

**EFFECT OF GOVERNMENT POLICY AND MACRO
ENVIRONMENT ON SUCCESS OF RURAL ELECTRIFICATION
IN KIAMBU COUNTY, KENYA**

BY

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD
OF THE DEGREE OF MASTER OF BUSINESS
ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF
NAIROBI**

2018

DECLARATION

I Kariuki Nicholas Kinyua, hereby declare that this research project titled **EFFECT OF GOVERNMENT POLICY AND MACRO ENVIRONMENT ON SUCCESS OF RURAL ELECTRIFICATION IN KIAMBU COUNTY, KENYA** is my original work and has not been presented for any degree in any other university.

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ACKNOWLEDGEMENT

I'm deeply thankful to God for granting me good health, finances, strength, and sound mind throughout study period. I cannot take it for granted and I am truly humbled.

Secondly, my heartfelt appreciation goes to my supervisor, Dr. James Gathungu, for his patience, guidance, support and dedication all through the study. He was such an inspiration. I truly feel indebted to him.

Finally, I'm appreciative to my friends and family for their patience's and sacrifices during my study, financial support and understanding. Also, I would like to thank all participants who provided valuable data and information that made this research work a success. I couldn't have done it without them.

DEDICATION

I dedicate this research work to my Wife Marysarah, my daughter Cynthia Muthoni and my son Trevor Kariuki for their help and encouragement during the entire study period.

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LIST O F ABBREVIATIONS

ERC:	Energy Regulatory Commission
GDC:	Geothermal Development Company
IAP:	Indoor Air Pollution
IEA:	International Energy Agency
KenGen:	Kenya Electricity Generating
KETRACO:	Kenya Electricity Transmission Company
KNBS:	Kenya National Bureau of Statistics
KNEB:	Kenya Nuclear Electricity Board
KPC:	Kenya Pipeline Company
KPLC:	Kenya Petroleum Refinery Limited,
KPLC:	Kenya Power and Lighting Company
MoE:	Ministry of Energy
NOCK:	National Oil Corporation of Kenya
RE:	Rural Electrification
REA:	Rural Electrification Authority
SSA:	Sub-Saharan Africa
USA:	United States of America
WHO:	World Health Organization

ABSTRACT

This inquiry purposed to establish the effects of Government policy and Macro-environment on Kenya's rural electrification. Specifically, the research sought to assess the impact of government policy on Kenya's rural electrification and to investigate the influence of Macro-environment on Kenya's rural electrification in Kenya. This study used descriptive survey design. The study targeted households, the business community, schools under rural electrification and industries. This study used non-probability sampling approach of judgmental or purposive sampling. The selection of the sample selection was done based on the nature of the research objectives. The sample size was 500 from the total population of 4500 households (about 12% of the study population). This sample size corresponded to Mugenda & Mugenda, (2003) who states that, only small population (under 3000), a ratio of deserves a 10% sample size as a representative sample, depending on the topic under research. Questionnaires were used as the data collection instruments in this study for all categories of respondents. For all categories of respondents, feedback forms were used to gather data.. Qualitative data collected was analyzed using qualitative analysis of the written materials from respondent's personal expressions. It is flexible due to its breadth and its wide-ranging tools that is utilized as a problem's particular tactic or as a methodology. The data collected from the interviews was then summarized according to the theme of the study. Both inferential and descriptive statistics were used for quantitative data. The data was analyzed to determine its credibility, accuracy, consistency and usefulness. The investigator performed a multiple linear regression analysis to ascertain the connection amid Government Policy, Macro environment and rural electrification. The study found that electricity is significance in the economy of Kenya today. Electricity is important in running businesses in Kenya. Electricity connection helps in setting up businesses even in remote areas and increase activities in the rural areas. The demand of electricity is not influenced by the monthly payments. The factors that main determine electrification process are; the national government agenda on electrification, Kenya Power and Lighting Company commitment to distribution of electricity. Other factors include the nearness to other facilitates such as public primary and secondary schools and local elected leaders in the rural areas priorities on distribution of electricity. The study recommends that the government should formulate policies governing the budgeting and cost implications of the rural electrification projects. Clear policies on the monitoring and enforcement of contractors should be established to avoid inflated costs and perhaps improve project quality and safety. The government should make the process more flexible to enable more people to access the service.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Connectivity to electricity among households as well as local businesses is one of the most vital prerequisites for economic growth and development. Ranking and prioritizing of rural areas is the most phenomenon in developing countries (Barnes & Foley, 2004). Past decades have been characterized by lower penetration and electricity access in peri-urban and rural areas which has in long time been a major challenge leading to slow economic development. Despite the fact that importance of electricity has widely been recognized, it is not available in every part of the globe with majority of citizens depending on the alternative energy sources that include wood, kerosene and charcoal.

This study was based on theories that explain leadership and decision making in organizations as well as motivational theories. It was attached to agency theory and assisted by Stakeholders theory and theory of constraints. Agency theory explains that a relationship amid the agent in performance of duties and the principal exists. The theory proves that the agent has full rights to perform a task with full mandate from the principal. This research also discusses the stakeholder's theory which explains the relationships between organizations and other stakeholders within their environment of operation. The last theory is the theory of constraints which discuss how to remove constraints that limit the performance of an organization (Sach, 2005).

The key determinant in rural electrification is government policy which provides the guidelines as to how the rural electrification programs are carried out. The process is

also influenced by other external macro factors which mostly are usually beyond the control of the state agencies concerned. Some of those factors are technological changes, natural events and socio-economic factors. The alternative sources of literature indicate the rural electrification is a worldwide phenomenon; 1.3 billion individuals across the globe do not have access to electricity. This representing 18% of the worldwide population, many of these people reside in southern part of Asia and Africa (IEA, 2013).

Supplying electricity to the rural parts started in United States of American in early 1920s and by 1965, all rural areas in the United States of America had access to electricity (Katie, 2010). All third world countries and some part of Asia like Sri-Lanka, Thailand and Vietnam have access to electricity in their rural areas. The countries whose economies are fast growing have very high rate of electrification in their rural areas. Brazil have 88% access to electricity, South Africa 55%, China 99% and India 52.1% by the year 2009 (Alexander, 2010).

In Kenya, electricity connection has been a government project that has been phased into stages called 'miles'. Contextually, the access to electricity in Kenya is based on government policy, the demand of electricity by the users and the availability of other sources of power. These factors are directly affected by the economic environment through budget making process and resource allocation. Clark (2009) also noted that stakeholders and clientele derive different levels of utility from projects based on their expectations from different measured methods of project success. The success of electricity connections is a subject of government annual calendar in Kenya. A major limitation in the use of modern fuel is the ability to pay. The Ministry of Energy

(MoE) in the annual reports acknowledges the existence of different challenges in the process of electrification among the rural areas and there is need to adopt new measures to curb the documented challenges (Getting The Deal Through, 2018).

The IEA estimates that by 2030—with the current rate of generation, access to power will move at the same rate with growth in population (IEA 2010). The Kenyan set up places KPLC as the primary provider in rural electrification. However, the assets for carrying out all the activities in electrification are owned by the Kenyan Government. This study shall expound on the agency theory which proposes the principal-agency relationship. The theory establishes a contractual arrangement between the parties. The Kenyan set up has priority areas for electricity connection with economic and social centers in rural areas being the best consideration (Pellegrin & Tasciotti, 2012).

