UGANDA MANAGEMENT INSTITUTE

ENERGY BILLING SYSTEMS AND CUSTOMER SATISFACTION IN UGANDA:

A CASE STUDY OF THE CONDOMINIUM BUGOLOBI FLATS IN KAMPALA

BY

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12/MBA/7/008

A DISSERTATION SUBMITTED TO THE SCHOOL OF MANAGEMENT SCIENCES

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OFA

MASTER'S DEGREE IN BUSINESS ADMINISTRATIONOF UGANDA

MANAGEMENT INSTITUTE

JANUARY, 2018

DECLARATION

I, Ronald Lutwama**,** declare to the best of my knowledge that this dissertation is my original work and where works of other scholars was used, it has been duly acknowledged. I also declare that this dissertation has never been submitted to any other institution for any academic award before.

Sign……………………….

Date…………………..

APPROVAL

This is to certify that this study was conducted under my supervision and the dissertation has been submitted for award with my approval as the candidate's supervisor

Signed: ……………………   Date: ……………………..……..

Dr. Maria Kaguhangire-Barifaijo

UMI Supervisor

Signed…..

Dr. Edgar Mwesigye   Date…………………………………….

UMI Supervisor

DEDICATION

This dissertation is dedicated to my loving parents, Mr Sam Kiwanuka and Mrs Grace Buyinza Kiwanuka who have been the pillars and source of encouragement in all my endeavours.To the MBA 7 class especially the anti-smokers group including Angel Mugabi, Olivia Aguma, Brenda Nambatya and Musa Semanda. I also dedicate this book to the group of Ugandans living in the diaspora especially the good friends like Ms. Nakyobe Suzan,-Emma and Eng. Henry Mpuuga.

In a special way, I dedicate the book to my beautiful and loving mother, Betty who has always been around for me.

Lastly but not least, my fiancée Nina Musika for her resolve to maintain our relationship throughout this bumpy road with me.

ACKNOWLEDGEMENT

A number of people and institutions have in various ways contributed and supported the completion of this work. It is my pleasant task to use this space and thank all those without whose assistance, completion of the study may not have been possible.

Firstly, I praise God the most Gracious and most Merciful, for what he has done for me.

From the bottom of my heart, I wish to acknowledge the contribution of my supervisors, Dr.Maria Kaguhangire Barifaijo (PhD) and Dr. Edgar Mwesigwa (PhD) for their conceptual and analytical guidance, commitment and parental readiness to assist as well as professionally listening to me during the course of this study May the almighty God bless them abundantly.

I further acknowledge with gratitude the contributions and co-operation made by Mr. James Kaconco, UMEME Staff and the Residents of the condominium of Bugolobi flats in Kampala, Uganda who took their time to complete the questionnaires and participate in the interviews. Without their cooperation, this study would have been impossible to accomplish.

 I would like to deeply thank all my lecturers at UMI for having guided and equipped me with both theoretical and practical skills. I acknowledge the contribution of my classmates of UMI from whom I enjoyed fruitful discussions on challenging topics.

MAY GOD BLESS THEM.

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LIST OF ACRONYMS

AFIEGO   Africa Institute for Energy Governance.

CDU   Credit Dispensing Units

ED   Electricity Dispensers

ERA   Electricity Regulation Authority

NHCC   National Housing Construction Company

SMU   System Master Stations

UEB   Uganda Electricity Board

UETCL   Uganda Electricity Transmission Company Limited.

UNBS   Uganda National Bureau of Standards

ABSTRACT

The study sought to establish the influence of energy billing systems on customer satisfaction in Uganda taking a case of the condominium Bugolobi flats in Kampala, Uganda. Specifically, the study investigated how post-paid and pre-paid billing systems affect customer satisfaction in the condominium Bugolobi flats. The study used questionnaires and interview guides to collect data from 201 respondentsWhereas qualitative data was analyzed using content analysis, the quantitative data was analyzed used inferential statistics . The findings revealed that the overall level of stakeholder involvement was low since the results indicated that there was no identification of key stakeholders, patterns and contexts of interaction between stakeholders, assessment of stakeholders' power and potential roles and interests, needs and expectations in both the prepaid and postpaid billing systems. From the findings, the critical challenges affecting stakeholder involvement were lack of integrated strategies and cross-cutting measures, involvement of key stakeholders' valuable knowledge and integrative point of view of the stakeholders which affected data collection. Among the proposed strategies to mitigate the challengers were; stakeholder development, effective communication, benchmarking from other entities that have attained a high level of stakeholder involvement, proper stakeholder planning during the stakeholder involvement process, effective leadership to promote collective decision making, formulation and implementation of policies and procedures that govern stakeholder involvement and information sharing among all stakeholders.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study investigated how energy billing systems influences customer satisfaction in Uganda, taking a case study of the 30 condominium of Bugolobi flats in Kampala. In this study energy billing system was conceived as the independent variable while consumer satisfaction the dependent variable.. This chapter thus presents the background of study, problem statement, purpose of the study, objectives of the study, the research questions and hypotheses. The chapter also presents the conceptual framework, justification, scope of study and operational definitions.

1.2 Background of the study

The background to the study is presented under four perspectives including; historical, theoretical, conceptual, and contextual background.

1.2.1 Historical Background.

Globally, energy companies have overtime evolved several billing systems in order to attain customer satisfaction. Eskom (2014) contends that before 1988 in South Africa, all energy customers were billed using postpaid meters. Eskom (2014) cited that it was not until 1988 that Eskom developed a concept which had an intension of supplying electricity directly to the large number of households that could not access electricity at that moment in time. The hindrances intended to be overcome using this concept included potential customers resided in areas with no infrastructure, no fixed address for the customers, illiteracy by many energy consumers for as

they did not understand the tariffs they consumed. Eskom (2014) cited that the Eskom personnel had many customers to support; with a system that operated with minimal supervision in terms of management and maintenance as opposed to postpaid metering.

Eskom (2014) cites that in order to mitigate the unforeseen shortcomings, Eskom started the development of the basic prepaid billing system that is now in use. Eskom (2014) states that the system constituted of: Prepaid meters, Vending Machines where the customer can purchase electricity credit and Data Concentrators that regulated and co the vender machines and collected the transaction data from the CDU Since 1906 in Zambia, electricity was supplied using postpaid metering until 1992 and 2003 when the electricity tariffs were increased from 0.05% to 3% which was an increment of 60% (Chisanga, 2006). The increment was justified by refurbishing and quality improvement by ZESCO (main distributor of electricity in Zambia). Because of this increment most energy consumers (residential, commercial, industrial and government institutions) couldn't meet their financial obligation as earlier done. With increase in outstanding debts incurred by ZESCO from the energy consumers, a power cut and disconnection program was put into play to resolve this problem. The problem of the huge debt couldn't be solved with such techniques that led to the introduction of prepayment metering to be introduced in 2012 with a basis of reducing the amount owed by ZESCO to the energy consumers as well as improve the revenue base for the corporation.

According to (Orkoh, 2011) in Ghana over the years, postpaid metering for energy consumers faced challenges such as wrong meter reading, ineffective revenue collection, ineffective auditing of consumption and energy use. The identified solution was to identify technologies and regulatory options that make energy consumers have easy access for payment of electricity and

minimize the challenges of postpaid metering hence the introduction of prepaid billing system (metering).A pilot of the prepaid metering in Ghana was done between 1994 and 1995 by the Electricity Company of Ghana. Due to its success, Electricity Company of Ghana announced that all credit meters in Ghana could be replaced with prepaid meter by 2005. Orkoh (2011) observes that the use of prepaid metering has indeed improved the electricity utility service to energy consumers for the better.

In the context of Uganda, UMEME (2010) observed that postpaid metering has been the system used in electricity since 1954 until 2010 that prepaid metering (*YAKA*) was introduced and implemented. *YAKA* empowered customers to prevent unexpected bills, control their debt and energy consumption, reduce inconvenience costs that come with reconnection after disconnection and reduce power thefts and related deaths which are an outcome of the use of postpaid metering. Despite these intentions of prepaid metering by UMEME in Uganda, energy customers have mixed reactions since YAKA metering was introduced such as varying power tariffs and forceful installation of prepaid meters which is the reason this research was carried out.

1.2.2 Theoretical Background

The theories that guided this study were derived from Expectancy-Disconfirmation Paradigm (EDP) and Kurt Lewin Change theories (1940). The Expectancy- Disconfirmation Paradigm is appropriate for the assessment of customer satisfaction after drawing on the shortcomings of the contrast theory and the dissonance theory (Oliver, 1977; 1980). The assumption for EDP was that satisfaction resulted from disconfirmation of predictive expectations from consumer's purchase of goods and services with expectations about performance before it is purchased.

Meaning that if the outcome is as per the customer expectation than confirmation occurs otherwise disconfirmation would occur. EDP was used to investigate customer satisfaction (confirmation and disconfirmation) and identify the areas in which UMEME in Uganda could make the prepaid metering satisfactory to the energy consumers.

Kurt Lewin change theory (1940) is a change model used to fathom implementation of a change management process without much resistance. It comprises of; unfreeze, transition and freeze. At the unfreeze step there is need to dismantle the current mind set and minimize forces that are attempting to maintain the existing condition. The possible problem at this stage is people to admit the need for change and discover new solutions. The next step is the transition step where there is development of new manners and principles which is achieved through organizational structure, evolution in management and developing approaches. In this step (transition), some confusion is experienced from the movement of doing things in the old way to the new ways being adapted. Finally the freeze step is placed to crystalize and adapt the new ways as stated. The assumptions for Kurt Lewin change theory are promoting effective communications throughout the process, legitimizing people to adopt change and the change development ends when the organization is returned to a balance (refreeze), which is important to ensure confidence from which to embark on the next, unavoidable change. Kurt Lewin change theory would be suitable in this study for it would explain the best practice for the smooth transition from postpaid metering to prepaid metering billing system and also tackle issues that arise after implementation of the prepaid metering for energy consumers.

1.2.3 Conceptual Background

The main concepts in the study were energy billing systems and customer satisfaction. Billing refers to the process of preparing or sending invoices for a good or service consumed by a customer. Billing systems therefore describes systems used to process or send out invoices for good and services consumed by a customer As stated earlier energy billing systems consist of postpaid billing and prepaid billing. UMEME (2010) viewed the term prepaid as anything being paid for before use and one doesn't need to pay at the time when there is need unless the limit of purchase is reached. Thus, prepaid metering as cited by UMEME (2010) is described as a system in which a customer can only use energy or services following prior payment. In addition, UMEME (2010) viewed the term postpaid as a system of payment after consumption of a service or good. Thus with regard to postpaid (metering) billing, UMEME (2010) described it as a system where consumers use the service or good (electricity) after consumption.

Beard, R. (2014) defined customer satisfaction as a term in marketing used to measure how products or services supplied by a company meet or surpass a customer's expectations. Giese and Cote (2002) defined customer satisfaction to consist of three components including; a response, response directed to a specific focus and specific time the response occurs. In this study, customer satisfaction was measured using quality of service, service responsiveness and price

1.2.4 Contextual Background

UMEME (2010) elaborated that the implementation of pre-payment metering was intended to achieve business operational efficiencies and customer service improvement by eliminating post-paid metering operational costs associated with processes no longer required, eliminating billing-

related problems and complaints and facilitating customers to control their consumption. But mostly responding to the calls of various UMEME energy consumers who had requested for prepayment implementation. More evidence is shown to support this in UMEME (2009). Pre-payment metering business solution pilot project: UMEME.

