ASSOCIATION BETWEEN MARKET PENETRATION STRATEGY BY RURAL ELECTRIFICATION AUTHORITY AND PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES: A CASE OF SIAYA COUNTY, KENYA

BY

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ABSTRACT

Market penetration is the activity or fact of increasing the market share of an existing product. The market penetration strategy by Rural Electrification Authority (REA) is an enhanced electricity connectivity programme in rural Kenya. Literature presents theoretical proposals and empirical results on electrification, its effects and impact on diverse contexts. However they examine general effects yet others only investigate microenterprises. Moreover the results of the studies are inconsistent. No study has examined the association between market penetration strategy by an electrification entity and performance of small and medium enterprises (SMEs). Therefore this information is lacking. Specifically, it is not known what the association between electricity market penetration strategy and SME's growth is. Information on association between the strategy and SME's efficiency is also not known as is the information on the association between the strategy and SME's customers' satisfaction. The purpose of the study was to investigate association between REA's market penetration strategy and performance of SMEs in Siaya County where strategy was implemented earliest. Specific objectives were to establish the association between REA's market penetration strategy and the SMEs growth, SMEs' efficiency and SMEs customer satisfaction. Structuration theory guided the study. A correlation survey design was used. Population consisted of 1740 SMEs owners or managers. Stratified sampling approach was used to pick the sample of 325. Both primary and secondary data were used. Pilot test was conducted on 10 respondents within the population. This data was used to test the questionnaire. Market penetration strategy and performance registered reliability at Cronbach's α=0.78 and 0.71 respectively. Validity test was conducted by exposing the questionnaire to experts. Correlation results were from r=0.164, p =.000 to r= 0.427, p =.006 for SME growth; from r=0.195, p =.000 to r=0.439, p =.001 for SME efficiency; and from r= 0.140, p =.000 to r=0.770, p =.006 for customer satisfaction. For all the three areas of performance, there was significant positive correlation with REA's market penetration strategy although weak in some cases but stronger in others. Conclusion is there is association between the strategy by REA and each of the three aspects of SME performance in Siaya as specified by the three objectives. It is recommended REA emphasizes the strategy and the SMEs emphasize uptake to improve their growth, efficiency and customer satisfaction. The study findings will help the government formulate policies on electrification, SMEs make energy consumption related decisions and researchers conduct further studies.

CHAPTER ONE
INTRODUCTION

This chapter provides an overview of the background of the study, statement of the problem, objectives of the study, research hypotheses, scope of the study, justification of the study and the conceptual framework.

1.1 Background of the Study

Ansoff (1957) defines market penetration as the number of people who buy a specific brand or a category of goods at least once in a given period, divided by the size of the relevant market population. Market penetration is one of the four growth strategies of the Product-Market Growth Matrix as defined by Ansoff and it occurs when a company penetrates a market in which current or similar products already exist. It is the activity or fact of increasing the market share of an existing product, or promoting a new product, through strategies such as bundling, advertising, lower prices, or volume discounts (Farris et al, 2010).

1.1.1 Rural Electrification as a Market Penetration Strategy

Energy for carrying out production and other causes can be like- petroleum, gas, kerosene, and electricity. Electricity can be produced by burning fossil fuels or by using renewable sources like solar, biomass, geothermal, hydro or wind (Meadows et al, 2003). It also can be produced by nuclear energy sources. Rural electrification is the process of generating and distributing electrical power to rural and remote areas. Electricity is used not only for lighting and household purposes, but it also allows for mechanization of many farming operations, such as threshing, milking, and hoisting grain for storage. In areas facing labour shortages, this allows for greater productivity at reduced cost (Bhattacharyya, 2005).