The underlying factor is the location of electricity transformers for the sole purpose of serving the rural areas that harbor large population. Electrification in Kenya is guided by political statements that made to control voting patterns (Wamukonya, 2007). “In Kenya, energy and power in energy are controlled under the Ministry of Energy and the ministry of Petroleum. Institutionally, there are state departments such as Kenya Power and Lighting Company, the Rural Electrification Authority (REA), Kenya Electricity Transmission Company (KETRACO), Geothermal Development Company (GDC), Energy Regulatory Commission (ERC), Kenya Electricity Generating Company (KenGen), , Kenya Nuclear Electricity Board (KNEB),), National Oil Corporation of Kenya (NOCK), Kenya Petroleum Refinery Limited, Kenya Pipeline Company (KPC),” the private sector and energy service the general consumers. In pursuit of energy in Kenya, the key flagship project includes the following: 5000Mw

Power Generation Program, Electrification of all primary schools, Last Mile Connectivity Project & GPOBA, National Public Street Lighting Project, National & Regional Transmission Lines, Security of Fuel Supply, LPG Project, Expansion & Devolution of National Pipeline network and Early Monetization of Crude Oil & Pipeline Development.

1.1.1 Government Policy

Policy refers to the plans, actions and intentions of a system on the steps to attain specific objectives. Government policy aims at timeliness, objectivity as well as specifics of desired objectives. Structured guidance on implementation of projects is as important as the results. According to Barnes & Halpern (2001), the model of a project under implementation should equate the subsidy. Additionally, the mode of implementation is very key in determination of the extent of the willingness of new and potential service providers enter the market, risking the capital invested and the response to the market demand. It is therefore upon this that the mode of delivery determines the operational cost also the subsidy instrument. There exists low business opportunities and potential in rural areas without considered subsidies, especially if the residents are not in any way familiar with SHSs, and more so in regions where the poor are the target. It's therefore conclusive that provision of subsidies is important if projects are to attract the private sector market, and some other guaranteed clients such as institutions of learning, health facilities or other government facilities. Such facilities play crucial roles in the rating of and development of other viable areas on off-grid electricity scenarios which are commercially viable (Business Daily, 2018).

The Kenyan economic set up operates on rules and regulations, price control, monopolistic practices, as well as minimum performance standards for products. There exists a calendar of government activities which gives a plan of government activities. The ministry of energy collaborates with Kenya Pipeline Corporation, Energy Regulation Committee among others to come up with strategies on energy supply and penalties for power supply offences. The provision of public facilities such as such as railways, roads, water and housing are a preserve of the government. Areas with a high level of electricity demand either due to population or industrialization are more likely to be supplied with electricity as compared to areas which are less populated and unindustrialized. The government policy and budgetary allocation is key in determination of areas where electricity can be supplied due to high capital-intensive nature. In its energy conservation efforts, the government targets to cut electricity consumption by 60 megawatts when it completed distributing more than one million free energy-saving bulbs. Political considerations define the legal and governing parameters within which the firm operates (Kwoka, 2005).

1.1.2 Macro Environment

The modern-day operations of any organization are also affected external environment. The macro environment is the broader context within which an organization conducts its commercial operations; the external factors outside the control of the firm can highly affect its performance and its capacity to favorably compete in the marketplace. The factors like technology, nature and social condition affect the rate of rural electrification (Bagdadioglu, Price, & Weyman-Jones, 1996).

According to Hall (2007), developing and developed countries in north of Africa have electricity systems funded by the public sector, municipals or public owned systems, where subsidies are used to finance expansion of the electricity system to all households and industries. There are budget allocations for these activities done yearly in all countries. It's these resources that are commanded in each area for power distribution. The resources in use are held up government departments which are political tributaries of the government of the day. These patterns change with time as agenda on expenditure changes with successive regimes (Bagdadioglu et al., 1996).

1.1.3 Rural Electrification

KPLC, (2015) defines rural electrification as the process of power supply to the rural and the remote parts of the country. According to Jorg (2012), the rural electrification is commonly considered to be a very important prerequisite for economic development as well as removal of major barriers that hinders economic development. Electricity leads to increment of productivity of farm as well as non-firm activities, household tasks, provision of an effective and clean source of lighting and leads to improvement of social services such as healthcare and education. There is high level of consciousness among the practitioners as well as donor companies that brings a considerable effect in different areas might be achieved through intervention of electrification (KPLC, 2015).

The use of public finance in investment decisions of systems that improve life index of citizenry with the needs of industries being met fast enough to achieve fast economic goals (Hall, 2009). There is very great success on use of subsidies and cross subsidies in enabling the low-income earners to afford to use electricity upon its

availability within their environment. The concept of transparency, involvement of the public in decision making, and accountability are important to make sure that electricity is developed with the public in mind especially in off grid areas. This is tabled as government agenda achievable in a tabulated program of the ministry of energy for a period of ten years. Currently in Kenya, the Last Mile Connectivity has three phases with phase 1 involving those near transformers targeting 3.4M Kenyans, phase 2 aiming at Increasing the transformers and Phase 3 where the government plans to create industries off the cities (Hall, 2009).

1.2 Research Problem

The World Bank report (2012) explains that rural electrification in developing countries has numerous benefits which go beyond provision of cheaper, affordable means of modern energy than inferior alternatives to the end users. It improves the citizen's life quality and induces growth on a wide range of areas touching of peoples economic and social lives. Citations to this effect are notable to substantiate such expectations. The process of substituting kerosene with other lighting sources reduces indoor air pollution and carbon emissions to a great extent while on the other hand it gives rooms to education facilities have sessions evening hours, which provides more hours of study. Further, the economic activities through safety and longer on man hours. More literature highlights on the benefits of rural electrification as a great source of the welfare growth of rural households (World Bank, 2015). This however is based on the direct relationship arising between the rural electrification itself and development, without highlighting specific programs placement biases into consideration. Some researchers have however tried to speculate on the general

welfare gains brought by rural electrification. Just like the countries in Sub-Saharan Africa (SSA), Kenya has also been facing energy Challenges (Barnes...., 2018).

The key obstacles to consumption of energy particularly, are access rate by families in the countryside regions. By the year 2000, the rate for electrification in Sub-Saharan Africa (SSA) stood at 23%, with both the rural and urban area currently at 8% and 51% respectively according to (International Energy Agency, 2002). The 'Proparco private sector and development magazine' cites that electricity is not affordable and also not easily accessible in sub-Saharan Africa. Improvement on public facilities would help in accelerating electrification in rural areas but it is a capital-intensive activity. By the year 2009, 1.4 billion had no access to electricity in Africa, including more than 585 million individuals in SSA. Electricity as a commodity is very scarce in Africa with the whole continent having electrification rate of only 42%, the lowest of all the developing regions. Electrification in Kenya by the year 2000 was below the SSA average connectivity (Downtoearth.org.in. 2018).

The overall connection stood at 14%, which constituted of 42% in urban areas and only 4% in the Kenyan rural areas according to the KNBS (2000). With successive politics, the rate of electricity connections has increased to a much great extent. This is through programs such as umeme pamoja and last mile connectivity. Particularly, when the government seeks to make it easy to access renewable energy source to promote diverse policies that makes consideration which include; disposable income, affordability, high quality of modern sources as well as availability of energy (Barnes et al., 2005).

It is on this backdrop that Kenya Power and Lightning Company in conjunction with the World Bank through GPOBA have embarked on a plan to connect 150,000 people living in slums across the country with electricity. GPOBA have been paying subsidies to cover part of the cost of connectivity to the national grid for specific households. The partnership program allows qualifying residents to pay a minimal charge of Kshs. 1,160 per connection. The World Bank through GPOBA contributes Kshs 19,350, while Kenya Power contributes KShs.11, 970 per connection making up the standard capital contribution of Kshs.32, 480 per connection. The Kenya Power and Lightning Company have introduced a reduced connection fee for slum residents amounting to Ksh 1,160 to encourage them to switch their energy need service to Kenya Power and reduce the use of fossil fuels (KPLC 2015).