According to New Vision (2014), there were many indicators of dissatisfaction amongst prepaid consumers. These included majority of Ugandans living in Kampala converted to prepaid metering with or without signing the electricity transfer forms from postpaid metering to prepaid metering less confident in the billing of prepaid (YAKA) meters because of no assurance from Electricity Regulation Authority (ERA) and Uganda National Bureau of Standards (UNBS) that the meters are tested and very accurate. Some indicators of customer satisfaction stated include customers feel of value for money for they can account for the units bought, less interruption with UMEME meter reading staff to attain the units consumed before the energy bill is generated for the energy customer and reminders to energy customers using prepaid (YAKA) meters by beeping sound for low power units left.

1.3 Problem statement

In Uganda, prepaid (YAKA) metering was introduced by UMEME to solve problems like tampering with postpaid metering system by unscrupulous clients, lower running costs (associated with staffing and distribution of energy) and inaccurate estimated bills from the postpaid meters. Indeed there some evidence in Uganda to this effect (UMEME (2009).Prepaid (YAKA) metering has solved the problem of meter tampering by unscrupulous clients, inaccurate estimated bills, frequent visits by UMEME metering personnel's and power consumption management by energy consumers.

Despite the stated intentions and commitment to the pre-paid billing system by UMEME, as to whether customer satisfaction has happened is still a subject of debate. The topic still draws mixed reactions from energy consumers using prepaid (*YAKA*) metering concerning the relative satisfaction in regard to service responsiveness, quality of service and the cost of power. Relatedly, *YAK*A meters were given to energy consumers without being tested or certified by UNBS, to ascertain their functionality and appropriateness. This research was therefore, conducted to investigate the effect of energy billing systems on customer satisfaction in Uganda

1.4 Purpose of the study

The aim of this study was to investigate how energy billing systems influences customer satisfaction in Uganda using a case study of the condominium of Bugolobi flats in Kampala, Uganda.

1.5 Objectives of the study

The study was guided by the following specific objectives:

i.   To establish the influence of prepaid billing system on customer satisfaction in the condominium Bugolobi flats, Kampala

ii. To assess the influence of postpaid (metering) billing system on customer satisfaction in the condominium Bugolobi flats, Kampala.

1.6 Research Questions

The following research questions were used to guide the study;

    i.   How does prepaid billing system influence customer satisfaction in the condominium Bugolobi flats Kampala?

    ii.   How does postpaid (metering) billing system influence customer satisfaction in the condominium Bugolobi flats, Kampala?

1.7 Hypotheses of the Study

The following hypotheses were tested during the study-

    i.   Prepaid billing system has a significant influence on customer satisfaction in Uganda.

    ii.   Postpaid billing system significantly influence customer satisfaction in Uganda.

1.8 Conceptual Framework

This study aimed at investigating how customer satisfaction was affected by the energy billing systems in Uganda. The conceptual framework explained the effect of the energy billing systems (post and prepaid metering) on customer satisfaction.

The conceptual model shows the relationship of the energy billing systems and customer satisfaction as illustrated in figure 1.1 below.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
Energy billing Systems	**Customer satisfaction**
-Postpaid billing system -Prepaid billing system	- Price, quality, Service responsiveness price)
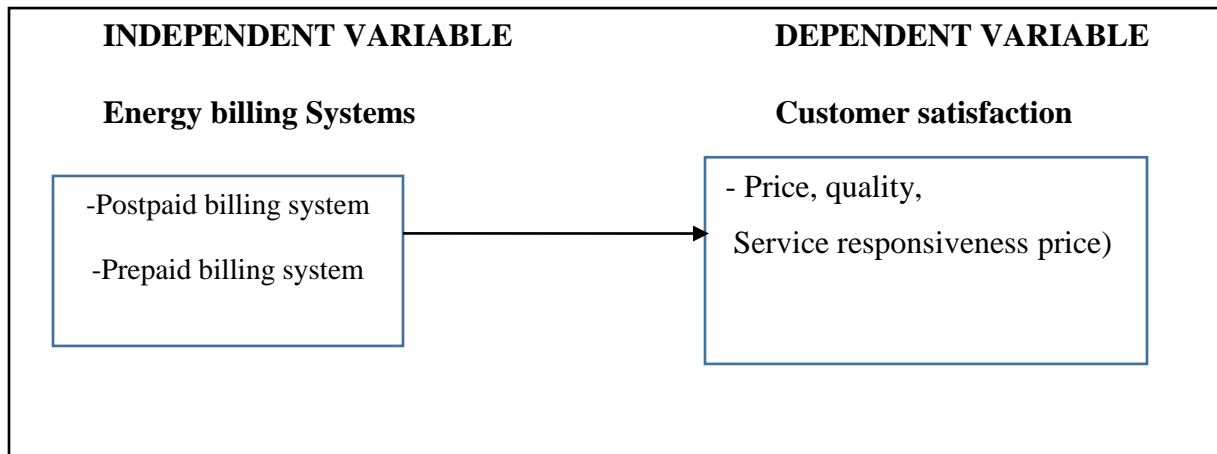
Figure 1. 1: A conceptual framework to understand the relationship of energy billing systems and customer satisfaction.

Source: Adopted and modified from Kioko (2013) and Eskom (2014)

The relationship of the conceptual framework is a many to many (in terms of dimensions) that is to say postpaid metering energy billing system will be looked at whether they meet the customer satisfaction through fulfilling the customer expectations in regards to quality, service and price. As regards to the postpaid metering billing system on the conceptual framework, the researcher will relate customer satisfaction in terms of meeting customer expectations in regards to quality, service and price.

1.9 Significance of the study

The study attempted to highlight the effects of energy billing systems (postpaid and prepaid (YAKA) billing systems (metering)) on energy customer satisfaction. Drawing from lessons learnt from the condominium Bugolobi flats in Bugolobi, Kampala, Uganda. The study would

provide general insight on the influence of prepaid (YAKA) metering as well as postpaid metering on customer satisfaction. Given that the prepaid (YAKA) metering was a relatively new innovation and has limited literature, the study was motivated and customised to fill this gap in the literature alongside provide findings from this study that could add another dimension to the understanding of energy billing systems in academics and energy resource management spheres as regards to energy consumer behavior.

1.10 Justification of the study

Prior studies have been done on energy billing systems and customer satisfaction years ago around the world and more so in Africa. However, the studies on energy billing systems and customer satisfactions have not used a case study of the condominium Bugolobi flats National Housing and Construction Company (NHCC) Bugolobi flats in Kampala, Uganda. Furthermore, the prevailing studies done in this area frequently examined other scope of customer satisfaction other than customer expectations, perceived quality and perceived value in regards to price and response time).The whole idea behind the choice of this study was to investigate how customer satisfaction was affected by energy billing systems while using the condominium Bugolobi flats in Kampala, Uganda. The end result of this study was to undoubtedly contribute to the field of customer satisfaction; improvements in the energy billing systems, social marketing and also further knowledge to other key utility areas like water, cooking gas and fuel supply through stations in Uganda.

1.11 Scope of the study

1.11.1 Content Scope

This study limited itself to examine the effects of energy billing systems and customer satisfaction. Energy billing systems in this study would be measured in terms of postpaid metering and prepaid metering whilst customer satisfaction would be determined by responses from energy consumers and their expectation of the various billing systems.

1.11.2 Geographical Scope

The study was a case study of the condominium Bugolobi flats Bugolobi, Kampala, Uganda which was the pilot project for prepaid metering (YAKA) by UMEME Limited in Uganda.

1.11.3 Time Scope

UMEME (2010) highlighted the implementation of prepaid (YAKA) metering in 2010 to replace postpaid metering which was originally used in the condominium Bugolobi flats because of its proximity to the city center and sample size for the pilot project. It's because of this that this study focused on the time from 2010- 2015.

1.12 Operational Definitions

Prepaid metering according to Eskom Limited (the founders of the prepaid metering); is a terminology used to mean that energy consumer pay for the energy they intend to consume in advance before that time and once the energy units purchased are used up, the consumer is automatically disconnected. The stated definition for prepaid metering is adhered to in this dissertation.

Postpaid metering according to Eskom Limited; is a term used to mean when an energy consumer **is** immediately provided with electric power and the energy consumed by the consumer is paid for only when the periodic energy bill is provided to the energy consumer.

Energy is power got from the use of physical or chemical resources with an intention to work, heat and light equipment.

UMEME is the largest limited company that distributes electricity in Uganda, distributing 97 percent of all electricity in the country.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The study investigated the influence of energy billing systems on customer satisfaction in Uganda, using a case study of the condominium of Bugolobi flats, Kampala. This chapter presents the theoretical review, the conceptual review and a review of the objectives of the study. The chapter has reviewed a selection of existing literature as presented in journals, textbooks, magazine, the World Wide Web and articles related to energy billing systems (postpaid and prepaid(YAKA) metering) and customer satisfaction. In particular, the chapter presents the theoretical review, related review according to the study objectives and a summary of literature review

2.2 Theoretical review

The theoretical framework for this study was developed from Expectancy-Disconfirmation Paradigm (EDP) and Lewin's Change Management Theories. According to Oliver (1977), the EDP theory assumed that consumers had prior expectations and performances to the goods and services about to be purchased. The level of expectation becomes a standard against which the product is assessed. When the good or service has been used, the results are compared against expectations. When the results are in line with the expectation, confirmation occurs otherwise disconfirmation occurs. Discrepancy theory with regard to consumer satisfaction literature has been appreciated in application of customer satisfaction in the field of job satisfaction Locke (1965).

Despite its successful use in research areas like evaluating satisfaction of products and services such as restaurant services, automobiles, record players among others, it has had some shortcoming when it comes to customers that do not have expectations prior to use and purchase of the product or service.

Kurt Lewin's Theory of Change Management involves three steps which include Unfreezing (unfreeze), Changing (earlier used transition), and Refreezing (freeze). This theory aims at optimizing the acceptance in change management. Kurt Lewin's theory is to energy customers who are provided with electricity by UMEME Limited which is a sole distributor of electricity in Uganda. All UMEME employees especially customer relations and public communications team are transformers, ensure commitment to organizational values (customer focus and service improvement) and communication instruments of the prepaid billing system to customers in the unfreezing step of Kurt Lewin's theory. A successful result in change implementation can be attain by applying dynamic stability. The aim of the unfreezing stage was to prepare customers for change that is due. Miyogo, et al (2013) cites that gradual increment of change results into less resistance though if there should be resistance it would be due to old values and approaches challenged. During the refreezing stage, communication is needed to provide the rational for this change to be carried out. In the end, there is need to freeze the customers' frame of mind. The research proceeded and applied these theories as a basis to this study on postpaid metering and prepaid (YAKA) metering by condominium Bugolobi flats energy consumers in Bugolobi, Kampala, Uganda.

2.3 Conceptual Review

2.3.1 Prepaid Metering and Customer Satisfaction

Jain (2011) found out that prepaid metering facilitates power utilities to collect revenue before energy consumers use the electricity which lowers wrong meter reading and billing, turnover loss due to electricity power theft and inefficiency electricity bills on time. Khan (2010) and O'Connor (2001) elaborate that the use of prepaid metering results into increased revenue, considerable savings and overall profitability. Prepaid metering requires energy consumers to pay for electricity before it can be consumed. Tewari (2003) and Baptista (2013) concur that prepaid model benefits both the energy consumers and utility producers. Further Tewari (2003) findings reveal that prepaid model of metering made consumer monitoring and energy budgeting, this is achieved by energy consumers reducing unnecessary and wasteful use of electricity.

