giving 144 observations. The study used census approach to collect data from annual report, financial report and other relevant documents on a monthly basis from January 2013 to December, 2015. The study used monthly data obtained from Kenya Power Coastal branch records on various indicators which include collection costs (proxied as either fuel, printing and disconnection costs); collection period (proxied as average collection period); bad debts; billing accuracy (proxied as number of bill related complains) and



performance/profitability (ROA). Sampling technique were not used since the census technique were used to get information from all the branches in Coast region.

### The data

The data collection instrument to be used in this study was content/document analysis guide. The study was conducted using secondary sources which was achieved by analyzing the content of financial reports. Data collected was analyzed quantitatively through an Ordinary Least Squares Method (OLS). Descriptive statistics such as mean, median, maximum, minimum, and standard deviation will be provided. The study uses E-views version 5 software for data analysis.

### Analytical Model

The study was modeled along an ordinary least squares regression method where a linear relationship was established between the dependent variable and independent variables. The general model takes the following format;

$$Y = \alpha_0 + \beta X + \varepsilon \dots \dots \dots 1$$

Where,

$Y$  represents the financial performance of Kenya Power Coast region branch as the dependent variable

$\alpha_0$  – represents a constant in the model

$\beta$  – represents a co-efficient

$X$  – represents the independent variables postulated to affect profitability

$\varepsilon$  – is an error term

In view of the above the model estimated is stated as follows;

$$y_{it} = \beta_{0it} + \beta_1 CC_{it} + \beta_2 BA_{it} + \rho_{it} \dots \dots \dots 2$$

Where,

$P$  – Financial performance in terms of profitability for Kenya Power Coast branch

$CC$  – Collection Cost

$BA$  – Billing accuracy measured in terms of Number of bills complaints per month

$\rho$  is error term

$i$  represent the branch

$t$  is the measure of time

## Measurement of Variables

The table below shows the variables, their symbols, and how they are measured.

Table 1: Operationalization and Measurement of Variables

Variable	Symbol	Measurement
<b>Financial performance (Profitability)</b>	FP	Monthly Net profit margin measures how much a company earns (usually after taxes) relative to its sales. A company with a higher profit margin than its competitor is usually more efficient, flexible and able to take on new opportunities. Return on equity (ROE) measures how well the business is doing in relation to the investment made by its shareholders. It tells the shareholders how much the company is earning for each of their invested shillings.
<b>Average collection Cost</b>		
Disconnection costs	DC	Monthly disconnection costs incurred by the company in shillings
Fuel costs	FC	Monthly fuel costs incurred by the Company's field staff in shillings
Printing costs	PC	Monthly printing costs incurred by the company in shillings
<b>Billing accuracy (Number of complaints)</b>	NC	Number of bill related complaints per month

## FINDINGS AND DISCUSSIONS

The study descriptive statistics are presented below. The study investigated the collection cost of using prepaid meters for the year 2013 to 2015 on monthly basis as shown in table 2.

Table 2. Descriptive Statistics

Variable	Mean	Median	Maximum	Minimum	Std. Deviation	Obs
Collection Costs	104,141.60	99,748.80	164,989.30	48,529	36,544.01	36
Billing Accuracy	797	801	1,342	501	199	36
Profit	46,859,889	41,132,115	80,332,266	17,803,339	18,566,232	36

From the table 2, the average collection cost incurred per month by Kenya Power Coast Branch were Kshs. 104,141.60 with the highest amount spent being Kshs. 164,989.30 and the lowest amount being Kshs. 48,529. These costs have impact on profitability of the company. It is argued that the prepaid meters have the tendency of decreasing consumer well-being from a net increase in financial costs associated with electricity consumption due to their level of credibility. Prepayment meter customers incur interest costs because they are required to pay

for electricity before it is consumed rather than in arrears as for customers with standard credit meters and because they are not be able to accumulate bad debts on their electricity charges. Prepayment meter customers are likely to incur additional costs associated with more frequent disconnections from their electricity supply (Luciana, 2009). Billing accuracy was measured in terms of Number of Bill Complaints. The number of bill complaints averaged 797 per month with the least being 501 and the most complaints being 1,341. These complaints relate to wrong meter readings thus the customer is given wrong billing or the meter readers fails to go and read the meters thus doing wrong estimations by either over or under billing the customer. This makes customers unsatisfied with the services provided and thus may look for an alternative thus the company loses the revenue.