There have been past studies that have focused on connections of electricity in various regions of the world as well as different Kenya areas. Mwiwaki, (2016) identifies that there are key factors that influence electrification of households in Meru County in Meru South sub-county. The study shows that Rural Electrification Authority (REA) there is need for the government to allocate enough funds to REA and followed by proper electrification policies. Masila, (2016) in a research on the factors affecting electrical power extension in Kenya, he noted that the financial difficulties is one of main reason of poor adoption of the projects that leads to deferment in timely accomplishment of Kenya power's project expansion. He cites a difference where public awareness is done and areas where public awareness on implementation of power connection is not done. The rates of completion of such projects are different. According to Xiao and Proverbs (2008), a project is deemed successful if it's carried out within the scheduled time with the quality that is acceptable. There are different

opinions among the owners in regards to what is important to success of the project, what is measured during different phases of the project and in accordance with the initial priorities of the project (Eisenhardt, 2000).

Wanjiru, (2016) in a study on simulation of the future electricity demand and supply in Kenya by the use of the long-range energy alternative planning system, identifies the real cause of law in market demand of electricity being the high pricing based on limited sources of energy on the national grid. The study shows that there is very much unexploited energy in Kenya and this leaves high demand and low supply hence the high pricing. In a research by Ongegu & Kaunda (2014), infrastructure is the greatest determinant of connectivity at a very high rate of 92% followed also by the social economic factors at a low of 27.6% with outsourcing coming last at 18%.

This is a great indicator that policy on infrastructure and social economic factors are important in electrification of rural areas. The literature reviewed did not focus on the effect of the Government policy and macro environment on rural electrification in Kenya which leaves a gap in knowledge that this study sought to respond to the following study probe; what's the influence of Government policy and Macro-environment on rural electrification in Kenya?

1.3 Objectives of the Study

The overall purpose for which the study was conducted was to identify the influences of Government policy and Macro-environment on Kenya's rural electrification.

Specifically, the study sought to:

- i) To assess the effect of government policy on success of Kenya's rural electrification.
- ii) To investigate the effect of Macro-environment on success of rural electrification
- iii) To ascertain the effects of government policy and macro environment on success of rural electrification

1.4 Value of the Study

The outcomes of this research may be of much significance to other investigators in generation of topics for future research development. The research may be pivotal on referencing for other areas of research in electrification programs in Kenya and globally.

As part of government agenda to vision 2030, Kenya has a target of attaining a connectivity of 75% by the year 2018 (Kenya power). This research may therefore provide key information to Kenya Power and Lighting Company and other stakeholders such as consultants (Ketraco.co.ke. 2018). The findings may also be very key in providing information on the relationship between the government policy on rural electrification programs and the rate of success of the rural electrification process.

The findings of this research may also provide a formidable basis on how government decisions and policies affect electrification programs in the rural areas. In the same length, this may guide any subsequent government policies on electrification or any other related government programs in Kenya and globally.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Presented in this chapter is a theoretical and empirical review on rural electrification from global, African and Kenyan perspective. It also presents factors influencing rural electrification. The chapter finally provides conceptual framework encompassing independent variables, moderating variable and their influence on the dependent variable which is rural electricity in Kenya.

2.2 Theoretical Foundation

This research was anchored on Agency Theory of leadership and supported by Stakeholders theory and Theory of Constraints. The Agency theory explains the relationship between the principal-agency aspects of dependency. The theory explains of the relationship prevailing between the main decision makers and those with powers to run entities for owners of entities. Berle & Means, (2011) applied the concepts of agency in the development of large corporations. In their study, the directors and management of organizations have interests that don't match with those that own firms. They made use of agency-principal concept to explain the origin of the conflict.

2.2.1 Agency Theory

Agency theory helps in dealing with the problems that usually come up because of the variation in desires or goal amid the principal and agent. It occurs since the principal does not have full knowledge of the actions of the agent or is being prevented by

resources availability from acquiring the information he needs. The theory also examines the incentives provided to agents in the process of their roles and duties. Agents need not have the same interests and goals as the principal and that is why incentives become an issue. The main focus of Agency theory is the cost of providing incentives to both ends of relationship. Selection is key in this theory since the principal cannot ascertain if the agent accurately represents his ability to do the work for which the party is being paid. The convex is the terms under which the principal cannot be sure if the agent has put adequate effort to achieve objective of the work being undertaken (Pellegrin, & Tasciotti, 2012). The theory establishes a principal-agent contractual relationship as the agent acts in accordance with the principal's advice. Conclusively, this theory has emphasis on the economic rewards of the contracting ends within the context of the principal-agent relationship (Fama & Jensen, 1998).

2.2.2 Stakeholders Theory

Stakeholder theory is founded on the premises of organizations having relationships and interactions with other entities and firms that also operate within their environment. Organizations have a responsibility and must therefore observe support of these entities by identifying and considerably balancing their relevant interests. This study further discussed four pillars of the stakeholder theory as follows: firms have relationships with different constituent groups (stakeholders) which largely depend on their decisions; the type of relationships on the firm and its stakeholder's processes and outcomes; stakeholders always carry the intrinsic value and there is no one set of interest that is assumed to fully dominate others. The proposition of this

theory shows that a firm which uses this approach will have increased organizational economic performance (Kirsi, 2010).

Ongegu & Kaunda, (2014) cited that this theory assumes that other stakeholders can be compromised or balanced against each other which may negatively affect the organization. The theory did not propose alternatives apart from negotiation and dialogue for dealing with conflicts between stakeholder interests. According to Kirsi (2010), this theory has been applied, presented and used numerously in distinct ways and it involves very different methodologies, evidence, concepts and even criteria of evaluation. A survey by Mwhaki (2016) shows that the support of key stakeholders is key for the success of business activities. Organizations therefore owe a moral responsibility to other entities that operate within their environment (Mwhaki, 2016).

2.2.3 Theory of Constraints

According to Mwhaki (2016), firms always aim at initiating and implementing more achievements by way of focusing on a constraint that inhibits a higher level of performance. The main paradigm of this theory essentially states that every firm will always have a constraint that prevent maximum productivity. A constraint according to Wamukonya, (2007) is any factor that prevents the system from achieving what it was designed to accomplish and attaining the maximum utility of the available resources. Wamukonya, (2007) explained that a constraint in project management falls into four categories; as political alienated constraints (vision and mission, scope of projects), technically alienated constraints (such as core competencies, technological advancements, infrastructural development and natural aspects such as landscape geology and climate aspect, social constraints (such as Organizational

codes of conduct, hierarchies, relationships and generally accepted behaviors) and finally administrative constraints (such as planning tools like budgets, project Plan, scope, written Service level agreements etc) (Wamukonya, 2007).

The Theory of Constraints gives a critique on managers to focus fundamental assumptions on achieving the organizational goals, about what they think is economically productive actions, and about the real value of cost management. This theory challenges managers on strategizing on their fundamental basic assumptions on how to achieve the organizational goals, considerations of productive actions, and the real objective of managing Organizational costs. Ultimately, the theory proves that the main reason of organizational existence is equal to their mission and vision and there should be optimal performance within the constraints of the set procedures.

2.3 Empirical Review

The empirical review of this was be based on the objectives of the study. Past studies have focused on rural electrification especially based on resource allocation and the impact of rural electrification. Focus shall be based on reviewing the relationship between government policy and macro environment and their effect on rural electrification.

2.3.1 Government Policy and Macro Environment

It's government's obligation to create an enabling environment for electricity generation and distribution and consumption. Policy makers have key roles to play such as resource mobilization, development of legal framework and offering security to the appliances in use in rural electrification (Mwihaki, 2015). Electricity as a

resource cannot be readily be stored. This therefore to any producer of power means that the supply and demand must be continually balanced. This study, on rural electrification enumerates challenges such as quality, reliability and quantity of energy supply, heavy capital requirement at the initial stages and long delivery times between when feasibility studies are carried out to the full development of the energy infrastructure, resources mobilization for undertaking increased costs and investment in the energy industry, reduced industrialization levels, as well as very low per-capita income (Barnes & Halpern, 2001).