According to NEA (2004), in United Kingdom approximately 85% use postpaid billing systems for energy. A further study of British householders showed that 80% of electricity customers preferred prepayment tariffs though they knew that this method of payment was more expensive than payment in arrears Price (2001). This attitude has changed over time to appreciate the prepaid billing systems to postpaid billing systems in United kingdom.

In Uganda, UMEME aimed to achieve customer service improvements through improving the quality of supply and service delivery in its 23 districts of operation. Prepaid Metering was specifically seen as a way to improve service delivery and optimise operational costs among the domestic clients since it had been a success in various countries it had been implemented such as Rwanda.

In 2010, UMEME after discussions with its area managers implemented a pilot in Kitintale district (UMEME district division) for approximately 10,000 current household customers situated in an area with dense clusters of middle income settlements which included the condominium Bugolobi Flats that has 872 apartments in total. The aim of the proposed pilot project was to assess the reality of the business solution, its impact on the operations and improvement in UMEME's Customer Service, within the household customers. In addition, assessment of prepayment metering option for the household energy consumers of Uganda which had benefited positively other African countries in terms of increased revenue collected, reduction of operational costs, reduction in potential fraud, increased security in terms of management of prepaid metering and respond to various UMEME stakeholders that had requested for prepayment metering as a solution from UMEME to domestic energy consumers.

2.3.2 Postpaid Metering and Customer Satisfaction.

Mburu (2012) elaborated that postpaid payments of utility bills in Africa had been the norms over the years. Additionally, the revenue collected by utility companies depends on trust between the utility company and the energy consumers. It was because of this preceding payment against the energy services provided that many energy consumers found it suitable for their usage until disconnection by the utility company when payment was overdue.

Chisanga (2006) elaborated that in Zambia originally the postpaid metering billing was what was used for energy consumers. It was observed that due to the adjustment of the power tariffs, energy consumers tremendously defaulted energy payments. To curb the cumulative bad debts from the energy tariffs adjustments massive power cuts became rampant thereby leading to writing –off of these energy debts. In order to recover the bad debts from energy consumers,

prepayment metering was introduced in 2002 with a programmed plan to automatically recover the debts from energy consumers that enticed consumers to pay.

Daily Monitor (2014) elaborated that in Uganda from inception of electricity, Electricity consumed by energy consumers had been metered using postpaid metering. In the early 1900's, postpaid metering did not have issued raised but as technology advanced, energy consumers became unhappy with postpaid metering due to estimated billing, inconvenience by frequent visits by UMEME meter reading staff and many other shortcomings. It is because of such short comings that UMEME decided like other energy distributors in the world to implement prepaid metering in Uganda.

2.4 Summary of the Literature Review

Although prepaid (YAKA)) metering was implemented in Uganda, prepaid (YAKA) customers have from time to time got issues with the different energy tariffs got from the purchases made from various service points such as mobile money, vendor machines at supermarkets and also from the UMEME offices themselves. In addition, customers have complained about the uncertified Yaka meters installed without being tested by the Uganda National Bureau of Standards (UNBS) hence resentment of their billing system. Furthermore prepaid (YAKA) customers have sued UMEME for its unauthorised intimidation of post-paid customers to switch to prepaid meters forcefully which isn't within its jurisdiction. These are the least of complaints from the prepaid (YAKA) customers in Bugolobi flats for which the researcher sought to identify all the possible complaints and sight possible solutions for customer satisfaction to be achieved in Uganda.

Following this chapter is chapter three that involved the methodology that was to use for the study. These include population and sampling, data collection procedure, research instruments, research design, data analysis and the contextualization of the indicators.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The study investigated the influence of energy billing systems on customer satisfaction in Uganda, using a case study of the condominium of Bugolobi flats, Kampala. This chapter consists of the research design, area of study, population of study, sample size and selection procedures. The chapter also presents the data collection procedures and instruments, validity and reliability of instruments, procedures for data analysis and measurements of variables.

3.2 Research Design

This study used a case study in order to enable an in-depth investigation of billing systems and customer satisfaction. This type of research design was selected as ideal for this research because it would attain realistic responses and also being that NHCC Bugolobi flats was the pilot area for prepaid (YAKA) metering in Uganda. The case study design adopted qualitative and quantitative approaches during sampling, data collection, quality control and analysis. During data collection, qualitative design involving administering open ended interview questions to NHCC chairmen and UMEME customer care center manager whilst quantitative design were involved when administering closed ended questionnaire questions to respondents in NHCC Bugolobi flats.

3.3 Study Population

The study was carried out among the 872 households living in NHCC Bugolobi flats, Kampala, Uganda and are currently using prepaid *YAKA* electricity meters. The justification for the use of

this population was that NHCC Bugolobi flats were the first pilot for *YAKA* implementation to be done in Uganda according to UMEME (2010).

3.4 Determination of Sample Size

A sample size was 270 determined using statistical tables of Morgan and Krejcie (1970) cited from Amin (2005). The sampling techniques are presented in the table below.

Table 1: Sample Size of respondents and Sampling Techniques

Category of Population	Access Population	Sample Size	Sampling Technique
NHCC Bugolobi flats prepaid (YAKA) consumers	872	261	Simple Random Sampling
NHCC Bugolobi flats Chairmen	30	8	Simple Random Sampling
UMEME Customer Call Centre Manager	1	1	Purposive Sampling
Total	903	270	

Source of population: Local Council of NHCC Bugolobi flats and UMEME Limited

3.5 Sampling Techniques and procedure

The study used probabilistic and non-probabilistic sampling techniques.

The sampling methods used for this study were both probabilistic (simple random sampling) and non-probabilistic (purposive) sampling methods. For probabilistic sampling procedures, simple random sampling technique was used. The technique selected the use of prepaid customers and the flat chairpersons. The technique was intended to avoid bias by providing an equal and independent chance of selection to all YAKA consumers in Bugolobi flats (Mugenda & Mugenda, 2003).

On the other hand, purposive sampling technique was employed to select the NHCC Bugolobi flat Chairmen and the UMEME customer care centre manager. The technique enabled the researcher to use his judgement and handpick these respondents due to their perceived knowledge and experience that was deemed relevant for the study.

3.6 Data Methods

3.6.1 Questionnaires

Questionaires allowed the collection of primary quantified data from a large number of respondents from NHCC Bugolobi flats prepaid (YAKA) consumers. The researcher prepared a set of questions pertaining to the field of enquiry which included a number of structured and closed ended in order to generate both quantitative and qualitative data. Questionnaires were used because of them being easy to administer to the respondents and a short period of time used. A questionnaire also allowed respondents to feel free to give information and respond to the questions at their own time sometimes without the influence of the researcher)

3.6.2 Interviews

The technique relied on in person interviews with the respondents in a bid to generate detailed and first-hand information. This involved the researcher personally interacting with the selected respondents with a set of pre-determined questions that they were required respond to on a one by one basis. Interviews were used to collect data from 8 NHCC Bugolobi flat chairmen respondents and UMEME customer care center manager with in depth information about the study at hand. It involved the use of a semi-structured interview guide deemed appropriate since

the mentioned categories of staff had vital information yet no time to fill in questionnaires (Sekaran, 2003).

3.7 Data Collection Instrument

3.7.1 Questionnaires

Questionnaires were collected data from 194 NHCC Bugolobi flats prepaid (YAKA) respondents. It was used because the respondents filled them in at their own convenience and it proved to be an invaluable method of collecting information from a large number of individuals especially when it came to people like NHCC Bugolobi flats prepaid (YAKA) respondents Sekaran (2003). The questionnaire was designed with open and closed ended questions. The questions were designed based on a five item Likert scale namely (5) for strongly agree, (4) for agree, (3) for not sure while (2) was for disagree and (1) for strongly disagree.

3.7.2 Interview Guide

The researcher prepared and used a semi-structured interview guide to conduct interviews with 8 NHCC Bugolobi flats chairmen and the UMEME customer care center manager. Interviews were used because they provided in-depth information about a research issue as cited by Mugenda and Mugenda (2003).. The interviews were done at places of convenience for the interviewee was at ease and would not be disrupted for example the UMEME customer care center manager designated morning time in her busy work schedule were there was less interruptions from the UMEME customer care staff which turned out to be idea for the interview to be carried out. For the 8 NHCC Bugolobi flats chairmen, interviews were done in the convenience of their homes in NHCC Bugolobi flats which were easily accessible by the researcher.

3.8 Quality control

3.8.1 Validity

Validity of the questionnaires was reassured with the use of Content Validity Index (C.V.I). The cronbach Alpha method of internal consistency was used to compute the reliability of the measures of the variables in the study Kothari (1990).

Table 2: Content Validity Indices for the Questionnaire

Variable	Description	Number of Items	Content validity index
Independent	Postpaid metering	11	0.833
	Prepaid (YAKA) metering	10	0.784
Dependent	Customer expectations	10	0.755
	Perceived quality	10	0.856
	Perceived value	10	0.785

Source: Primary data

As recommended by Amin (2005), for the instrument to be valid, the C.V.I should be at least 0.7

3.8.2 Reliability

After pilot testing in the field, reliability of the instrument on multi-item variables (i.e postpaid metering and prepaid (YAKA) metering) was tested using Statistical Package for the Social Scientists (SPSS) by the use of Cronbach's Alpha Reliability Coefficient. This method was used because it was expected that some items or questions could have various answers. Reliability of the questionnaires was computed using the alpha coefficient of the items (questions) that constitutes the dependent variable and that of the items that constitute the independent variable.

Table 3: Reliability indices for the respective sections of the questionnaire

Variable	Description	Number of Items	Cronbach alpha
Independent	Postpaid metering	11	.788
	Prepaid (YAKA) metering	10	.761
Dependent	Customer expectations	10	.0743
	Perceived quality	10	0.765
	Perceived value	10	0.833

Sekaran (2003) cites that a requirement of a reliability of 0.70 or higher (obtained on a substantial sample) before an instrument is used. Since the results that were 0.7 and above then reliability was attained.

3.9 Procedure of Data Collection

After successfully defending the research proposal, the researcher obtained an introduction letter from the School of Management Sciences introducing him to NHCC Bugolobi flat Chairmen for the selected blocks and UMEME Limited, specifying that the data collected was solely for study purposes. Upon obtaining the requisite permission from the NHCC Bugolobi flats chairmen and UMEME Limited, the research proceeded with data collection by giving out questionnaires to the 261 NHCC Bugolobi prepaid (YAKA) consumers accessed. After finishing with obtaining the questionnaires distributed to the NHCC Bugolobi flats respondents, interviews were conducted with 8 NHCC Bugolobi flat chairmen in the comfort of their homes and the UMEME customer care center manager at the UMEME office.

3.10 Data Analysis

Data was analyzed qualitatively and quantitatively.