The market penetration strategy by Rural Electrification Authority in Kenya is about enhancement of electricity connectivity in rural areas through community *barazas* to sensitize the community on electricity uptake and offering subsidies on electricity connection fees for SMEs. The United Nations (UN) established the Millennium Development Goals (MDGs) and set targets to improve the standard of living of the world's poor (UN, 2000). Since then the MDGs have been transformed to sustainable development goals (SDGs). Although not part of the SDGs, access to affordable energy, especially electricity, is necessary if the SDGs

are to be achieved. Studies have revealed that there is a high correlation between the level of electricity consumption and human development index (Meisen & Akin, 2008). In Kenya, however, electricity connections in rural parts have stagnated with only 10% of the population connected by 2011 (Abdullah and Markandya, 2012) and34% by 2013 (REA, 2014). The Kenya government (GoK) through its electricity sub sector utilities such as Rural Electrification Authority (REA) embarked on a campaign to improve this position. In particular, REA operates programmes aimed at penetrating the market.

REA's Rural Electrification program began in 2008. The programme's objectives are to stimulate socio-economic development in rural areas of Kenya through electrification of public facilities like schools, trading centers and dispensaries, to increase access to electricity by rural folks who live around these facilities; and to raise the standards of living of rural people through the delivery of enhanced social services in health, education and income generation projects (REA Strategic Plan, 2008-2013).A strategy to improve access is a government sponsored connectivity subsidy through REA which is aimed at penetrating the market. This programme was expected to have huge potential benefits in productivity and profitability of existing SMEs, and also reduce the barrier to the creation of new micro-enterprises which in-turn may increase the available disposable income that may be used to improve the standard of living (Kooijman-van Dijk & Clancy, 2010; and Nichter & Goldmark, 2009). Cabraal et al. (2005) noted that access to electricity has a significant impact in rural development only when it is used efficiently and on income-generating activities.

Rural areas without electricity have worse record of business development when compared to rural areas provided with electricity. A study conducted in Philippines revealed that small home businesses were more active in areas with electricity (World Bank, 2008). Rural electrification has the potential of improving the quality of life of rural life in various ways. The energy demand is rapidly growing throughout the developing world where there is increased need for energy to support various services like domestic and small scale services (Abdullah and Markandyab, 2012; Barnes, 2012). In order to enhance electricity access to rural areas, several of the developing countries have undertaken a number of policy and institutional initiatives. However, rural electrification programs in developing countries have faced major obstacles that are associated with low population densities in rural areas that has

resulted in high capital and operating costs for electricity companies, low electricity connectivity and consumption as a result of poor consumers (Singh and Ali, 2001), interferences on the orderly planning and running of the electricity by politicians always insisting on favoring their constituents and unwillingness by local communities and individual farmers in providing way leaves for the construction and maintenance of electricity lines (Barnes, 2012). Consequently, the quality of electricity services proposed for rural areas in developing countries often fall short of those provided to urban areas. This is evidenced in the form and number of brownouts and blackouts, power interruption and fluctuating power quality (World Bank, 2003).

Although developing countries are still lagging far behind in relation to the provision of electricity to its rural population, several of the emerging economies have successfully provided electricity to their rural populations. For instance in Costa Rica, over 90 percent of rural people have access to electricity supply while more than 95 percent of the rural population receives electricity supply from cooperative and government energy agencies (United Nations, 2005). Similarly, more than 95 percent of the rural households in Tunisia have access to electricity supply (World Bank, 2008).

In Kenya, the government has fostered rural electrification in the country using grid and off grid supply through diesel stations or renewable energy sources such as the solar, wind and biogas. The Rural Electrification Authority (REA) that was established in 2006 has been on the fore front in the provision of the electricity to rural populations (Abdullah and Markandyab, 2012). The government continues to connect electricity to most public institutions in the rural areas such as trading centers, public primary & secondary schools and health centers due to their significant role in achieving rapid growth (Ondari, 2010). Contrary to earlier speculation that the future of rural electrification in Kenya is bleak (Otieno and Awange, 2006), it can be clearly stated that it has greater prospects given the increased commitment from the government to expand the process.

Tybout (2000) studied electricity access and found it to be one of the decisive components of business success in developing countries while Eifert et al. (2008) in a survey of microenterprises found that energy is the largest of indirect costs that explain low productivity in Africa. Neelsen & Peters (2011) studied impact of electricity access in micro-

enterprises in Uganda using quantitative firm-level data from 200 enterprises complemented by qualitative case studies. Results indicated that there was little direct impact of electricity access on firm profits or worker remuneration. However, there was significant indirect effect mainly due to increase in demand for goods and services prompted by migration from non-electrified to electrified communities. The study concluded by stressing the need for productive energy promotion policies to be put in place to assist local entrepreneurs to take informed business decisions.