In the same length, there are challenges associated with institutional arrangements which include governance related issues, “lack of equipped research institutes, funding related challenges and finally inadequate human resources capacity and overlap of mandate of various institutions” (KPLC, 2015). In an interlinked system, failures to match demand for electricity and the supply can lead to a very extensive load shedding. Electricity generation in Kenya is almost a monopoly of KENGEN while distribution is a perfect monopoly of KPLC.

2.4 Government Policy, Macro Environment and Rural Electrification

Structured guidance on implementation of projects is as important as the results the ability of the government through the policy making process to provide guidelines on how rural electrification process is supposed to be achieved (Barnes & Halpern, 2001). The modern-day operations of any organization are also affected external environment. The macro environment is the broader context within which an organization conducts its commercial operations; the external components that are not within the control of the firm that substantially affect its ability to compete in the

marketplace and general performance. Nature, economy, social condition, and technology are just but a few examples of macro-environment components. As the government is coming up with these policies, it has to put into considerations the provisions of external or macro environment so that they can be compatible for rural electrification to be successful (Kisri, 2010).

Kenya has a number of key energy supply options that includes, biomass, (charcoal and wood fuel), electricity (hydropower, wind, geothermal), and petroleum. Out of all these options, in many SSA states, biomass leads in the nation's supply of energy. Biomass combustion produces health-damaging air pollutants including nitrogen oxide, carbon monoxide (CO), benzene, formaldehyde, and other toxic organic compounds (Ongegu & Ndubu, 2014). According to World Health Organization (WHO) estimates of 10 diseases for the year 2002, Indoor Air Pollution (IAP) from biomass attributed to 3.7% of the burden of disease in most developing countries and this necessitates the need for investing more in rural electrification (Sash, 2003).

Accessibility to rural electrification is facilitated through the implementation of rural electrification projects (REPs). Wamukonya, (2007) and Sanvido et al., (2008) have conducted a research that seeks to “identify determinants for effective projects by use of varied quantitative tests for different factors. These surveys revealed that the capacity and technical expertise of main project workers is crucial for the success of any project.

. Sash, (2003) carried out a research on performance evaluation regarding quality, cost, and time in ascertaining if project goals are successfully attained. Many Sub-Saharan African countries have supply lines in place to increase electricity access due

to the availability of financing from donors, a politically linked focus from the national government, and an investment decision by the utility provider. Xiao and Proverbs, (2008) demonstrated “that to improve project performance, main focus should be construction time, minimize delays, maintain stable workforce and establish a proper working partnership with subcontractors.”

The infrastructure in place such as the cables and the transformer cannot bear the load of the new connection KPLC, (2000). Pellegrin, & Tasciotti, (2012) explored on the factors influencing Swedish electricity distribution. Magnus found out that benchmarks based on cost frontiers were increasingly popular regulation of electricity distribution utilities. He acknowledged extensive research work on how to measure the level of inefficiency with limited investigation of which factors bring about inefficiency. The study established that if the sources of inefficiency are well known, then the reliability of benchmarks would go up and the industry regulators would be in a position to speed up welfare enhancements.

. In his research Magnus found that inefficiency was sensitive to outages, transformer capacity and share of overhead lines whereas utility ownership does not affect inefficiency.

Jamasb & Pollitt, (2001) explains that many regulatory agencies in many countries were already using, or plan to use, benchmarks. Developments of methods used to calculate/estimate efficiency and a realization that benchmarks reduce the negative effects of information which is not well distributed, have contributed to this development. However, in their review of benchmark studies in electricity distribution published from 1989 to 2000 noted that there was inconclusive evidence as to which

specific factors influence inefficiency in electricity distribution and to what extent. As a consequence, it was claimed that the usefulness of benchmarks was significantly reduced since unexplained data variation would either be fully attributed to inefficiency or arbitrarily divided between data noise and inefficiency.

Pellegrin & Tasciotti, (2012) argues that there could be several valid reasons for why electricity cost varied and hence, benchmarks were only legitimate if the sources of bottlenecks could be well explained. In addition, if the regulators could advise utility companies on how to adopt and leverage on cost efficiency, they would henceforth be able to act as an enhancing factor that acts as a catalyst to people welfare developments. This corresponded to the proposition by (KNBS, 2000). They encouraged industry regulators to take up societal responsibility through debates in the public arena, scenarios arrangement which can help in the development of government policy. Based on this, it seemed odd that relatively few studies had attempted to more fully explain the causes of inefficiency.

It was plausible that the apparent lack of scientific contribution would be attributed to the particular challenges involved in identifying all factors having an influence on cost inefficiency in electricity distribution, and obtaining a sufficiently large data set representing the factors identified. The purpose of Magnus Soderberg study was to contribute to a deeper understanding of which factors influenced cost inefficiency in energy (KNBS, 2000).

Kumbhakar & Hjalmarsson, (1998) argued that private utility companies were more efficient in Turkey and Sweden respectively. Pellegrin & Tasciotti, (2012) on the other hand, found no significant benefit of privatization from his international

comparisons. The appropriateness of transferring publicly owned utilities to private investors had also been wildly debated outside electricity distribution with no consensus reached. Economies of scale had also been reported to influence inefficiency (Kumbhakar & Hjalmarsson 1998). Pombo & Taborda, (2006) found out that ownership had no effect on efficiency whereas Kwoka, (2005b) claimed that public utility companies were more efficient. Some contributions also claimed that market liberalization and loss reductions increased efficiency (Pombo & Taborda, 2006).

There has been enormous restructuring and changes in the energy sector in Kenya for many years. This has led to the foundation of the Energy legislation (Energy Act no 12 of 2006). The act mandates the MoE with the sole responsibility of developing and implementing of favorable condition to all operators and other shareholders within energy industry. “The resultant was the establishment of Energy Regulatory Commission (ERC) under the Act as an independent and autonomous energy sector regulator which has powers to formulate licensing policies, issue permits and licenses, accrediting of energy auditors, enforce and review environmental health, safety and quality codes and standards, set, ensure competition ,reviewing and adjusting power tariffs, approving power purchase and network service contracts, examining and approving meters, investigating complaints between parties, making recommendations for the necessary regulations to be issued by the Minister, collecting and maintain energy data, protecting stakeholders interests, and preparing an indicative national energy plan, (KNBS, 2000).”

The Kenyan setup of politics has seen numerous political pronouncements on matters energy. The Ministry of Energy have in cognizant with the ruling regime manifesto launched a program with specific dates on delivery of rural electrification on the last mile. This is by way of transformers and power lines in relation to the more power added to the national grid. To this extent, the Eng. Njoroge has provided the Rota below on power connections in different parts of Kenya: Globally, information in rural areas can accessed from TV, Barazas, social networks, meetings, radio, letters, books, files, tapes and has influence on health, knowledge, production and even behavior and living standards (KNBS, 2000).

Increased access to the mainstream and social media increases awareness of current issues results in change of behavior which in turn increases development and behavioral changes. A presentation by Ongengu & Ndubi, (2012) at the International Strategic Management Seminar on the Use of Government Information democratically in African states, showed that the Kenyan imprints constitute 50 percent of official publications. The part of government publications contained very crucial information on issues such as health, education, agriculture, and economics, environmental which have great influence on the lives of citizenry. The research denotes that people required this information appropriately and adequately to maintain the pace of government objectives and directives (Daily Nation, 2018).