3.10.1 Quantitative data analysis

Quantitative data analysis involved the use of inferential statistics and descriptive in the Statistical Package for Social Scientists (SPSS). Descriptive statistics entailed determination of measures of central tendency such as mean, mode, median; measures of dispersion such as range, variance, standard deviation; frequency distributions; and percentages. Data was processed by editing, coding, entering, and then presented in comprehensive tables showing the responses of each category of variables. Inferential statistics included correlation analysis using a correlation coefficient and regression analysis using a regression coefficient in order to answer the research questions. According to Sekaran (2003), a correlation study is most appropriate to conduct the study in the natural environment of an organization with minimum interference by the researcher and no manipulation. A correlation coefficient was computed because the study entailed determining correlations or describing the association between two variables (Oso & Onen, 2008).

3.10.2 Qualitative data analysis

Qualitative data analysis involved both thematic and content analysis to express how the findings related to the research questions. Content analysis was used to develop codes that represented what the data was all about. Thematic analysis was used to organize data into themes and codes identified Sekaran (2003). When data was collected, information of same category was clustered and their similarity with the quantitative data created, after which a report was written.

Qualitative data was interpreted by composing explanations or descriptions from the information. The qualitative data was illustrated and substantiated by quotation or descriptions.

3.11 Measurements of Variables (quantitative studies)

Mugenda and Mugenda (2003) supports the use of nominal, ordinal, and Likert type rating scales during questionnaire design and measurement of variables. The ordinal scale was employed to measure such variables as age, level of education, years of experience, among others. The nominal scale was used to measure such variables as gender, marital status, and terms of employment, among others. The five point Likert type scale (1- strongly disagree, 2-disagree, 3-not sure, 4- agree and 5-Strongly agree) will be used to measure the independent variable (energy billing systems) and the dependent variable (customer satisfaction). The choice of this scale of measurement was that each point on the scale carries a numerical score which was used to measure the respondent's attitude and it is the most frequently used summated scale in the study of social attitude. According to Mugenda & Mugenda (2003) and Amin (2005), the Likert scale is able to measure perceptions, attitudes, values and behavior of individuals towards a given phenomenon.

3.12   Ethical considerations

Privacy of the subjects and confidentiality of their information was a dominant ethical challenge to the study. Privacy was ensured by informing the subjects upfront that their names were not required, answering questions was at their discretion and the researcher could not be put under duress according to Mugenda & Mugenda, (2003). With regard to confidentiality, the subjects were informed bluntly that the information provided would solely be used for academic purposes and data obtained on private matters would be treated in confidence as stated by Amin (2005)

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTEPRETATION OF FINDINGS

4.1 Introduction.

The study probed the influence of energy billing systems on customer satisfaction in Uganda, using a case study of the condominium of Bugolobi flats, Kampala. This chapter presented analyses and interpretation of the study findings. The sequence of this section is as follows; response rate, background information and presentation and analysis of the study findings in relation to specific objectives. The main objective of the study was to investigate energy billing systems and customer satisfaction in Kampala, Uganda.

4.2 Response Rate

The response rate was computed as the number of people who answered the survey divided by the number of people in the sample. The findings are presented in table 4 below as shown in the table below.

Table 4: Response Rate

Data Collection Instrument	Target Response	Actual Response	Response Rate
Questionnaire	261	194	74.3%
Interview Guide	9	7	77.7%
Total	**270**	**201**	**74.4%**

Source: Primary data from the field

Table 4 shows that out of a total of 261 questionnaires that were administered to respondents, only 194 were returned filled implying a response rate of 74.3%. Accordingly, out of a total of 9 key informants that were targeted for interviews, only 7 were actually interviewed giving a

response rate of 77.7%. The overall response rate for the study was 74.4%. This response rate was deemed ggod enough for the study since according to Mugenda and Mugenda (2009), a response rate of 50% is adequate for any study.

4.3 Background information about the sample.

In this section the background information of the respondents that answered the questionnaires are presented. The presentation is based on 194 respondents only that filled the questionnaire. The section presents education level and number of years used the prepaid billing system by the respondents.

4.3.1 Highest Education Level.

Respondents were requested to indicate their highest education level to evaluate their ability to understand the difference between the two billing systems and how these systems affect customer satisfaction. The findings are presented in the table 5 below.

Table 5: Distribution of respondents by level of education

Highest Education Level	Frequency	Percent
Certificate	16	8.0
Diploma	22	10.9
Bachelors' degree	123	61.2
Post graduate Studies(PHD, Masters and diplomas)	40	19.9
Total	**201**	**100.0**

Source: Primary data from the field

Table 5 shows that the majority of the respondents, 123(61.2%) had Bachelor's degree level of education, followed by 40 (19.9%) with Post graduate studies, while 16(8.0%) had Certificate level of education and 22(10.9%) had Diploma level of education. This suggested that all the

respondents had sufficient education to respond objectively answer the questions raised regarding the two billings systems and how they affect customer satisfaction.

4.3.2 Number of years used prepaid billing system.

The researcher sought to know the number of years the respondents had used prepaid billing system. This was necessitated because the prepaid billing system unlike the postpaid billing was fairly new to users, there was need to establish the period the consumers had used it so as to judge whether it was sufficient for users to make informed responses. The findings were presented in the table 6 below.

Table 6: Number of Years Used Prepaid Billing System

Years Used Prepaid Billing System	Frequency	Percent
Less than 1 year	64	31.8
<2 years	72	35.8
< 3 years	31	15.4
4 years and above	34	16.9
Total	**201**	**100.0**

Source: Primary data from the field

Table 6 shows that 72(35.8 %) of respondents had used the prepaid billing system for less than 2 years, while 64(31.8%) has used it for less than 1 year, 34(16.9 %) had used it for 4 years and above and 31(15.4 %) had used it for less than 3 years. This implied that 68.2% of the respondents had used the prepaid billing system for 1 year and above which was a sufficient period to appreciate its pros and cons.

4.4 Empirical findings;

This section presents the empirical findings of the study according to the objectives. The empirical findings of this study are presented using descriptive statistics of frequencies to describe and summarize the data, inferential statistics of Pearson's correlation coefficients to establish degree and direction of relationship between the independent and dependent variables, and using linear regression analysis to test the hypotheses in relation to specific objectives.

4.4.1 Findings on prepaid billing system;

The first objective of the study was to examine the influence of prepaid billing system on customer satisfaction in Bugolobi flats, Kampal. Respondents were required to indicate there level of agreement or disagreement to a number of statements. The responses were measured on a five point Likert scale ranging from (5= Strongly Agreed, 4= Agree, 3= Not Sure, 2= Disagree, 1= Strongly Disagree). The findings are presented in Table 4.5 below.

Table 7: Service dimensions of the prepaid billing system

Statements measuring the service dimension of the prepaid billing system	SA	A	NS	D	SD
An energy consumer is able to see the data of the energy consumed on the in-home display at any particular point in time	54.6%	22.7%	9.3%	6.2%	7.2%
An energy consumer is able to access detailed historic data about power consumed	9.3%	22.7%	30.9%	12.4%	24.7%
An energy consumer receives energy historic data that is accurate	16.0%	22.2%	32.5%	15.5%	13.9%
An energy consumer able to make payment for energy units anytime (day and night)	53.6%	24.7%	9.3%	6.2%	6.2%
An energy consumer visibly sees a significant impact on the number of visits by UMEME meter readers and the billing system in use	14.4%	13.4%	13.9%	25.3%	33.0%
UMEME personnel quickly respond to energy faults reported as far as the billing system is concerned	11.3%	19.6%	26.8%	22.7%	19.6%
The waiting time (time of being billed or the energy consumed and the time to be reconnected) with regard to the billing systems is reasonable	36.1%	23.7%	20.6%	13.4%	6.2%
Energy consumer think that the sensitization programs created by UMEME have empowered the energy use knowledge about the billing system	18.6%	41.2%	18.6%	12.4%	9.3%
An energy consumer gets operations and maintenance notifications (Sms, email alerts or whataspp messages) about the billing system in use	19.6%	26.8%	9.3%	16.5%	27.8%
Average percentage from the statements measuring the service dimension of the prepaid billing system	**25.90%**	**24.10%**	**19.00%**	**14.50%**	**16.50%**

Source: Primary data from the field

Key: SA – Strongly Agree, A – Agree, NS – Not Sure, D – Disagree, SD – Strongly Disagree

Table 7 shows the findings from the nine statements used to measure the service dimension of the prepaid billing system.

Asked if an energy consumer was able to see the data of the energy consumed on the in-home display meter at any particular point in time, the majority 77.3% agreed, while 13.4% disagreed and only 9.3% were not sure. This suggested that the majority of the consumers were knowledgeable about how the prepaid meters work and were enjoying the convenience of knowing their energy consumption from the in-home display meter.

On whether an energy consumer was able to access detailed historic data about power consumed, 32.0% agreed, while 37.1% disagreed and 30.9% were not sure. And on whether energy an energy consumer receives energy historic data that is accurate, 38.2% agreed, while 29.4% disagreed and 32.5% were not sure. The approximated numbers that agreed, disagreed and not sure was an indication that there was need to continue sensitizing the users on how to use the prepaid metering system for different purposes and functions.

On the issue of whether an energy consumer was able to make payment for energy units anytime, 78.3% agreed, while 12.4% disagreed and only 9.3% were not sure. This suggested that payment for energy units could easily be done by consumers since there were several ways through which this could be done including mobile money for all the telecommunication companies in the Country.

Asked if as an energy consumer visibly saw a significant impact on the number of visits by made UMEME meter readers, 27.8% agreed, while the majority, 58.3% disagreed and 13.9% not sure.

This suggested that most respondents disagreed and some not sure showed that less attention had been paid to the UMEME meter readers that visit Bugolobi flats during working hours.

On the issue of whether UMEME personnel quickly responded to energy faults reported as far as the billing system was concerned, 30.9% agreed, while 42.3% disagreed and 26.8% not sure. And on the waiting time with regard to the billing systems was reasonable, 59.8% agreed, while 19.6% disagreed and 20.6% not sure. This suggested that the customers using the prepaid billing spend less time on transactions using prepaid billing system as compared to the postpaid billing system and also there was room for improvement for UMEME Limited to better its fault rectification process to energy customers.

Asked if the sensitization programs created by UMEME had empowered the energy consumer with knowledge about the billing system, 59.8% agreed, while 21.7% disagreed and 18.6% not sure. And on whether energy consumers got operations and maintenance notifications about the billing system in use, 46.4% agreed, while 44.3% disagreed and only 9.3% not sure. This suggested that although the sensitization programs had empowered the energy use knowledge, still more had to be done to reach out all the consumers using or intended to use the prepaid billing system. As regards to energy consumers attaining operation and maintenance notifications, a bigger part of energy consumers in the country needed to be addressed with more convenient and accessible means of obtaining important information from UMEME.

Table 8: Quality dimensions of the prepaid billing system

Statements measuring quality dimension of the prepaid billing system	SA	A	NS	D	SD
An energy consumer thinks the installed energy meters at your premise have tamper proof features	24.7%	20.6%	32.0%	7.2%	15.5%
An energy consumer noticed a quality check (QC) sign on the energy meter installed at you premise	19.6%	17.5%	37.1%	9.3%	16.5%
An energy consumer experiences power fluctuations (dim, bright or normal light) with the installed energy meter	15.5%	16.5%	32.0%	14.4%	21.6%
An energy consumer's response to the installation and maintenance of the billing system in their premise.	26.8%	38.7%	14.9%	10.3%	9.3%
Average percentage from the Statements measuring quality dimension of the prepaid billing system	**21.7%**	**23.3%**	**29.0%**	**10.3%**	**15.7%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 8 shows the findings from the four statements used to measure the quality dimension of the prepaid billing system

Asked whether the installed energy meters at the consumers' premises had tamper proof features, 45.3% agreed, while 22.7% disagreed and 32.0% not sure. And on whether consumers noticed a quality check (QC) sign on the energy meter installed at their premises, 37.1% agreed, while 25.8% disagreed and 37.1% not sure. This was an indication that most consumers were satisfied with the standards of the prepaid metering system as far as installation and maintenance and also tampering of the prepaid metering though there was room for improvement by UMEME Limited.