Kirubi (2006) investigated the contribution of electricity provision to microenterprise growth in rural areas. He combined quantitative and qualitative survey instruments such as participatory rural appraisals (PRA) and found the contribution positive. Cabraal et al. (2005) added their voice arguing that access to modern energy services could facilitate the productivity of small and medium-scale enterprises (SMEs), boost agricultural production, and improve health conditions. Kooijman - van Dijk (2008) examined the decision to take up modern energy and how it might translate into impacts in firms. The results showed positive effects of electrification on working hours that increases the flexibility of entrepreneurs.

Fishbein (2003) surveyed the productive use of electricity in several countries and observed that electricity is being used in businesses, irrigation, pumping water, and in other activities that improved the living standard of the people, albeit at different levels. Sawe (2004) argues that lack of data and information on the linkages between electricity services and SME development may have effects on national policy and strategies to combat poverty as most of the rural poor depend on small and medium enterprises for income generation.

Peters et al. (2009) argue that the lack of robust evidence can partly be attributed to the fact that electricity is a 'quintessential' intermediate good. Electricity does not represent an end in itself: it is an input factor to a large set of activities ('uses') that can improve welfare, increase productivity or generate income. The complex interactions and synergies between multiple development factors including other infrastructure investments next to electricity and enabling political, socio-economic and cultural conditions, pose major methodological challenges to isolating and quantifying the impact of electrification. Indeed, it is increasingly recognized that certain "complementary" inputs or services – such as business development

services (BDS) or access to finance – can increase the chances that access to electricity leads to significant income generation and poverty alleviation (IEG 2008, Peters et al. 2009). However, knowledge about the extent to which these complementary factors contribute to improving the impacts of energy investments on poverty reduction and under which circumstances is at best incomplete (Kooijman-van Dijk 2008).

1.1.2 Small and Medium Enterprises (SMEs)

There is no universally accepted definition of SMEs. Conventionally it is determined by the industry within which it operates. In some cases it is defined under few important criteria like capital, income, number of employees etc. According to the definition provided by Germany SMEs are enterprises with a limit of 500 employees, while in Belgium it is only 100 (Chaurey et al., 2004). Small and cottage industries (SCIs) in the previous versions of the Industrial Policy of Bangladesh has been replaced by SME in the Industrial Policy 1999, which defines "small industry" as an enterprises (excluding cottage units) employing fewer than 50 workers and/or with a fixed capital investment of less than BDT 100 million and "medium industry" as enterprises employing between 50 to 99 workers and/or with a fixed capital investment of between BDT 100 million and BDT 300 million (Bhattacharyya, 2005).

The literature presented presents arguments and empirical results on electrification and its impact and or effect. However the results are not consistent (Kirubi, 2006; and Neelsen and Peters, 2011). Other studies examined general effects yet others only investigated microenterprises. There are no studies that examined the association between market penetration strategy as a strategy by an electrification entity and performance of SMEs. Therefore information on this is lacking. Specifically, it is not known how electricity market penetration strategy associates with growth and expansion of SMEs. Information on association between electricity market penetration strategy and efficiency in operations of SMEs is also not known as is the information on the association between the strategy and satisfaction of customers of SMEs.

1.2 Statement of the Problem

Despite the fact that Kenya government has increased its efforts in providing electricity to populations living in rural areas, the country and especially Siaya County has not yet achieved the universal electricity connectivity and even in areas where the rural

electrification program have been rolled out fully, there is no reliable data on the impacts of market penetration strategy established by REA in 2008. Literature has presented theoretical proposals and empirical results on electrification and its effects and impact on diverse contexts. However studies on rural electricity penetration and performance of rural enterprises have not shown consistent results. Moreover they examined general effects yet others only investigated microenterprises. There are no studies that examined the association between market penetration strategy as a strategy by an electrification entity and performance of SMEs. Therefore information on this is lacking. Specifically, it is not known what the association between electricity market penetration strategy and growth and expansion of SMEs is. Information on association between electricity market penetration strategy and efficiency in operations of SMEs is also not known as is the information on the association between the strategy and satisfaction of customers of SMEs.