A study that's built on "Management of information relating to the government in Kenya explains that information is uniform and sustainable and required professional efforts to reveal all the information to benefit all people both internationally and locally. These prints had crucial information regarding health, economics,

environment, legal issues, agriculture, as well as education. This information had instant influence on routine activities of citizens in Kenya. Hence different stakeholders would usually need this kind of information in timely and adequate manner, and in different formats to be at the same levels with government procedures and policies (KNBS, 2000).

With a publishing and printing houses for the government of Kenya to print textbooks which was relevant for schools, information was produced as a result of the effort of different government agencies. The Large volumes were provided annually with a lot of relevance and provision of authoritativeness to the readers. They contained statements of government policy, legislations for different periods, numerical raw data, reports of various government sponsored studies, official accounts, argument on emerging and current topics of importance, and development agenda. Information appeared around all subjects and published in any format including maps, electronic media, books and periodicals (Norton et al., 2002).

In the study it was also established that the Development plan 1997- 2001 of the Kenya Government allowed information resources and management for effectiveness in logical flow of instructions with information access across the board. On the same breath, The Gazette Supplement No. 63, 2005 of Kenya highlighted access to information with key notes on the also the right to demand or request for immediate correction of untrue or any misleading information. It was key that while Plan (1997-2001) support effective ways of making sure the access to and flow of information, any unfair refereeing distorts the official 'ball-game. Information on government still remained difficult to acquire, extremely confidential, and untraceable (Kenya, 1996).

Shibanda concluded that to achieve solutions to accessing information services and systems, organized centres of knowledge, it's necessary to focus efforts managing the right to access information, establish infrastructure for telecommunication, digitization, creation of repositories and web based services, content creation, establishment and hosting of databases, the inherent cost in creating or generating information and knowledge, as well as development, use, and access to ICT centres in villages. Such information certainly creates the awareness among the masses on prices, power outages, government policy and other matters affecting the public daily (Kwoka, 2005b).

2.5 Summary of Empirical studies and Knowledge gaps

It is evident from the previous studies carried out, that rural electrification is vital for the livelihoods of people in the rural areas. Various countries have adopted variety of policies to increase implementation of electricity in rural areas and to maintain the already constructed lines in the rural areas. From the studies reviewed, it has been observed that if the implementation of the program is to be of benefit to the society, all the concerned parties must actively participate and policies and structures must be put in place to support this course of action. The results of such multipronged influence on delivery of electricity is influenced by the prevailing economic conditions and on the other hand, the same electrification process influences future macro-economic conditions.

The literature reviewed does not however state the significant issues that play a part in the successful implementation of the rural electrification. Below is a summary of the previous studies that have been conducted and the knowledge gaps that were identified:

Table 2.1: Summary of Empirical Studies and Knowledge Gaps

Study Focus	Methodology	Findings	Knowledge Gaps	Focus On Current
<p>“Factors influencing electrification of rural households in Kenya: a case of Meru south sub-county, Kenya”</p> <p>Kathurima,</p> <p>2016</p>	<p>descriptive survey</p>	<p>Rural electrification is influenced by: funding through Rural Electrification Authority, Availability of alternative sources of energy, distance of the household from the transformers and the ability to pay the installation cost.</p>	<p>The research focuses on resource mobilization.</p>	<p>This study focused on strategic decisions in government as a well as policy formulation</p>
<p>Factors affecting implementation of electricity power expansion projects in Kenya: A case study of Kenya Power Lighting Company</p> <p>Masila,</p> <p>2016</p>	<p>Descriptive survey</p>	<p>The major cause of poor implementation of electricity power expansion projects is financial difficulties and delays as a result of inadequate resources hence affecting timeline in project completion</p>	<p>The study emphasizes on resource mobilization as the cause of low electricity connections</p>	<p>This study focused on strategic decisions and policies in government and their effect on rural electrification</p>
<p>Simulation of the future electricity demand and supply in Kenya using the long-range energy alternative planning system</p> <p>Wanjiru,</p> <p>2016</p>	<p>Descriptive survey</p>	<p>Limitations of sources of energy is the major cause of low electricity connections. The other one is that Kenya has coal and renewable energy as the only sources of electricity in Kenya.</p>	<p>There is no correlation of government decisions and their effect on the already available sources of electricity in</p>	<p>This study demonstrates how strategic decisions affect all sources of energy in Kenya</p>

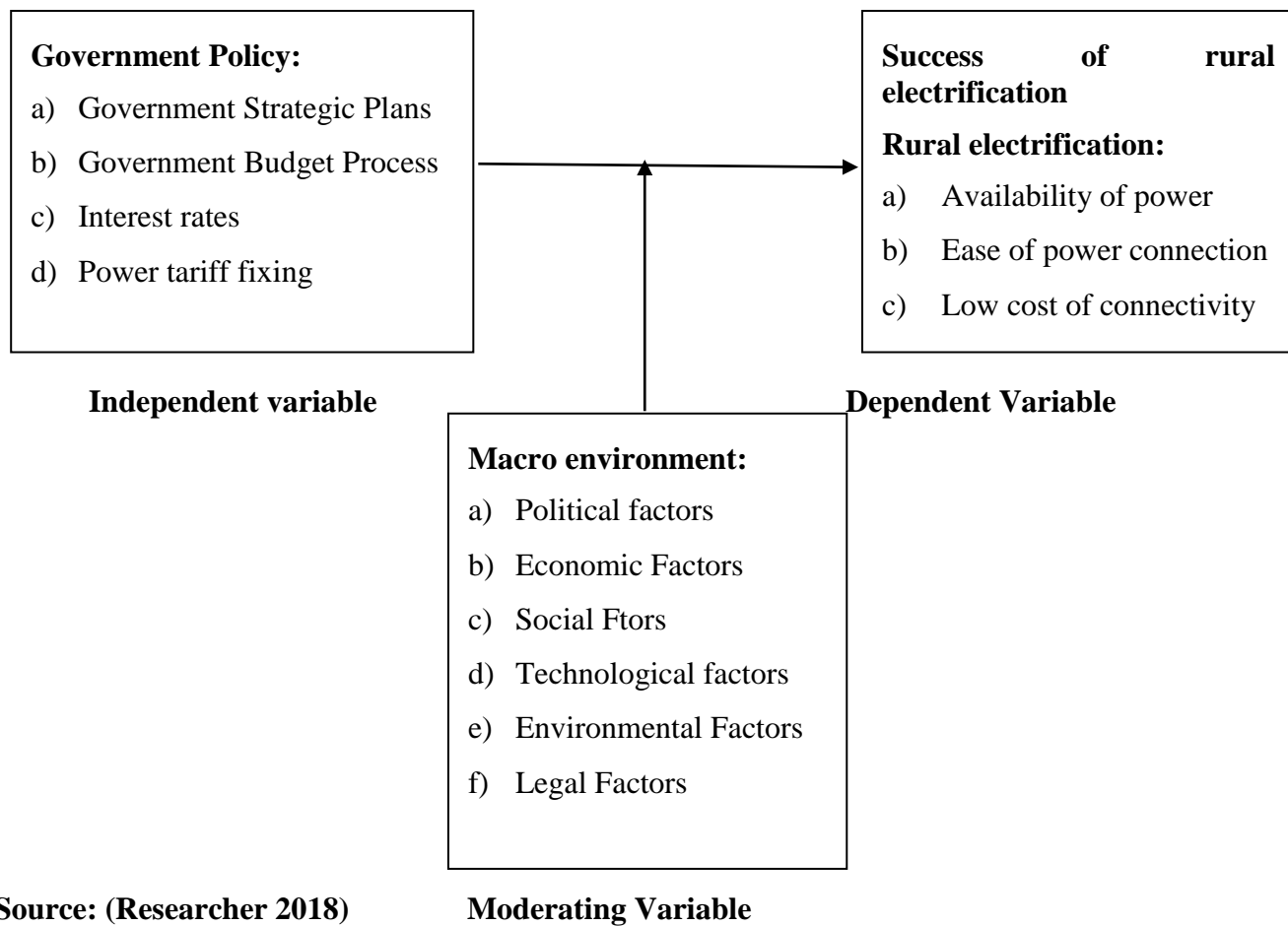
			Kenya	
Factors influencing electricity connectivity in rural Kenya: A case of Mt. Kenya sub region of the Kenya Power Ongegu & Kaunda , 2014	Descriptive survey	Factors influencing connections are: Infrastructure, Social economic Factors, Outsourcing	The study recommends for further studies on the influence of policy and decision making on rural electrification .	This study sought to further the study and focus on strategic decisions and policy and the resultant effect on rural electrification.
Optimal allocation of project management resources to achieve success Jaselskis & Ashley, 2005	Descriptive survey	Project performance is influenced by: Reducing team turnover, budget updates and scheduling.	The study does not include decision making at any level in rural electrification and program management	This study looked at how decision making in government affect success of projects and specifically rural electrification.