On whether consumers experienced power fluctuations with the installed energy meter, 32.0% agreed, while 36.0% disagreed and 32.0% not sure. The approximated numbers that agreed, disagreed and not sure was an indication that the prepaid billing system did not have any influence on power fluctuations.

And on whether the installation and maintenance of the billing system in the premises was good, 65.5% agreed, while 19.6% disagreed and 14.9% not sure. This suggested that the consumers were comfortable with the prepaid billing system installation and maintenance routines by UMEME Limited though there was room to improve on it.

Table 9: Price dimension of the prepaid billing system

Statements measuring price dimension of the prepaid billing system	SA	A	NS	D	SD
The energy consumer enjoys flexibility in making payment for energy consumed (use of mobile money, pay way machines, UMEME outlets, etc)	66.5%	22.7%	2.6%	2.1%	6.2%
An energy consumer response to the value for money per unit of energy purchased being satisfactory	17.5%	21.6%	17.5%	23.7%	19.6%
An energy consumer is aware of the debt recovery method (small deductions done on the old pending bill to zero arrears) by the billing system	20.6%	22.7%	23.7%	15.5%	17.5%
Energy signals (showing off and on peak hours) can be utilized to regulate your costs if available.	39.2%	22.7%	20.6%	12.4%	5.2%
Average percentage from Statements measuring price dimension of the prepaid billing system	**36.0%**	**22.4%**	**16.10%**	**13.4%**	**12.10%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 9 shows the findings from the four statements used to measure the price dimension of the prepaid billing system.

Asked if energy consumers enjoyed flexibility in terms of making payment for energy consumed, 89.2% agreed, while only 8.3% disagreed and 0nly 2.6% not sure. And on whether energy consumers felt that the value for money per unit of energy purchased was satisfactory, 39.1% agreed, while 43.3% disagreed and 17.5% not sure. This was an indication that the consumers enjoyed the flexibility of making payments for energy consumed although they don't feel that the value for money per unit of energy purchased was satisfactory because most consumers had not grasped how the computation for energy consumption was done on the new prepaid billing system.

On whether energy consumers were aware of the debt recovery method by the billing system, 43.3% agreed, while 33.0% disagreed and 23.7% not sure. And on the issue of whether energy consumers could utilize energy signals to regulate their energy costs if available, 61.9% agreed, while 17.6% disagreed and 20.6% not sure. This was a further indication that UMEME needed to continue with the sensitization programs to enable all her consumers to learn about the way requirements for shifting the prepaid billing system and how to effectively utilize energy signals once the prepaid billing system are installed at their premises.

4.4.2 Findings on Customer Satisfaction on Prepaid Billing System;

Customer satisfaction on prepaid billing system was measured on the questionnaire using three dimensions namely service, quality and price. Respondents were required to indicate there level of agreement or disagreement to the questions on the questionnaire. The quantitative findings are presented dimension by dimension for the one hundred ninety four respondents.

Table 10: Service dimensions of customer satisfaction on prepaid billing system

Statements Measuring Service Dimension of Customer Satisfaction on prepaid billing system	SA	A	NS	D	SD
An energy consumer response to the waiting time (time from when power is cut off to the time power is reconnected) by UMEME	21.6%	33.0%	7.3%	16.5%	21.6%
An energy consumer response to consumer inquiries raised to UMEME are satisfactorily attended to	9.3%	26.8%	20.6%	25.8%	17.5%
An energy consumer response to confidence that the UMEME personnel are knowledgeable about the billing systems	16.5%	35.1%	24.7%	13.4%	10.3%
An energy consumer response to satisfaction with regard to the updates got from the billing systems	12.4%	34.0%	17.5%	20.6%	15.5%
Energy consumers response to feedback given to them by UMEME personnel when complaints are raised	13.4%	27.8%	17.5%	23.7%	17.6%
Average percentage from statements measuring Service Dimension of Customer Satisfaction on prepaid billing system	14.64%	31.34%	17.52%	20.00%	16.50%

Source: Primary data from the field

Key: SA – Strongly Agree, A – Agree, NS – Not Sure, D – Disagree, SD – Strongly Disagree

Table 10 shows the findings from the five statements used to measure the service dimension for customer satisfaction of the prepaid billing system

Asked whether energy consumers were satisfied with the waiting time (time from when power is cut off to the time power is reconnected) by UMEME, 54.6% agreed, while 38.1% disagreed and

only 7.2% not sure. This suggested that the majority of the customers were satisfied with the waiting time and this was mainly because UMEME had a deliberate effort to reduce on the waiting time by activating toll free numbers and having staff on standby to attend to customers' complaints. In addition, more accessible methods should be invented and put to use to improve on the waiting time by energy consumers in Uganda.

On whether energy consumers felt that consumer inquiries raised to UMEME were satisfactorily attended to, 36.1% agreed, while 43.3% disagreed and 20.6% not sure. The mixed reactions were an indication that UMEME Limited was not responding in a satisfactory manner to customer inquiries and thus affected customer satisfaction negatively.

On the issue of whether energy consumers felt confident that the UMEME personnel are knowledgeable about the billing systems, 51.6% agreed, while 23.7% disagreed and 24.7% not sure. This was an indication that consumers were confident with the UMEME personnel working on the prepaid billing system but there was an indication in the room for improvement as regards to this area.

Regarding the issues of whether energy consumers were satisfied with the updates got from the billing systems, 46.4% agreed, while 36.1% disagreed and 17.5% not sure. The mixed reactions suggested that the updates got from the billings systems were not reliable, consistent or accurate and this in turn negatively affected customer satisfaction.

And on whether energy consumers were satisfied with the feedback given to them by UMEME personnel when complaints are raised, 41.2% agreed, while 36.5% disagreed and 17.5% not sure. The mixed reactions further suggested that the feedback given to customers by UMEME

personnel when complaints are raised were not satisfactory and negatively affected customer satisfaction.

Table 11: Quality dimension of Customer satisfaction on Prepaid billing System

Quality Dimension of Customer Satisfaction on Prepaid Billing System	SA	A	NS	D	SD
An energy consumer has seen a certified quality (QC) sign on the billing meters	14.4%	17.5%	36.1%	15.5%	16.5%
An energy consumer is satisfied with the installation and maintenance of the billing system at your premise	19.6%	40.2%	13.4%	19.6%	7.2%
An energy consumer experiences power fluctuations in regards to the billing system in use	25.8%	20.6%	30.9%	14.4%	8.2%
Average percentage from Quality Dimension of Customer Satisfaction on Prepaid Billing System	**19.93%**	**26.10%**	**26.80%**	**16.53%**	**10.63%**

Source: Primary data from the field

Key: SA – Strongly Agree, A – Agree, NS – Not Sure, D – Disagree, SD – Strongly Disagree

Table 11 shows the findings from the three statements used to measure the quality dimension for customer satisfaction of the prepaid billing system.

Asked whether energy consumers had seen a certified quality (QC) Sign, 31.9% agreed, while 32.0% disagreed and 36.1% not sure. The mixed reactions were indication that the certified quality (QC) sign supposed to be visible on the billing meters was either not available or visible on all the in-home meters.

On the issue of whether energy consumers were satisfied with the installation and maintenance of the billing system at their premises, 59.8% agreed, while 26.8% disagreed and 13.4% not sure. This indicated that much as most energy consumers were satisfied with the installation and maintenance of the billing systems at their premises, there was room for improvement for the unsatisfied energy consumers to be satisfied.

On whether energy consumers experienced any power fluctuations as in regards to the billing system in use, 46.4% agreed, while 22.6% disagreed and 30.9% not sure. This indicated that the experience on power fluctuations in regard to the billing system had most energy consumers disagree with it as opposed to agreeing to it.

Table 12: Price dimension of customer satisfaction on Prepaid Billing system

Price Dimension of Customer Satisfaction on Prepaid Billing System	SA	A	NS	D	SD
An energy consumer response to the value per unit charged to you by the billing system.	14.4%	19.6%	11.3%	19.6%	35.1%
An energy consumer response to flexibility of the units to purchase with the billing system.	27.8%	30.9%	16.5%	7.3%	17.5%
An energy consumer awareness of subsidized rate on the first few units purchased at the beginning of every month for the billing system in use at your premise	18.6%	27.8%	29.9%	12.4%	11.3%
Average percentage using Price Dimension of Customer Satisfaction on Prepaid Billing System	**20.3%**	**26.1%**	**19.2%**	**13.1%**	**21.3%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 12 shows the findings from the three statements used to measure the price dimension for customer satisfaction of the prepaid billing system.

Asked whether energy consumers were satisfied with the value per unit charged to them by the billing system, 34.0% agreed, while 54.7% disagreed and 11.3% not sure. This suggested that the most of the consumers were not satisfied with the prepaid billing system and thus there was room for improvement as regards to the value per unit charged to energy consumers.

On the issue of whether energy consumers felt satisfied with flexibility of the units purchased with the billing system, 58.7% agreed, while 24.8% disagreed and 16.5% not sure. This indicated that much as a good number of energy consumers were satisfied with the flexibility of the units purchased with the prepaid billing system, there was room to improve on the flexibility so as all energy consumers are satisfied.

On whether energy consumers were aware of subsidized rate on the first few units purchased at the beginning of every month for the billing system in use at their premises, 46.4% agreed, while 23.7% disagreed and 29.9% not sure. Although subsidizing the first few units purchased at the beginning of every month is a UMEME policy, there were mixed reactions when it was put before the customers. This was an indication that customers have not received sufficient information regarding the prepaid billing system.

4.5 The influence of prepaid billing system on consumer satisfaction;

The researcher proceeded to statistically establish whether prepaid billing system had significant influence on consumer satisfaction. This was guided by the following hypothesis:

Hypothesis*: Prepaid billing system had influence on consumer satisfaction in National Housing and Construction Company.

The hypothesis was preliminarily tested at a 95% level of significance (two-tailed) using Pearson's product-moment correlation coefficient, which measured the degree and direction of relationship between prepaid billing system and consumer satisfaction.

The results are presented in the table 13 below.

Table 13: Correlation Matrix for prepaid system and consumer satisfaction

Study Variables		Prepaid Billing System	Customer Satisfaction
Prepaid Billing System	Pearson Correlation	1	.522[*]
	Sig. (2-tailed)		.000
	N	194	194
Customer Satisfaction	Pearson Correlation	.522[*]	1
	Sig. (2-tailed)	.000	
	N	194	194

*. Correlation is significant at the 0.05 level (2-tailed).
Source: Generated from primary data using SPSS

Table 13 shows that there was a moderate positive relationship between Prepaid Billing System and Customer Satisfaction, (r=0.522 p=0.000 N=194). The relationship was statistically significant at 95% confidence level since p-value (Sig.) is less 0.050(=0.000). This implied that improvements in the Prepaid Billing System would lead to improvements in Customer Satisfaction.