1.3 Objectives of the Study

The purpose of the study was to investigate association between REA's market penetration strategy and performance of small and medium enterprises in Siaya County.

Specific objectives were:

i. To establish the association between REA's market penetration strategy and growth of SME's in Siaya County.
ii. To establish the association between REA's market penetration strategy and efficiency of SME's in Siaya County.
iii. To investigate the association between REA's market penetration strategy and satisfaction of customers of SME's in Siaya County.

1.4 Research Hypotheses

The following research hypotheses guided the study:

i. There is no association between REA's market penetration strategy and growth of SME's in Siaya County.
ii. There is no association between REA's market penetration strategy and efficiency of SME's in Siaya County.
iii. There is no association between REA's market penetration strategy and satisfaction of customers of SME's in Siaya County.

1.5 Scope of the Study

This study focused on Siaya County and Rural Electrification Authority. It was concerned about the period 2011to 2015 during which the Authority intensified electricity penetration. It targeted all the SMEs in Siaya County. Study focused on rural county excluding the county towns namely; Akala, Bondo, Sega, Siaya, Ugunja, Ukwala, and Yala that had been electrified before the period of the study. It investigated association between market penetration strategy by REA and performance of small and medium enterprises in Siaya County. Specifically it sought to establish the association between REA's market penetration strategy and growth and expansion of SMEs in Siaya County, establish the association between REA's market penetration strategy and efficiency in operations of SME's in Siaya County; and investigate the association between REA's market penetration strategy of rural electrification and satisfaction of customers of SME's in Siaya County.

1.6 Significance of the Study

The outcome of this study can be used by policy makers in further formulation of national electrification policy with respect to connectivity to aim at expanding the business prospects of rural communities through SMEs expansion. This study may influence and encourage rural people and promote the productive use of electricity in generation of income through small and medium enterprises. It may also benefit the local policy makers like the County governments and individual entrepreneurs on decision making about uptake of electricity especially those who have not. Also further research could be carried out to explore factors affecting electricity uptake.

1.7 Conceptual Framework

According to Reichel and Ramey (1987) and Mugenda and Mugenda (2003), a conceptual framework is defined as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. It is a hypothesized model identifying the module under study and the relationship between the dependent and independent variables. Such a framework is intended as a starting point of reflection about the research and its context. When the conceptual frame work is clearly articulated, it has potential usefulness as a tool to support research and therefore to assist the researcher to make meaning of subsequent findings. Figure1.1below demonstrates how REA's market penetration strategy is expected to impact or affect SME performance. Therefore the

independent variable is REA's market penetration strategy of rural electrification and the dependent variable is SME performance.

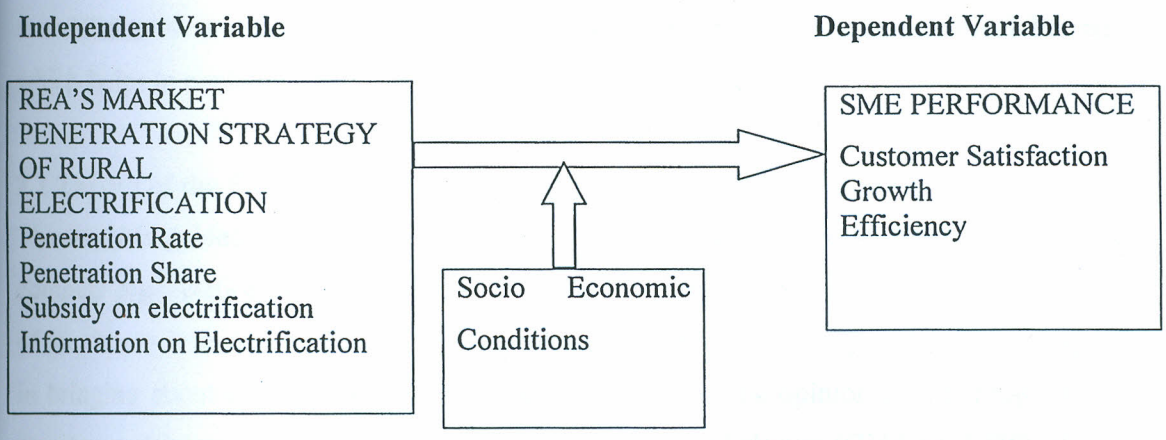

Figure 1.1 Relationship between REA's market penetration strategy of rural electrification and SME performance