Shaw, (2011) asserts that the new prepayment meters reduce corruption within ranks thus are more reliable therefore allowing consumers to depend solely on the method thus trust the electricity companies. Since customers will pay their bills upfront, the era of collecting bribe to connect defaulting customers is gradually ending. This new energy meters have capability of automatically disconnecting consumers once they run out of energy credit. Allen, (2009) argues that there is an increase in reliability and customer trust with the deployment of these new prepayment meters. Since metering and billing are automated, customers will be given a fair bill. This will also make energy consumers more eager to pay their bills. One reason that some Consumers give for not paying their electric bills is that the billing is not fair. They complain that electricity companies supply very little power only to bring huge estimated bills at month end. An Electronic electrical energy prepayment meter will only bill consumers for actual electric power consumed. This is fair enough for most energy consumers. The mean profit recorded by the branch was close to Kshs. 47 million with a minimum of Kshs. 17.8 million and a maximum of Kshs. 80.3 million. The higher the profits, the better for the company and shareholders.

### Correlation Matrix

The table below presents the level of association between the variables and gives us an intuition about the direction of relationships.

Table 3. Correlation Matrix

	firm performance	Collection cost	Billing Accuracy
firm performance	1		
Collection cost	-0.634**	1	
Billing Accuracy	0.416*	0.406*	1

\*\*Correlation is significant at the 0.01 level (2-Tailed).

\*Correlation is significant at the 0.05 level (2 – Tailed)

From table 3 above, there exists a strong but negative relationship between the average collection period and profitability of the company. This implies that an increase in the number of collection days affects revenue collected and eventually profitability due to the delay in receipt. On the other hand, fuel costs and printing costs record a positive association with profitability.

### Regression Results (hypothesis testing)

Table 4 reports the results from a linear regression model. From the results and in line with the study objectives the following can be deduced.

Table 4. Regression Results

.R-sq: Within	= 0.0597	Number of obs	= 144			
Between	= 0.6963	Number of groups	= 11			
Overall	= 0.6978	Obs per group: min	= 10			
		Avg	= 10.8			
		max	= 11			
		Wald $\chi^2$ (4)	= 16.72			
Corr (u_i, Xb)	= 0 (assumed)	Prob > $\chi^2$	= 0.0022			
<b>FP</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>Z</b>	<b>P&gt;t</b>	<b>[95% Conf.</b>	<b>Interval]</b>
Collection cost	-0.36213	-4.09989	-2.49	0.013	-0.2001	-0.02375
Billing Accuracy	0.1568	2.23493	0.15	0.001	-0.09596	0.082368
_cons	3.119931	0.952561	3.28	0.001	1.252945	4.986917
sigma_u	0.8363642					
sigma_e	1.0639305					
Rho	0.38193993 (fraction of variance due to u_i)					

### Effects of Collection costs on financial performance of Kenya Power

The study represented collection costs as fuel, printing and disconnection costs. The study findings indicate that collection costs have a positive and significant influence on profitability of Kenya Power at the Coast region. Intuitively increased expenditure on fuel used in motor cycles and motor vehicles for field purposes is expected to increase profitability of the company. This finding was interesting and contrary to expectation since installation of pre-paid meters had been anticipated to reduce expenditure on fuel costs by field employees. The finding may however be an indicator to the fact that the whole of the coast region has not been fully connected to prepaid electricity meters hence the services of the field employees are still relevant. In addition, the time frame considered captured the initial stage of project implementation hence constant monitoring by the field officers was required. Constant power outages which are exogenous to the project implementation may also provide an explanation to this relationship. The findings agrees Manyo et al (2013) who found that the collection period

had a negative relationship with the profitability which was measured by the return on assets. Similarly findings coincided with Asif Iqbal & Wang Zhuquan (2015) that collection cost emanating from prepaid meters reduces the profitability of firm.