Regression analysis was used to establish the extent to which Prepaid Billing System influences Customer Satisfaction. The coefficient of determination (R Square) was used and the results are presented in the table 14 below.

Table 14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.522ª	.272	.268	.56521

a. Predictors: (Constant), Prepaid Billing System

Source: Generated from primary data using SPSS

Table 14 shows that the coefficient of determination (Adjusted R Square) is 0.268. This implied that Prepaid Billing System accounted for 26.8% of the variance in Customer Satisfaction. Basing on the 26.8% (adjusted R Square), there could be other factors outside the studied variable on Prepaid Billing System had a contribution to Customer Satisfaction.

To assess the overall significance of the model, Analysis of Variance (ANOVA) was done and the results presented in the table 15 below.

Table 15: Analysis of Variables (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.927	1	22.927	71.768	.000ᵇ
	Residual	61.336	192	.319		
	Total	84.263	193			

a. Dependent Variable: Customer Satisfaction

b. Predictors: (Constant), Prepaid Billing System

Source: Generated from primary data using SPSS

In determining whether a model was significant, the decision rule is that the calculated p-value (level of significance) must be less than or equal to 0.05. Since the calculated p-value of 0.000 is less than 0.05, the model was found to be statistically significant (F=71.768, df = 1, $p < 0.05$ (=0.000)). This means that Prepaid Billing System has a significant influence on Customer Satisfaction.

Research findings from correlation analysis established that the Prepaid Billing System has a moderate positive statistically significant relationship with Customer Satisfaction. Findings from regression analysis further affirmed that the Prepaid Billing System had a significant influence on Customer Satisfaction. Therefore the hypothesis that stated that Prepaid Billing System has a significant influence on Customer Satisfaction was accepted.

4.6 Findings on Postpaid Billing System;

Postpaid billing system was measured on the questionnaire using three dimensions namely service, quality and price. Respondents were required to indicate their level of agreement or disagreement to the questions on the questionnaire. Below are the quantitative findings from the 194 respondents.

Table 16: Service dimension of the postpaid billing system

Statements Measuring Service dimension of the Postpaid Billing System	SA	A	NS	D	SD
An energy consumer is able to see the data of the energy consumed on the in-home display at any particular point in time	8.2%	17.5%	22.7%	22.7%	28.9%
An energy consumer is able to access detailed historic data about power consumed?	13.4%	19.6%	25.8%	24.7%	16.5%
An energy consumer receives energy historic data that is accurate	8.2%	16.5%	36.1%	23.7%	15.5%
An energy consumer is able to make payment for energy units anytime (day and night)	20.6%	13.4%	10.3%	22.7%	33.0%
An energy consumer visibly sees a significant impact on the number of visits by UMEME meter readers and the billing system in use	27.8%	27.9%	10.3%	16.5%	17.5%

An energy consumer's rating of the response rate of UMEME personnel to energy faults reported as far as the billing system is concerned	9.3%	14.4%	29.9%	28.9%	17.5%
An energy consumer's rating of the waiting time (time of being billed or the energy consumed and the time to be reconnected) with regard to the billing systems	11.3%	17.5%	26.8%	30.9%	13.5%
An energy consumer's thought on the sensitization programs created by UMEME to empower knowledge about the billing system	14.4%	28.9%	25.8%	13.4%	17.5%
The energy consumer gets operations and maintenance notifications (Sms, email alerts or whataspp messages) about the billing system in use	9.3%	15.5%	12.3%	25.8%	37.1%
Average percentage from statements measuring Service dimension of the Postpaid Billing System	**13.61%**	**19.02%**	**22.22%**	**23.26%**	**21.89%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 16 shows the findings from the nine statements used to measure the service dimension of the postpaid billing system.

Asked if an energy consumer was able to see the data of the energy consumed on the in-home display at any particular point in time, 25.7% agreed, while 51.6% disagreed and only 22.7% not sure. And on whether an energy consumer was able to access detailed historic data about power consumed, 33.0% agreed, while 41.2% disagreed and 25.8% not sure. This suggested that most of the consumers do not know how to read the postpaid meters, while a few know and some have not even attempted to read the meters, that is why they are not sure.

On whether an energy consumer received energy historic data that was accurate, 24.7% agreed, while 39.2% disagreed and 36.1% not sure. This further suggested that most of the consumers do not know how to read the postpaid meters, while a few know and some have not even attempted to read the meters, that is why they are not sure.

On the issue of whether an energy consumer was able to make payment for energy units anytime, 34.0% agreed, while 55.7% disagreed and 10.3% not sure. This suggested that since most of the consumers disagreed, postpaid payment had been traditionally been done either at the UMEME offices or in the bank, where the hours for service are restricted.

Asked if as an energy consumer visibly saw a significant impact on the number of visits by UMEME meter readers and the billing system in use, 55.6% agreed, while, 34.0% disagreed and 10.3% were not sure. This suggested that a good number of energy consumers were observing the visits done by UMEME meter readers while others were not in position to observe whether there had been a significant impact on the number of visits by the UMEME meter readers.

On the issue of whether UMEME personnel quickly responded to energy faults reported as far as the postpaid billing system is concerned, 23.7% agreed, while 46.4% disagreed and 29.9% not sure. And on the waiting time with regard to the billing systems is reasonable, 28.8% agreed, while 44.3% disagreed and 26.8% not sure. This suggested that the customers using the postpaid billing spent more time on transactions using postpaid billing system as compared to the prepaid billing system. Furthermore most energy consumers were not satisfied with the response to energy faults reported to UMEME hence a need for improvement by UMEME in this area.

Asked if the sensitization programs created by UMEME had empowered the energy use knowledge about the billing system, 43.3% agreed, while 30.9% disagreed and 25.8% not sure. And on whether energy consumers got operations and maintenance notifications about the billing system in use, 24.8% agreed, while 62.9% disagreed and 12.3% not sure. This suggested that the sensitization programs had empowered the energy use knowledge, however there is still more to be done to reach out all the consumers using or intending to use the postpaid billing system.

Table 17: Quality dimension of the postpaid billing system

Statements Measuring Quality dimension of the postpaid billing system	SA	A	NS	D	SD
An energy consumer thought on the installed energy meters at your premise whether have they tamper proof features.	9.3%	13.4%	32.0%	21.6%	23.7%
An energy consumer notices a Quality Check (QC) sign on the energy meter installed at their premise	11.3%	15.3%	45.4%	13.4%	14.4%
An energy consumer experiences power fluctuations (dim, bright or normal light) with the installed energy meter?	16.5%	20.6%	36.1%	14.4%	12.4%
An energy consumer rates the installation and maintenance of the billing system in their premise	12.4%	22.7%	24.7%	21.6%	18.6%
Average percentage of statements measuring Quality dimension of the postpaid billing system	**12.38%**	**18.03%**	**34.55%**	**17.75%**	**17.30%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 17 shows the findings from the four statements used to measure the quality dimension of the postpaid billing system.

Asked whether the installed energy meters at the consumers' premises had tamper proof features, 22.7% agreed, while 45.3% disagreed and 32.0% not sure. And on whether consumers noticed a quality check (QC) sign on the energy meter installed at their premises, 26.6% agreed, while 18.8% disagreed and 45.4% not sure. This indicated that most consumers are not satisfied with the standards or have not taken time to observe the postpaid metering system as far as the tamper proof features and QC is concerned.

On whether consumers experienced power fluctuations with the installed energy meter, 37.1% agreed, while 26.8% disagreed and 36.1% not sure. And on whether the installation and maintenance of the billing system in the premises was good, 35.1% agreed, while 40.2% disagreed and 24.7% not sure. This indicated that most consumers are satisfied with the standards of the post metering system as far as the power units fluctuation. However, they are not satisfied with the installation and maintenance of the billing system.

Table 18: Price dimension of the postpaid billing system

Statements Measuring Price dimension of the postpaid billing system	SA	A	NS	D	SD
An energy consumer response to flexibility in making payment for energy consumed (use of mobile money, pay way machines, UMEME outlets, etc)	22.7%	14.45%	11.3%	23.7%	27.85%
An energy consumer feeling towards the value for money per unit of energy purchased is satisfactory.	7.2%	14.45%	16.5%	34.0%	27.85%
An energy consumer is aware of the debt recovery method (small deductions done on the old pending bill to zero arrears) by the billing system.	11.3%	19.6%	27.8%	22.7%	18.6%

	SA	A	NS	D	SD
An energy consumer would utilize energy signals (showing off and on peak hours) to regulate your energy costs if available.	28.9%	19.55%	23.7%	15.5%	12.35%
Average percentage of statements Measuring Price dimension of the postpaid billing system	**17.53%**	**17.01%**	**19.83%**	**23.98%**	**21.66%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 18 shows the findings from the four statements used to measure the price dimension of the postpaid billing system.

Asked if as energy consumers enjoyed flexibility in making payment for energy consumed, 37.15% agreed, while 51.55% disagreed and 11.3% not sure. And on whether energy consumers felt that the value for money per unit of energy purchased was satisfactory, 21.65% agreed, while 61.85% disagreed and 16.5% not sure. This indicated that the consumers are not enjoying the flexibility of making payments for energy consumed although they do felt that the value for money per unit of energy purchased was satisfactory. This was because most UMEME bills are expected to be paid fully by energy consumers for all the energy consumed at the time they are presented with the energy bills.

On whether energy consumers were aware of the debt recovery method by the billing system, 30.9% agreed, while 41.3% disagreed and 27.8% not sure. On the issue of whether energy consumers would utilize energy signals to regulate their energy costs if available, 48.45% agreed, while 27.85% disagreed and 23.7% not sure. This indicated that UMEME needed to continue with the sensitization programs to enable all her consumers to learn about the debt recovery method and how to utilize energy signals to regulate their energy costs when in place.

4.7 Findings on Customer Satisfaction on Postpaid Billing System;

Customer satisfaction on postpaid billing system was measured on the questionnaire using three dimensions, namely service, quality and price. Respondents were required to indicate their level of agreement or disagreement to the questions on the questionnaire. Below are the quantitative findings from the one hundred ninety four respondents.

Table 19: Service dimension of customer satisfaction on postpaid billing system

Statements Measuring Service Dimension of Customer Satisfaction on Postpaid Billing System	SA	A	NS	D	SD
An energy consumer is satisfied with the waiting time (time from when power is cut off to the time power is reconnected) by UMEME	8.2%	8.25%	16.5%	34.0%	33.05%
An energy consumer feels that consumer inquiries raised to UMEME are satisfactorily attended to.	5.2%	12.35%	17.5%	39.2%	25.75%
An energy consumer feels confident the UMEME personnel are knowledgeable about the billing systems	6.2%	22.7%	28.9%	27.8%	14.40%
An energy consumer is satisfied with the updates got from the billing systems.	8.2%	23.75%	19.6%	34.0%	14.45%
An energy consumer is satisfied with the feedback given to you by UMEME personnel when complaints are raised.	6.2%	15.45%	28.9%	32.0%	17.45%
Average percentage from the statements Measuring Service Dimension of Customer Satisfaction on Postpaid Billing System	**6.80%**	**16.50%**	**22.28%**	**33.40%**	**21.02%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 19 shows the findings from the five statements used to measure the service dimension for customer satisfaction of the postpaid billing system

Asked whether energy consumers are satisfied with the waiting time (time from when power is cut off to the time power is reconnected) by UMEME, 16.45% agreed, while 67.05% disagreed and 16.5% not sure. This suggested that the majority of the customers are not satisfied with the waiting time on the postpaid system and hence there is room for improvement.