Source: (Researcher 2018)

2.5 Conceptual Framework

This part encompasses the independent factors as well as the dependent factors in a diagrammatical connection in the study. The rural electrification in Kenya forms the dependent variables in the study. The independent variable on the other hand was the Government Policy and macro environment being the moderating variable. The theoretical expectation is that Government policy and macro environment are the determinants of the success of rural electrification. The inquiry endeavored to determine the connection amid the study parameters.

Figure 2.1: Conceptual Model



Source: (Researcher 2018)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section presents the study methodology that was applied to establish the effect of Government Policy and macro environment on rural electrification in Kenya. The discussed sections include target population, research design, the sampling design, methods of collecting data as well as techniques of data analysis.

3.2 Research Design

In order to be in a position to assess the effect of Government Policy and macro environment on rural electrification, this study used descriptive survey design. Mugenda and Mugenda (2003) states that a descriptive study design is mainly concerned with answering the ‘where’, ‘how’, and ‘what’ question of a particular concept. He describes a descriptive survey as “one that is used to obtain information concerning the current status of the phenomena to describe what exists with respect to the variables in a situation, by asking individuals about their perceptions, attitudes, behavior or values”. Respondents filled only one questionnaire, during the entire data collection period. The responses obtained were then applied for the period under study only. Descriptive design was selected for this inquiry to help describe the prevailing state of affairs of the problem under study and also the association existing amid dependent and predictor parameters.

3.3 Population of the Study

Target population is described by Mugenda & Mugenda, (2003) “as a universal set of study of all members of real or hypothetical set of people, events or objects to which an investigator wishes to generalize the result”. Mugenda & Mugenda (2003) argues out that the population targeted should provide an observable features where the research intends to give a general observation, result and outcome of the study. This study targeted households, the business community, schools under rural electrification and industries.

3.4 Sample Design

This study used purposive or judgmental non-probability sampling approach.

. The choice of the sample was done based on the nature of the research objectives. Non-probability sampling implies that the sample was selected due to its relevance to the topic of the study rather than their ‘representativeness’, which usually determines the way in which people to be studied are selected (Mugenda & Mugenda, 2003).

Qualitative sample sizes ought to be large enough to adequately describe the concept of interest as well as respond to the study questions. Qualitative investigators should aim at attaining saturation. Saturation takes place when addition of more respondents to the research yields no further information. The sample size was 500 from the total population of 4500 households (about 12% of the study population). Glasser and Strauss (1967) proposed the concept of saturation as efficient in obtaining desired sample sizes in qualitative surveys. At 500, the addition of more respondents yielded no further information and this size was deemed desirable for describing the variables. The size is also in line with Mugenda & Mugenda, (2003) who states that, only small population

(under 3000), a ratio of deserves a 10% sample size as a representative sample, depending on the topic under research.

3.5 Data Collection

Feedback forms (questionnaires) were employed in obtaining data for all categories of respondents. The questionnaire was used for collecting primary data from the field in the six identified components. The researcher specifically targeted the heads of households for homes, and head teachers for Schools. For industries, the researcher targeted operations managers who are familiar with the usage of electricity in their organizations. The study feedback form was split into 2 parts; Section A- collected respondents' personal information; and Section B-questions based on the specific objectives of the study. Mugenda & Mugenda, (2003) notes that "the validity of research instruments is about whether one can draw meaningful and useful inferences from scores on the instrument". The feedback forms were handed out to the participants face to face.

The investigator employed three research assistants who assisted in the process of collecting data. The assistant was then taken through the training to enable them understand the different kind of research instruments, the main goal of the research as well as the ethics that must be adhered to during the research process.

3.6 Data Analysis

Obtained qualitative data was analyzed using qualitative analysis. This is to the researcher to categorize the available data to ascertain the existing association amid the

dependent and predictor parameters so as to interpret the finding (Mugenda & Mugenda, 2003). The data collected from the interviews was then summarized according to the theme of the study. Both inferential and descriptive statistics were utilized for quantitative data. The data was analyzed to determine its credibility, accuracy, consistency and usefulness. The investigator performed multiple regression analysis to identify the association existing amid Government Policy, macro environment and rural electrification. The model was;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \Sigma$$

Where: β_0 is intercept of regression;

β_1 - β_2 are the regression coefficients;

Y is the dependent parameter (rural electrification);

X1 Government Policy;

X2 Macro environment;

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The section focuses on the study outcomes and discussions. The study focused on the effects of Government policy and Macro-environment on rural electrification in Kenya. The sampled population was 500 where 392 completed and returned the questionnaire a rate of response to be 78.4%. As per Mugenda (2003), a response rate of over 50% is good enough and can be relied on for analysis of data.

4.2 General Information

The research sought some demographical respondents' information including their gender, age, marital status, years lived in Kiambu County, primary source of energy and duration of time electricity has been within their locality.

4.2.1 Gender

Table 4.1: Gender

	Frequency	Percentage
Male	170	43.4
Female	222	56.6
Total	392	100.0

Source: Field data (2018)

Table 4.1 presents the findings on gender. The findings reveal that a majority of the respondents (56.6%) were female while 43.4% were male.

4.2.2 Age in years

Table 4.2: Age in years

	Frequency	Percentage
Below 20 years	9	2.3
21-30 Years	122	31.1
31-50 years	190	48.5
Over 50 years	71.0	18.1
Total	392	100.0

Source: Field data (2018)

Table 4.2 presents the findings on the age of the respondents. 48.5% were 31-50 years, 31.1% were 21-30 years and 18.1% were over 50 years while 2.3% were below 20 years.

4.2.4 Marital status

Table 4.3: Marital Status

	Frequency	Percentage
Single	94	24.0
Married	242	61.7
Divorced	11	2.8
Separated	23	5.9
Widowed	22	5.6
Total	392	100.0

Source: Field data (2018)

Table 4.3 presents the outcomes on the marital status of respondents. From the outcomes, a great deal of participants (61.7%) were married, 24% single, 5.9% were separated, and 5.6% were widowed while 2.8% were divorced.

4.2.5 Years lived in Kiambu County

Table 4.4: Years lived in Kiambu County

	Frequency	Percentage
Less than 2 years	14	3.6
3 to 5 years	22	5.6
5 to 8 years	35	8.9
8 to 10 years	43	11.0
Over 10 years	278	70.9
Total	392	100.0

Source: Field data (2018)

Table 4.4 presents the findings on the years lived in Kiambu County. The findings show that 70.9% of the respondents had lived in Kiambu for over 10 years, 11% for 8 to 10 years, 8.9% for 5 to 8 years, 5.6% for 3 to 5 years, and 3.6% for less than 2 years.