Source: Adapted from REA (2013) and Kirubi (2006)

CHAPTER TWO

LITERATURE REVIEW

This chapter reviews theoretical literature and empirical studies. It focuses on the theoretical foundations on which the study is built. It also explores comparative empirical literature which helps to explain the gap which the study seeks to address.

2.1 Theory of the Study

The study is guided by Structuration Theory which is about change in the environment that compels organizations to change. Giddens (1976) outlines the Structuration theory. The gist of the theory is an affirmation of both the roles of structures of society and individual agency in bringing about change. He contends, and rightly so, in the opinion of this proposal, that structures alone are not sufficient to bring about the desired change (Giddens, 1976). He sees desired change as a product of the duality of structures and actions where both contribute to the desired change. In the context of this proposal, SMEs offers an opportunity correlation to rural electrification program in Siaya County and are only positively realized if the people of Siaya make a willful decision to harness such an opportunity. Willful decision to harness an opportunity cannot exist without the presence of the opportunity that the structures present.

2.2 Market Penetration Strategy

The activity or fact of increasing the market share of an existing product, or promoting a new product, through strategies such as bundling, advertising, lower prices, or volume discounts (Paul et al, 2010). According to Ansoff (1957), market penetration is the number of people who buy a specific brand or a category of goods at least once in a given period, divided by the size of the relevant market population. Market penetration is one of the four growth strategies of the Product-Market Growth Matrix as defined by Ansoff and it occurs when a company penetrates a market in which current or similar products already exist. To increase market penetration, a business can employ a number of strategies in an effort to take sales from its competitors like price adjustments. The two key measures of market penetration are penetration rate and penetration share. The penetration rate (also called penetration, brand penetration or market penetration as appropriate) is the percentage of the relevant population that has purchased a given brand or category at least once in the time period under study. Also market penetration usually covers products that are existence and that are also existent

in an existing market. In this case the product is electricity and the existing market is SME owners in Siaya County.

Rural electrification can be defined as the provision of electricity to areas of low demand and highly dispersed potential consumers. It is the process by which access to electricity is provided to households or villages located in the isolated or remote areas of a country. Due to rural electrification the rural population starts participating in a "self-problem solving" climate rather than a "depending on the government" climate. This obviously results in increased net tax revenue to government, thereby improving citizens-government relation (Ceceliski and Glatt, 2001).

Literature presents theoretical proposals and empirical results on electrification, its effects and impact on diverse contexts. However they examine general effects yet others only investigate microenterprises. Moreover the results of the studies are inconsistent. No study has examined the association between market penetration strategy by an electrification entity and performance of small and medium enterprises (SMEs). Therefore information on this is lacking. Specifically, it is not known what the association between electricity market penetration strategy and growth of SMEs is. Information on association between electricity market penetration strategy and SME's efficiency is also not known as is the information on the association between the strategy and SMEs customers' satisfaction.

2.3 Rural electrification as Market Penetration Strategy

Electricity as consumption and an intermediate good has been linked to income growth and therefore a causal relationship exists between income and infrastructure (Cook, 2012). Rural electrification promises a brighter future for many rural communities and in the long term, the benefits of providing electricity to small and medium enterprises can be high. Research study outcomes have given evidence indicating the positive relationship between electricity consumption and gross domestic production and this correlation has been reflected by the relationship existing between the electrification rate in a country and the percent of households living above the poverty line of two dollars per day (Kirubi, 2006, Tuntivate, 2011). Whereas demand for energy in urban areas is high due to large commercial enterprises, the energy demands of commercial sector, small industry and communities in the rural areas follow similar evolutions to those of households as economic activity increases

(World Bank, 2003). Electricity is an important condition for the development of rural businesses and that under the right circumstances it can result in significant economic growth. As evidenced by the existence of numerous research studies, the social and economic benefits of electrification have been researched over the last two decades. Barnes (2012) established in his review that in households with electricity, people have enhanced chances of undertaking activities that require higher levels of lighting as opposed to households with no electricity. Cook (2012) points out that the effect of rural electrification on small businesses should be determined by the nature of the local community, the complimentary programs and the ability of rural entrepreneurs.