On whether energy consumers felt that consumer inquiries raised to UMEME are satisfactorily attended to, 17.55% agreed, while 64.95% disagreed and 17.5% not sure. The majority (64.95%) who were in disagreement was a clear indication that consumer inquiries raised to UMEME are not satisfactorily attended to and this is therefore negatively affecting customer satisfaction.

On the issue of whether as energy consumers they felt confident that the UMEME personnel were knowledgeable about the billing systems, 28.9% agreed, while 42.2% disagreed and 28.9% not sure. The mixed reactions are an indication that consumers viewed UMEME personnel differently depending on how they attended to their needs.

Regarding the issues of whether energy consumers are satisfied with the updates got from the billing systems, 31.95% agreed, while 48.45% disagreed and 19.6% not sure. The mixed reactions suggested that the updates got from the billings systems were either not reliable, consistent or accurate. This negatively affected customer satisfaction.

And on whether energy consumers were satisfied with the feedback given to them by UMEME personnel when complaints were raised, 21.65% agreed, while 49.45% disagreed and 28.9% not sure. The mixed reactions further suggested that the feedback given to customers by UMEME

personnel when complaints are raised is not satisfactory and therefore negatively affected customer satisfaction.

Table 20: Quality dimension of customer satisfaction on postpaid billing system

Statements Measuring Quality Dimension of Customer Satisfaction on Postpaid Billing System	SA	A	NS	D	SD
An energy consumer sees a certified quality (QC) sign on the billing meters?	4.1%	18.6%	37.1%	19.6%	20.6%
An energy consumer is satisfied with the installation and maintenance of the billing system at your premise.	5.2%	34.0%	19.6%	29.9%	11.3%
An energy consumer experiences power fluctuations as far as power fluctuation is concerned in regards to the billing system in use.	15.5%	21.6%	34.0%	16.5%	12.4%
Average percentage from the statements measuring Quality Dimension of Customer Satisfaction on Postpaid Billing System	**8.27%**	**24.73%**	**30.23%**	**22.00%**	**14.77%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 20 shows the findings from the three statements used to measure the quality dimension for customer satisfaction of the postpaid billing system.

Asked whether energy consumers had seen a certified quality (QC) sign on the billing meters, 22.7% agreed, while 40.2% disagreed and 37.1% not sure. The mixed reactions are in indication that the certified quality (QC) sign supposed to be visible on the billing meters was not available or visible on all the in-home meters hence a number of consumers were not comfortable with their billing meters.

On the issue of whether energy consumers were satisfied with the installation and maintenance of the billing system at their premises, 39.2% agreed, while 41.2% disagreed and 19.6% not sure. And on whether energy consumers experienced any power fluctuations as in regards to the billing system in use, 37.1% agreed, while 28.9% disagreed and 34.0% not sure. The mixed reactions on installation, maintenance and power fluctuations indicated that consumers are not satisfied with UMEME service in these aspects.

Table 21: Price dimension of customer satisfaction on postpaid billing system

Price Dimension of Customer Satisfaction on Postpaid Billing System	SA	A	NS	D	SD
An energy consumer is satisfied with the value per unit charged to you by the billing system	7.2%	11.3%	18.6%	33.0%	29.9%
An energy consumer feels satisfied with flexibility of the units to purchase with the billing system.	7.2%	17.5%	20.6%	25.8%	28.9%
An energy consumer is aware of subsidized rate on the first few units purchased at the beginning of every month for the billing system in use at your premise.	10.3%	10.3%	37.1%	28.9%	13.4%
Average percentage from the Price Dimension of Customer Satisfaction on Postpaid Billing System	**8.23%**	**13.03%**	**25.43%**	**29.23%**	**24.07%**

Source: Primary data from the field

Key: SA – Strongly Agree, **A** – Agree, **NS** – Not Sure, **D** – Disagree, **SD** – Strongly Disagree

Table 21 shows the findings from the three statements used to measure the price dimension for customer satisfaction of the prepaid billing system.

Asked whether energy consumers were satisfied with the value per unit charged to them by the billing system, 18.5% agreed, while 62.9% disagreed and 18.6% not sure. This suggested that

the majority (62.9%) of the consumers are not satisfied with the value per unit charged to them by the postpaid billing system.

On the issue of whether energy consumers felt satisfied with flexibility of the units to purchase with the billing system, 24.7% agreed, while 54.7% disagreed and 20.6% were not sure. This suggested that the majority of the consumers are not satisfied with the flexibility of the units to purchase with the postpaid billing system and hence there was room for improvement in that regard.

On whether energy consumers were aware of subsidized rate on the first few units purchased at the beginning of every month for the billing system in use at their premises, 20.6% agreed, while 42.3% disagreed and 37.1% not sure. The mixed reactions to whether consumers were aware of subsidized rate on the first few units purchased at the beginning of every month for the billing system in use at their premises indicated that consumers do not have sufficient information regarding UMEME services provided to them.

4.8 The influence of postpaid billing system on consumer satisfaction;

The researcher proceeded to statistically establish whether postpaid billing system has significant influence on consumer satisfaction. This was guided by the following hypothesis:

Hypothesis*:* Postpaid billing system has influence on consumer satisfaction in National Housing and Construction Company.

The hypothesis was preliminarily tested at a 95% level of significance (two-tailed) using Pearson's product-moment correlation coefficient, which measured the degree and direction of relationship between postpaid billing system and consumer satisfaction.

The results are presented in the table 22 below.

Table 22: Correlation matrix for postpaid billing system and customer satisfaction

Study Variables		Postpaid Billing System	Customer Satisfaction
Postpaid Billing System	Pearson Correlation	1	.614[*]
	Sig. (2-tailed)		.000
	N	194	194
Customer Satisfaction	Pearson Correlation	.614[*]	1
	Sig. (2-tailed)	.000	
	N	194	194

*. Correlation is significant at the 0.05 level (2-tailed).
Source: Generated from primary data using SPSS

Table 22 shows that there was a moderate positive relationship between Postpaid Billing System and Customer Satisfaction, (r=0.614 p=0.000 N=194). The relationship was statistically significant at 95% confidence level since p-value (Sig.) is less 0.050(=0.000). This implied that improvements in the Postpaid Billing System would lead to improvements in Customer Satisfaction.

Regression analysis was used to establish the extent to which Postpaid Billing System influences Customer Satisfaction. The coefficient of determination (R Square) was used and the results are presented in the table below.

Table 23: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.614[a]	.377	.374	.43089

a. Predictors: (Constant), Postpaid Billing System
Source: Generated from primary data using SPSS

Table 23 shows that the coefficient of determination (Adjusted R Square) is 0.374. This implied that Postpaid Billing System accounts for 37.4% of the variance in Customer Satisfaction. There are other factors outside the study variable, Postpaid Billing System that contribute to the greater percentage of Customer Satisfaction.

To assess the overall significance of the model, Analysis of Variance (ANOVA) was done and the results presented in the table below.

Table 24: Analysis of Variables (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	21.559	1	21.559	116.119	.000[b]
1	Residual	35.647	192	.186		
	Total	57.206	193			

a. Dependent Variable: Customer Satisfaction
b. Predictors: (Constant), Postpaid Billing System
Source: Generated from primary data using SPSS

In determining whether a model was significant, the decision rule was that the calculated p-value (level of significance) must be less than or equal to 0.05. Since the calculated p-value of 0.000 is less than 0.05, the model was found to be statistically significant (F=161.119, df = 1, p< 0.05 (=0.000)). This meant that Postpaid Billing System had a significant influence on Customer Satisfaction.

Research findings from correlation analysis established that the Postpaid Billing System has a moderate positive statistically significant relationship with Customer Satisfaction. Findings from regression analysis further affirmed that the Postpaid Billing System has a significant influence on Customer Satisfaction. Therefore the hypothesis that stated that Postpaid Billing System has a significant influence on Customer Satisfaction was accepted.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study investigated the influence of energy billing systems on customer satisfaction in Uganda, using a case study of the condominium of Bugolobi flats, Kampala. This chapter provides a summary of the findings from the study, discusses the results according to the research objectives. The chapter finally draws conclusions and recommendations

5.2 Summary of Findings

The study findings revealed that pre-paid billing system had an influence on customer satisfaction in the condominium Bugolobi flats. The inferential statistics indicated that the prepaid (YAKA) billing system had a positive significant effect of on customer satisfaction in Bugolobi flats. This implies that the service offered by prepaid billing systems was better than that offered by postpaid billing systems

The findings on the second objectives showed no significant effect between post-paid billing system and customer satisfaction in the condominium Bugolobi flats

5.3 Discussion of findings

5.3.1 Prepaid (YAKA) Billing System and Customer Satisfaction

The first hypothesis stated, "Prepaid (YAKA) billing system had influenced customer satisfaction in the condominium Bugolobi flats situated in Bugolobi, Uganda." The inferential statistics indicated that there was a significant effect of prepaid (YAKA) billing system on customer satisfaction. The overall study findings revealed that pre-paid billing system had an

influence on customer satisfaction in the condominium Bugolobi flats. This finding in line with Mburu (2014) who submitted that prepaid billing systems highly influence customer satisfaction. The pricing of the energy units was perceived not to be uniform in both countries from different vendors selling the units at different prices. Botswana Power Corporation (Electricity Power Distribution Company in Botswana) was perceived to sell the energy units at the cheapest rate like UMEME Limited in Uganda's case study of energy billing systems and customer satisfaction in condominium Bugolobi flats in Kampala, Uganda. The other alternatives were perceived more expensive for energy units purchase as compared to the main power distribution companies. 58.4% of the NHCC Bugolobi flats respondents agreed that price in prepaid (YAKA) billing systems was better than postpaid billing system from the research finding done at NHCC Bugolobi flats in Kampala, Uganda. The 41.6% can attracted to agree if the power units bought from the power electricity offices is the same as that bought from various vendors of power units with the same amount.

Quality dimension of customer satisfaction as seen from the use of prepaid (YAKA) billing systems was perceived to be lacking mostly in certifying of the prepaid (YAKA) billing system hence 45% agreed from the research done. This was highlighted when it came to the respondents who filled in the questionnaire from NHCC Bugolobi flats. The suggestion from the NHCC Bugolobi flats respondents was to have the prepaid (YAKA) billing system certified by Uganda National Standards Bureau (UNBS) in Uganda that is responsible to certify quality standards in the country.

Service dimension of customer satisfaction as seen from the use of prepaid (YAKA) billing systems was perceived to be lacking in areas of UMEME staff attending to complaints by energy

consumers, knowledge with regard to the prepaid (YAKA) billing systems and the waiting time when power is cut off to the time power is reconnected by UMEME hence 45.98% agreed from the research done and majority 63.5% disagreed. This finding shows that NHCC Bugolobi flats respondents need UMEME staff to increase on their response rate to complaints, provide more knowledge with regard to the prepaid billing system and reduce on the waiting time when power is cut off to the time power is restored.