While installation of pre-paid meters was premised on reducing the bill printing costs, this relationship points to the fact that the Coast region is not widely covered by the pre-paid electricity meters. As a result more installations need to be undertaken going forward to not only reduce these costs on the company side but also increase coverage, efficiency and reliability in service provision and ultimate profitability. This finding intuitively points to the fact that increased disconnection costs reduce profitability and essentially performance of the company and vice versa. This finding is consistent to Moki, (2012); Casarin and Nicollier, (2008); and Chartwell, (2003).

### **Effects of billing accuracy on financial performance of Kenya Power**

The study proxied billing accuracy by the number of bill related complaints. The study findings indicate that bill accuracy had a positive and significant relationship with profitability of the company. As a result, decreased complaints related to pre-paid electricity meter billing affects profitability positively and vice versa. Statistically, installation of pre-paid electricity meters at the coast region has reduced the number of bill related complaints from the study findings. However, complaints arising from the installation of pre-paid electricity meters should be solved in the shortest time possible to mitigate revenue loss to the company. In general this findings are consistent to Moki, (2012); Casarin and Nicollier, (2008); and Chartwell, (2003).

### **CONCLUSIONS**

The study findings establish both positive and negative relationships between profitability of Kenya Power Company and the independent variables of interest. Firstly, there is a strong and significant relationship between profitability of the company and average collection period, bad debts and bill accuracy. This finding indicates that perhaps to grow profitability of the company, the average collection period should reduce tremendously. Disconnection costs should also be reduced to have a desired effect on profitability albeit the results were insignificant. Policy efforts by the company brought about through innovation such as adoption of prepaid meter system of payment aimed at reducing these costs should be upheld and rolled out all over the region and country. The positive relationship between the fuel costs and bill printing costs are however interesting findings contrary to expectation. This finding however may be attributed to the fact that since the adoption of the prepayment meter system is still at its initial stages: the whole coast region has not been fully covered; and the normal systemic challenges arising from

roll-out of a new product are still being experienced hence requiring more field staff attention to address the issues. Additionally, other external challenges that the company suffers such as power outages and vandalism have not been fully addressed hence requiring constant attention from field officers which increases the fuel costs.

## RECOMMENDATIONS

From the findings of the study, the adoption of prepaid metering system seems to be having desired effects despite the project still in its initial stages of implementation. The following recommendations should therefore be considered going forward;

Kenya power still incurs a lot of connection costs (fuel, printing and disconnection) despite having adopted the prepaid metering system at the Coast region. This alludes to the fact that all the consumers of electricity have not been brought aboard the new prepaid new prepaid metering system. This may also point to the fact that there is increased vandalism of the company's equipment resulting to frequent outages which require immediate attention hence increased connection costs. As a result, there is need for Kenya Power to increase the coverage of the prepaid meters at the coast region and if possible across the country in order to increase access to the new metering system. In addition, there is need for the company to carry out more public awareness specifically tailored towards reducing vandalism of its property in order to reduce disconnection costs hence positively impact profitability.

From the study findings there is need to ensure billing accuracy in order to positively influence financial performance of the company. As a result, there is need for Kenya Power to ensure efficiency of the prepaid metering system to reduce customer related complaints emanating from the same. Secondly, customer complaints either related or not to prepaid meters should be solved within the shortest time possible in order to avoid losing revenue from customers who despair. If achieved, fewer complaints against the company will increase customer satisfaction; enhance loyalty and profitability of the company in general. Thirdly, the company should carry out more public awareness about the project to encourage uptake and usage which will reduce complaints and positively influence the company's profitability going forward. This awareness should also be tailored towards discouraging vandalism of the prepaid meters and the company's equipment in general. Finally, Kenya Power should continue pursuing other alternative avenues of getting extra power supply to the grid to guard against frequent power outages that pose more costs to the company and consumers in form of destroyed equipment such as transformers and household appliances. This frequent outages lead to increased customer complaints which may negatively influence profitability going forward.

The study investigated the effects of prepaid electricity billing on the financial performance of Kenya Power – Coastal branch. The limitation to the study is that only Kenya Power, Coast branch data was obtained and used in analyzing and providing a general opinion about the performance of Kenya Power. Going forward, future research may seek to include all other branches and by extension provide a general opinion on the performance of Kenya Power. In addition blending use of both secondary and primary data for analysis may provide a more robust perspective of performance of the company with specific reference to the attributes of interest.

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