While lack of modern energy is often characterized as a barrier to micro-enterprise development, removing this barrier does not necessarily result in micro-enterprise development. In other words, access to modern energy is neither the only nor even necessarily the most important factor influencing micro-enterprise development. Other factors such access to finance, markets, and other infrastructure is also very important. Support for the notion that modern energy can and does act as a stimulus for the emergence, growth and continued development of microenterprises is relatively strong in the literature reviewed (Karekezi and Majoro, 2002). Fakira (1994 cited in Meadows, et al 2003), for example, claims that "energy is one of the critical resources needed to liberate micro-enterprises from low value, low productivity and low income activities." Allerdice and Rogerson (1997) suggest that "access to even limited amounts of electricity for micro-enterprises in non-grid–connected areas can be important to the establishment and growth of those businesses." Foley's (1990) study reports increased economic activity and higher living standards following electrification and concludes that "the arrival of an electricity supply in certain areas seems to be a crucial factor in precipitating decisions by local entrepreneurs to invest in a variety of productive enterprises." Rogerson (1997) cites evidence from KwaZulu/Natal of positive impacts on existing SMEs that benefited from the switch to electricity including welding shops and tailors.

2.4 Association of Rural Electrification as a Penetration Strategy with Performance of Firms

Research exists on the possible benefits of rural electrification and its impacts on income generation especially for the poor (ESMAP, 2000), but generally little empirical work has been carried out that could verify a positive relationship between the two. The necessity to clearly understand how electricity consumption and income development after a business enterprise is connected to the grid or any other decentralized electricity generating source is clear: first, potential benefits such as better job or income generation can only be realized if electricity is being used. Second, long-term economic sustainability of rural electrification can only be maintained if the new consumers are able to pay for the service.

Several studies have been carried out on the impact of access to electricity on small and micro scale enterprises in developing countries (Neelsen & Peters, 2011). Little (1987) investigated the role of small and micro-enterprises in fostering economic growth and underscore the importance of electricity access as a basic ingredient of firm development. Tybout (2000) found electricity access to be one of the decisive components of business success in developing countries. Using micro-firm level data from World Bank's enterprise surveys, Eifert et al. (2008) found that what they define as indirect costs explain low productivity in Africa and that energy constitutes the largest.

Neelsen & Peters (2011) assessed the impact of electricity access in micro-enterprises in Uganda using quantitative firm-level data from 200 enterprises complemented by qualitative case studies. The study found out that there was little direct impact of electricity access on firm profits or worker remuneration. However, there was significant indirect effect mainly due to increase in demand for goods and services prompted by migration from non-electrified to electrified communities. The study concluded by stressing the need for productive energy promotion policies to be put in place to assist local entrepreneurs to take informed business decisions.

Arnold et al., (2008) investigated the effect of the reliability of electricity supply and generator usage on firm productivity in 10 African countries. They found that reliability problems of the electricity grid had a statistically significant negative impact on firms' total factor productivity, while generator possession had a statistically significant and positive

effect. Bastakoti (2003) examined the role of enterprises for the effective use of electricity in Nepal and noted that rural electrification in isolation, without any complementary service mechanism and policy coordination, will not create the necessary development impacts.

Combining quantitative and qualitative survey instruments such as participatory rural appraisals (PRA), Kirubi (2006) discovered a positive contribution of electricity provision to enterprise growth in rural areas. Cabraal et al. (2005) stated that access to modern energy services could facilitate the productivity of small and medium-scale enterprises (SMEs), boost agricultural production, and improve health conditions. Kooijman - van Dijk (2008) examined the decision to take up modern energy and how it might translate into impacts in firms. The results showed positive effects of electrification on working hours that increases the flexibility of entrepreneurs. Furthermore, the study highlights —non-material impacts such as improved comfort for and increased social status of entrepreneurs.