5.3.2 Postpaid billing system and customer satisfaction

The second hypothesis stated, "Post-paid billing system had an influence on customer satisfaction in Uganda. The findings established no significant influence between post-paid billing system and customer satisfaction in the condominium Bugolobi flatsThe findings are in agreement with Mburu(2014) who conducted a similar study in Botswana Quality dimension of customer satisfaction as seen from the use of postpaid billing systems was perceived to be lacking mostly in certifying of the prepaid (YAKA) billing system hence 36.77% disagreed with the quality dimension of customer satisfaction from the use of postpaid billing systems from the research done. This was highlighted when it came to the respondents who filled in the questionnaire from NHCC Bugolobi flats. The suggestion from the NHCC Bugolobi flats respondents was to have the postpaid billing system certified by Uganda National Standards Bureau (UNBS) in Uganda that is responsible to certify quality standards in the country.

Service dimension of customer satisfaction as seen from the use of prepaid (YAKA) billing systems was perceived to be lacking in areas of UMEME staff attending to complaints by energy consumers, knowledge with regard to the prepaid (YAKA) billing systems and the waiting time when power is cut off to the time power is reconnected by UMEME hence 23.3% agreed from

the research done and majority 54.42% disagreed. This finding shows that NHCC Bugolobi flats respondents needed UMEME staff to increase on their response rate to complaints, provide more knowledge with regard to the prepaid billing system and reduce on the waiting time when power is cut off to the time power is restored.

Although both Mburu's findings and the findings in this thesis are similar in the respondents having mixed perception of the prepaid billing system, majority of the respondents are grateful towards the prepaid billing system as compared to the postpaid billing system. As regards to quality, Mburu (2014) noted that the quality of prepaid billing systems was not tested in Botswana which was a similar response raised by the respondents in the condominium Bugolobi flats in Kampala, Uganda. The overall quality of prepaid billing systems in both cases (Botswana and Uganda) was better compared to the prepaid billing systems.

Al-Fuqaha (2013) stated the prepaid billing systems though used in water application, was an effective tool for enhancing payment for water services which also improved cost recovery for the utility consumed and thus ensuring financial sustainability of water services institutions in Palestine as was this research done in Uganda on electricity utility.

Finally Al-Fuqaha (2013) research findings indicated that prepaid billing systems promoted the wise decision making as compared to postpaid billing systems in regard to use of the utility which was also shown in this research.

5.4 Conclusions of the Study.

The conclusions are presented according to the study objectives

5.4.1 Prepaid Billing Systems and Customer Satisfaction

Although prepaid billing systems are newer technologies compared to postpaid billing systems that have been in existence since the introduction of utilities (water, electricity and telecommunication billing in Uganda), much appreciation has been shown by the energy consumers with a number of mixed reactions towards prepaid billing systems. The study therefore, concluded that pre-paid energy billing systems have a significant influence on customer satisfaction in Uganda. this implies that service quality, customer royalty and pricing systems tend to improve with prepaid billing systems

5.4.2 Postpaid Billing Systems and Customer Satisfaction

The study established that postpaid energy billing systems have no significant influence on customer satisfaction in Uganda

5.5 Recommendations

5.5.1 Prepaid Billing Systems and Customer Satisfaction

- UMEME should sensitize the Ugandan public about the energy billing systems in place. This could be achieved with door to door sensitization by UMEME staff, use of billboards in different languages and placed around Uganda in strategic places, use of various social media such as Facebook, twitter and whatsapp and providing different toll free numbers that are available all the time to address customer complaints.

- UMEME Limited should have uniform units purchased with the same amount of money from various authorized vendors such as payway, mobile money services, UMEME offices and other vendor machines.

5.5.2 Postpaid Billing Systems and Customer Satisfaction

- Since there was no significant influence of postpaid billing system on customer satisfaction, UMEME should further roll out prepaid billing systems as opposed to post paid billing systems.

5.6 Limitations of the study

The study was successful, though some limitations were encountered.

Time was lost as the researcher offered explanations that the study was purely for academic purposes. Some respondents failed to return the questionnaires issued to them, which was a limitation on the researcher's progress as timelines, had to be revised and in some cases extra costs were incurred in availing extra questionnaires. Some respondents were interested to contribute to the study but there was a communication barrier between them and the researcher.

5.7 Areas for Further Research

Wholesomely the study tried to meet and achieve the set objectives as shown in the write-up, however, in the process the researcher has observed certain areas that require further researcher. These include:

- The study was limited to two variables; energy billing systems and customer satisfaction. There is therefore a need for further study to take into consideration of considering more than one variable that may be affecting customer satisfaction in the condominium Bugolobi Flats in Kampala, Uganda because it may not only be energy billing systems but also others.

- The study was also limited to energy billing systems. There is a need for future research to look at other possible areas where billing systems can be employed such as water, telecommunication and gas systems.

- This study was limited to the condominium Bugolobi Flats in Kampala, Uganda. This makes the study limited to the condominium Bugolobi Flats in Kampala, Uganda and not in other areas in Uganda. There is a need also for a further study to be replicated in other areas in Uganda to ascertain the similarity and differences in the findings.

- The study can be broadened by looking at the impact of the energy billing systems on the revenue collected by UMEME Limited in Uganda. This will help to generate findings specific to revenue collections and assess which energy billing system would be best to put in place to ascertain the most revenue by UMEME Limited.

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APPENDICES

Appendix I:Questionnaire

Instructions

Dear Respondent,

The researcher is a student of Master of Business Administration (MBA) UMI, Kampala, Uganda. He is undertaking a research to generate data and information on "Energy Billing Systems and Customer Satisfaction in Kampala, Uganda: A Case Study of National Housing and Construction Company (NHCC) Bugolobi flats in Kampala, Uganda". You have been selected to participate in this study because the contribution you make is central to the kind of information required. The information you provide is solely for academic purposes and will be treated with utmost confidentiality. Kindly spare some of your valuable time to answer these questions by giving your views where necessary or ticking one of the alternatives given. Thank you for your time and cooperation

A: General Information (Demographic)

Please tick the appropriate answer

Title of respondent	Mr.	Mrs.	Miss	
Marital status	Married	Single	Widow/Widower	Divorced
Number of people at Home	0-3	4-6	7-10	10 +
Number of rooms in the house	1	2-3	4-5	6 +
Age (years)	0-25	26 - 50	51-75	75 - +
How many years have you used prepaid (YAKA)	0	1-2	2-3	4+

meters				
What is your highest level of education?	Bachelor's degree	Post graduate degree	Doctrate	Others
Is your house status?	Rented	Self-owned		
Sharing of the house by occupants?	Shared	Not shared		

SECTION B: INDEPENDENT VARIABLE: Energy Billing Systems

In this section please tick in the box that corresponds to your opinion/view according to a scale of 1 = strongly Disagree, 2 = disagree, 3 = Not Sure, 4 = Agree, 5 = strongly Agree

Sub-section (A) Service

Prepaid (YAKA) metering						Postpaid metering				
1. Is the consumer able to see real-time energy consumption data on the in-home display?	5	4	3	2	1	1	2	3	4	5
2. Is the consumer able to access detailed historic data about power consumption?										
3. Is the information										

accurate?										
4.Is payment for energy units possible anytime (day and night)?										
5. can the billing system be used in other applications (solar, generator, gas, water etc)										
6. Have visits of meter readers gone away?										

Request respondent for advisement in regards to the billing systems and service

……………………………………………………………………………………………………

Sub-section (B) Quality

Prepaid (YAKA) metering						Postpaid metering				
1.Do the meters have tamper proof features?	5	4	3	2	1	1	2	3	4	5
2.Would you like Uganda National										

Bureau of Standards (UNBS) to be involved in the billing system?										

Request respondent for advisement in regards to the billing systems and quality?

……………………………………………………………………………………………

Sub-section (C) Price

Prepaid (YAKA) metering						Postpaid metering				
1. Does the billing system have flexible ways of energy payment?	5	4	3	2	1	1	2	3	4	5
2. what is your attitude towards the amount paid per unit?										

Request respondent for advisement in regards to the billing systems and price?

………………………………………………………………………………………...

DEPENDENT VARIABLE: CUSTOMER SATISFACTION

In this section please tick in the box that corresponds to your opinion/view according to a scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree

<u>Sub-section (A) Service</u>

Prepaid (YAKA) metering						Postpaid metering				
1. How do you rate the quality of billing?	5	4	3	2	1	1	2	3	4	5
2. Are you (as an energy consumer) aware of the sensitization programme about the billing system?										
3. Have you (as an energy consumer) been equipped										

with enough knowledge by UMEME personnel about the metering operations?										
4. Do you (as an energy consumer) get notifications about the meter installed?										

Request respondent for advisement in regards to the customer satisfaction and service?

………………………………………………………………………………………………

Sub-section (B) Quality

Prepaid (YAKA) metering						Postpaid metering				
1. Are you (as an energy consumer) aware of the debt recovery method from the billing system?	5	4	3	2	1	1	2	3	4	5

Request respondent for advisement in regards to the customer satisfaction and quality?

……………………………………………………………………………………………

Sub-section (C) Price

Prepaid (YAKA) metering						Postpaid metering				
1. What is your experience (as an energy consumer)from the purchase of units from	5	4	3	2	1	1	2	3	4	5

different selling points?										
2. Are you (as an energy consumer) aware of the price difference during peak and off peak time?										

Request respondent for advisement in regards to the customer satisfaction and quality?

…………………………………………………………………………………………………

THANK YOU FOR YOUR PARTICIPATION!

Appendix II: Interview Schedule for Selected Block Chairmen and the UMEME Customer care Manager

1. Position …………………………………………………………………..

2. Block (if necessary)………………………………………………………………….

1. What energy billing systems have been used and experienced by you? (Probe for prepaid (YAKA) and postpaid metering emphasis on quality, service and price)

……………………………………………………………………………………………………

……………………………………………………………………………………………………

2. In what ways have such energy billing systems led to customer satisfaction in National Housing and Construction Company (NHCC) Bugolobi flats in Kampala, Uganda with regard to quality, service and price?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

3. How would you describe the general customer satisfaction in National Housing and Construction Company (NHCC) Bugolobi flats, Kampala, Uganda about the billing systems (postpaid and prepaid (YAKA) metering)?

....……………………………………

4. Request for any additional responses that relate to the topic discussed?

……………………………………………………………………………………………………

THANK YOU SO MUCH

Appendix III: Work Plan and Financial Budget

Work Plan																	
Months (starting January 2015)																	
Activities	1	2	3	4	5	6	7	8	9	10	11						
Proposal writing and Defense																	
Research																	
Dissertation writing and																	

Appendix IV: Financial Budget

Item	Quantity	Unit Cost (USD)	Total Cost (USD)
Subsistence Allowance			
Researcher	1	10,000	10,000
Research Assistants	10	750	7,500
Honorarium	1	10,000	10,000
Travel (Vehicle Hire)	10	200	2,000
Data Analysis (use of analytical computer software e.g. SPSS)	1	500	500
Secretarial Services (Processing the research instruments and reports)	1	2,000	2,000
Report Production (Printing and binding)	5	200	1,000
Tuition Costs	1	10,000	10,000
Travel and conferences	3	4,000	12,000
TOTAL			**50,000**

Appendix VI: Introductory Letter

Appendix VI: Introductory Letter

Appendix VII: Filed Letter

Appendix VIII: Anti- Plagiarism Report