4.2.1 Primary Source of Energy

Table 4.5: Primary Source of Energy

	Frequency	Percentage
Kerosene	6	1.5
Solar	4	1.0
Electricity	382	97.4
Total	392	100.0

Source: Field data (2018)

Table 4.5 presents the results for the study which aimed at determining the main sources of energy used among respondents. Majority of the respondents (97.4%) used electricity as the primary source of energy, 1.5% kerosene and only a few (1%) showed that solar energy was their main source of energy.

4.2.1 Duration of time electricity has been within your locality

Table 4.6: Duration of Time Electricity Has Been Within Your Locality

	Frequency	Percentage
Less than 5 years	4	1.0
6-10 Years	22	5.6
11-15years	46	11.7
16 years and above	320	81.6
Total	392	100.0

Source: Field data (2018)

Table 4.6 presents the findings on the duration of time electricity has been within the respondents' locality. The findings show that 81.6% had electricity with in their locality for 16 years and above, 11.7% for 11-15 years, 5.6% for 6-10 years and 1% for less than 5 years.

4.3 Descriptive Statistics

4.3.1 Significance of Electricity Connection

Table 4.7: Significance of Electricity in the Economy of Kenya Today

Aspect	SA	A	N	D	SD	Mean	Std. Dev
Electricity is important in running businesses in Kenya	290	98	4	0	0	1.27	0.320
Electricity connection helps in setting up businesses even in remote areas	287	100	5	0	0	1.28	0.317
The demand of electricity is influenced by the monthly payments	23	61	89	121	98	3.54	0.096
More activities increase in the rural areas when electrification is done	158	211	21	2	0	1.66	0.253

Source: Field data (2018)

Table 4.7 presents findings on the respondents' opinion on the significance of electricity in the economy of Kenya today. Most of the participants were in agreement that electricity is important in running businesses in Kenya as illustrated by a SD of 0.320 and a mean of 1.27. Also, they strongly came into agreement that electricity connection helps in setting up businesses even in remote areas as shown by a standard deviation of 0.317 and a mean of 1.28. The participants came into agreement that more activities increase in the rural areas when electrification is done (M=1.66, standard deviation= 0.253). The

respondents however disagreed that the demand of electricity is influenced by the monthly payments (M=3.54, standard deviation=0.096).

The government should formulate policies governing the budgeting and cost implications of the rural electrification projects. There should be clear policies on the monitoring and enforcement of contractors to avoid inflated costs and perhaps improve project quality and safety. The study found that government policy affects the success of rural electrification to a great extent.

According to the findings, there were other external macro-economic factors that highly influence the rural electrification projects by the government. Some of the mentioned factors include bureaucratic obstacles, credit constraints issues, over-rated transport and labor costs as well as low reliability of electrical grid. More so theft was also a factor where there were reported missing electrical tools such as poles.

4.3.2 Electrification is a sole Government Activity

Table 4.8: Government related leadership factors

Aspect	1	2	3	4	5	Mean	Std. Dev
The national government agenda on electrification	2	16	42	201	131	4.13	0.217
Kenya Power and Lighting Company commitment to distribution of electricity	2	31	187	107	65	3.52	0.184
The local elected leaders in the rural areas priorities on distribution of	118	235	31	5	3	1.83	0.253

electricity							
The nearness to other facilities such as public primary and secondary schools	83	204	65	22	18	2.20	0.193
Public participation in government budget making process every year	176	124	74	12	6	1.85	0.186

Source: Field data (2018)

Table 4.6 presents findings on the factors determine electrification process. Using a scale of (5=very large extent, 4=large extent, 3-moderate extent, 2=small extent, and 1=not at all), the following findings were obtained. Majority of the respondents indicated that the national government agenda on electrification determine electrification process to a greater degree as described by a SD of 0.217 and a mean of 4.13, Kenya Power and Lighting Company commitment to distribution of electricity determine electrification process to a greater degree as illustrated by a SD of 0.184 and a mean of 3.52, the nearness to other facilities such as public primary and secondary schools determine electrification process to a small extent as indicated by SD of 0.193 and a mean of 2.20, the local elected leaders in the rural areas priorities on distribution of electricity determine electrification process to a small extent (M=1.83, Standard deviation=0.253) and public participation in government budget making process every year determine electrification process to a small extent (Mean=1.85, standard deviation= 0.186).

4.4 Inferential statistics

4.4.1 Regression Analysis

The scholar carried out the multiple linear regression analysis to establish the association existing between Government Policy, macro environment and rural electrification. The scholar used SPSS version 21 to enable him code, enter and then be able to calculate the measurement of the multiple regression for the research.

The percentage of change in the predicted parameter or simply the degree to which a variation in the explained variable can be explained by a change in the predictor component is what is commonly known as coefficient of determination.

Table 4.9: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1.000	0.823a	0.677	0.653	0.4514

a Predictors: (Constant), government policy, macro environment

Table 4.9 shows a summary of the study model. The two-independent variables under study only explain 65.3% of the rural electrification as shown by the adjusted R square. An implication for this is that all other variables that were not examined in the study accounts for 34.7 of the rural electrification. This calls for further research to access the variables as well as other factors that influence 34.7% of the rural electrification. Table 4.9 underneath presents the summary of the study model

Analysis of variance

Table 4.10: Analysis of variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1.000	Regression	10.22	2	5.11	12.284	.000 ^b
	Residual	161.824	389	0.416		
	Total	172.044	391			

b Predictors: (Constant), government policy, Macro environment.

Table 4.10 presents findings on ANOVA statistics. The data processed, which is the parameter of populace, had a significance level of 0.000 which signifies that the data is very ideal for conclusion making on the study variables of the target population because the significance value (P-value) is less than 5%. It also shows that the model is significant according to the statistics.

Table 4.11: Regression Coefficient

	Unstandardized		Standardized		t	Sig.
	Coefficients		Coefficients			
	B	Std. Error	Beta			
(Constant)	1.152	0.272			4.235	.000
Government Policy	0.678	0.165	0.641		4.109	.001
Macro environment	0.602	0.164	0.581		3.671	.012

a Dependent Variable: rural electrification

Source: Field data (2018)

$$Y_i = 1.152 + 0.678X_1 + 0.602X_2 + \varepsilon$$

The possible Y value when all other components are as same as zero is 1.152. The analysis of also indicated that equating all other predictor variables to zero, a unit rise in the government policy cause a 0.678 rise in rural electrification; an implication for this is that a considerable association amid rural electrification and government policy exists. This is because the p-value had a factor of 0.0001 hence a significant association. A rise in macro environment by one unit will result in a 0.602 rise in Supply chain performance; implying that a substantial association amid rural electrification and macro-environment exists. This is because the P-value had a factor of 0.012 hence a significant association.

4.5 Discussion of the Results

Objective 1: Influence of Government Policy on Success of Rural Electrification in Kenya

The study found that electricity is significant in the economy of Kenya today. Electricity is important in running businesses in Kenya. Electricity connection helps in setting up businesses even in remote areas. More activities increase in the rural areas when electrification is done.

The study found that government policy affects the success of rural electrification to a great extent. Consistently Barnes & Halpern (2001) stipulated that the government through the policy making process provides guidelines on how rural electrification process is achieved.

The respondents suggested that the government should formulate policies governing the budgeting and cost implications of the rural electrification projects. Similar suggestions were made by Mwihi, (2015) who continued to opine that policy makers have key roles to play such development of legal framework and offering security to the appliances in use in rural electrification.

Objective 2: Effects of Macro-environment on Rural Electrification in Kenya

The findings revealed that other external macro-economic factors that highly influence the rural electrification projects by the government include bureaucratic obstacles, credit constraints issues, over-rated transport and labor costs as well as low reliability of electrical grid. A study by Sash, (2003) argues that there could be several valid reasons for why electricity cost varied and hence, benchmarks were only legitimate if the sources of bottlenecks could be well explained.

Objective 3: Effects of Government Policy and Market Environment on Success of Rural Electrification in Kenya

From the investigation, it was ascertained that the national government agenda on electrification determine electrification process to a large extent, Kenya Power and Lighting Company commitment to distribution of electricity determine electrification process to a large extent, the nearness to other facilities such as public primary and secondary schools determine electrification process to a small extent, the local elected leaders in the rural areas priorities on distribution of electricity determine electrification process to a small extent and public participation in government budget making process

every year determine electrification process to a small extent. Similar to the findings, KNBS, (2000) found that government role and political will are key in the success of the rural electrification projects.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The general objective of the research was to establish the effects of Government policy and Macro-environment on rural electrification in Kenya. The research purposed to investigate the influence of government policy on rural electrification in Kenya and establishing the effect of Macro-environment on Kenya's rural electrification.

5.2 Summary of the study

To assess the effect of Government Policy and Macro environment on rural electrification, this study used descriptive design which "is concerned with finding out what, where, and how of a phenomenon."(Mugenda & Mugenda, 2003). This study targeted households, the business community, schools under rural electrification and industries.

A purposive or judgmental Non-probability sampling approach was employed. The choice of sample was done based on the nature of the research objectives. The sample size of 500 from the total population of 4500 households was obtained. Feedback forms were utilized to obtain data for all categories of respondents. The researcher specifically targets the heads of households for homes, and head teachers for Schools. For industries, the researcher targeted operations managers who are familiar with the usage of electricity in their organizations.

Both quantitative as well as qualitative analysis method was applied. Qualitative data collected was analyzed using qualitative analysis of the written materials from respondent's personal expressions. The data was then summarized according to the theme of the study. The data was analyzed to determine its credibility, accuracy, consistency and usefulness. Both inferential and descriptive statistics were used in analyzing quantitative data.

On the significance of electricity in the economy of Kenya today that electricity is important in running businesses in Kenya. Electricity connection helps in setting up businesses even in remote areas. More activities increase in the rural areas when electrification is done. The findings also revealed that the demand of electricity is not influenced by the monthly payments.

The study established that several factors determine electrification process. To start with, the national government agenda on electrification determine electrification process to a large extent. Kenya Power and Lighting Company commitment to distribution of electricity determine electrification process to a large extent as well. From the findings, the nearness to other facilitates such as public primary and secondary schools is a factor determining electrification process to a small extent. The local elected leaders in the rural areas priorities on distribution of electricity determine electrification process to a small extent as well as public participation in government budget making process every year determine electrification process to a small extent.

5.3 Conclusion of the study

The research makes a conclusion that electricity is significant in the economy of Kenya today. Electricity is important in running businesses in Kenya. Electricity connection helps in setting up businesses even in remote areas and increase activities in the rural areas. The demand of electricity is not influenced by the monthly payments.

The study concludes that the factors that mainly determine electrification process are; the national government agenda on electrification, Kenya Power and Lighting Company commitment to distribution of electricity. Other factors that determine electrification process include the nearness to other facilities such as public primary and secondary schools, local elected leaders in the rural areas priorities on distribution of electricity and public participation in government budget making process.

5.4 Recommendations of the study

Due to the established duty of government policy in on the success of rural electrification, the research recommends the following.

- a) The government should formulate policies governing the budgeting and cost implications of the rural electrification projects. Clear policies on the monitoring and enforcement of contractors should be established to avoid inflated costs and perhaps improve project quality and safety.
- b) The study revealed that bureaucratic obstacles, credit constraints issues, over-rated transport and labor costs are some external macro-economic factors that highly

influence the rural electrification projects by the government. As such the government should make the process more flexible to enable more people to access the service.

5.5 Limitations of the Study

The researcher faced a number of limitations throughout the study period. The approach of the respondents was most likely to be very reluctant in the process of providing information with worries that the information provided would be used to harm them. To free them from this fear, the investigator presented to them a letter from the university assuring them that the information provided will be very confidential and private, and that it will be used solely for academic reasons.

Another problem was encountered in the process of eliciting information on the part of the participants because the kind of information that was required elicited emotions, feelings, perception, and attitudes that proved difficult to be accurately computed. However, the investigator reassured all participants to be freely involved providing all the information useful as the instrument of study.

5.6 Areas suggested for further Research

The focus of this investigation was on the influence of government policy and macro environment on rural electrification in Kiambu County, Kenya. The findings of the survey may be restricted to Kiambu County and hence cannot be generalized to suit other counties. There is need for future research to be conducted in other counties for comparison.

The study also focused on only independent variables, the government policy and macro environment and the effect they have on the rural electrification. An additional examination ought to be conducted on the impact of other factors that affect the rural electrification

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APPENDICES
Appendix I: Questionnaire

Date.....

Questionnaire Number.....

Location.....

Name of Data Enumerator.....

The researcher aims at intends to gather general information about yourself and effect of government policy and macro environment on rural electrification in Kenya. The study puts emphasis on how government decision making process and the existing macro environment influence electrification process in the rural areas in Kenya. The questionnaire has two sections. Respond to the questions honestly and to the best of your knowledge. Your response will be kept strictly confidential. Please tick (√) in the appropriate box.

SECTION A: GENERAL INFORMATION

(Instruction -Tick where appropriate)

1. What is your Gender?

Male []

Female []

2. What is your age in years?

Below 20 years []

21-30 Years []

31-50 years []

Over 70 years []

3. What is your marital status?

Single []

Married []

Divorced []

Separated []

Widowed []

4. For how long have you been living in Kiambu County?

Less than 2 years [] 3 to 5 years [] 5 to 8 years [] Over 10 years []

5. What is your Primary Source of Energy?

Kerosene []

Solar []

Biomass (Wood) []

Electricity []

6. Duration of time electricity has been within your locality

Less than 5 years []

6-10 Years []

11-15years []

16 years and above []

SECTION B: SIGNIFICANCE OF ELECTRICITY CONNECTION

7. What is your opinion on the following the significance of electricity in the economy of Kenya today? (Please tick (√) in the appropriate box)

Aspect	Strongly agree	Agree	Disagree	Strongly disagree
Electricity is important in running businesses in Kenya				
Electricity connection helps in setting up businesses even in remote areas				
The demand of electricity is influenced by the monthly payments				
More activities increase in the rural areas when electrification is done				

8. In your opinion, how can the electrification be improved by way of focusing on government policies?

.....

.....

.....

9. To what extent do you think Government policy affects the success of rural electrification?

.....

Do you think there are other external macro-economic factors that highly influence the rural electrification projects by the government? Explain

.....

SECTION C: ELECTRIFICATION IS A SOLE GOVERNMENT ACTIVITY

Using a scale of (1= not at all, 2 = small extent, 3 = moderate extent, 4 = large extent, 5 = very large extent), indicate the extent to which the following factors determine electrification process.

Government related leadership factors

Aspect	Respondents Ratings				
	1	2	3	4	5
The national government agenda on electrification					
Kenya Power and Lighting Company commitment to distribution of electricity					
The local elected leaders in the rural areas priorities on distribution of electricity					
The nearness to other facilitates such as public primary and secondary schools					
Public participation in government budget making process every year					

Thank you for participating in this study.

APPENDIX II: PERMIT



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P.O. Box 30197
Nairobi, Kenya

DATE... 19/10/2018

TO WHOM IT MAY CONCERN

The bearer of this letter... KARIUKI MUTOLAI KIAMUA

Registration No... DG1/61252/2011

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.

PROF. JAMES M. NJIHIA
DEAN, SCHOOL OF BUSINESS