Peters, et al. (2009) highlighted the need for complementary services such as sensitization campaigns or business developing services to promote the productive use of electricity to accelerate the impacts of rural electrification by reporting experiences gained in rural Benin. The study concluded that responsibility of complementary services should be in principle with the grid operator, while the regulatory bodies have to assure welfare orientation of the services. Peters (2009) presented different approaches to evaluating rural electrification programs taking into account specific challenges faced by researchers in such interventions. The study suggested that ex-ante evaluations be carried out on yet to be electrified target region and already electrified region. Such evaluations will provide robust evidence on impacts and provide good insights for project design. Fishbein (2003) surveyed the productive use of electricity in several countries and observed that electricity is being used in businesses, irrigation, pumping water, and in other activities that improved the living standard of the people, albeit at different levels.

A research study conducted by Singh (2009) found that businesses in rural areas of developing countries with access to electricity such as home businesses, small commercial shops, grain mills, saw mills, coffee and tea processing, brick kilns and other small scale enterprises can benefit from rural electrification programs. Rural electrification is one of those key factors. Rural electrification is well recognized as one of the important pre-

requisites in uplifting living standards of the geographically and economically disadvantaged communities in developing countries (Chaurey et al., 2004; Bhattacharyya, 2005). It also assists the business conduction of diversified types of businesses. This study evaluates such impacts on rural SMEs of the country with a case study.

According to recent research studies, more than 1.6 billion people in the world are without electricity and majority of these people are in rural areas of the developing world, where the pace of electrification remains slow (Barnes, 2012). Rural electrification forms an important part of the infrastructure of a country, although the infrastructural economic plans for developing countries have not given it more priority. In various developed and developing countries, rural electrification has been successful in stimulating development. Electricity is one of the primary inputs for economic and social development since its provision is crucial for improving living standards, supporting development and fostering social activities (United Nations, 2005).

Singh and Ali (2001) have reiterated that government expenditure on rural telecommunications, electricity and roads can have substantial impact on rural economic development. It is estimated that more than two billion people live in energy poverty, without the benefits of electricity. Rural electrification has gained prominence in recent years with the heightened interest in infrastructure in relation to the core part it can play in improving welfare and reducing dependence (Fishbein, 2003; Singh and Ali, 2001; World Bank, 2008).

The studies presented investigated general effects of electrification. They did not focus on it as a penetration strategy. They also emphasized microenterprises. There are no studies that examined the association between market penetration strategy as a strategy by an electrification entity and performance of SMEs. Therefore information on this is lacking. Specifically, it is not known how electricity market penetration strategy associates with growth and expansion of SMEs. Information on association between electricity market penetration strategy and efficiency in operations of SMEs is also not known as is the information on the association between the strategy and satisfaction of customers of these SMEs.

In Tanzania, the most important factors inhibiting growth and decline in the micro enterprises

sectors are not well known. Based upon research conducted in Africa on micro-enterprises, it is possible to identify specific micro-enterprises that are most likely to either survive or close. The findings show that those micro-enterprises that had added employees since their start-up were more likely to survive than those that had retained the same number of employees. A key finding was that the majority of micro-enterprises do not grow at all, as measured by indicators of employment. Among the estimated 20 percent that do grow, most grow only by a little by adding workers not more than ten people (Rogerson, 2001).

Peters, Vance and Harsdorff (2010) conducted an Ex-Ante Impact Assessment on Rural Electrification and Manufacturing Firm Performance in Benin. The paper investigates these impacts by comparing the performance of micro manufacturing enterprises in grid-covered and non-covered villages in Northern Benin. Using firm-level data, the empirical analysis employs a Propensity Score Matching. While beneficial impacts are found from firm creation after electrification, firms that existed before actually show a non-significantly inferior performance to their matched counterparts from a non-electrified region. Complementary measures that sensitize firms about the implications of a grid connection are recommended as important features of program design.

Scott et al. (2014) did a brief on how electricity insecurity affects businesses in low and middle income countries. The brief summarized evidence from recent research on the impact of electricity insecurity on manufacturing SMEs in developing countries. The research, quantitative and qualitative, focused on four countries where the reliability of electricity is low – Bangladesh, Nepal, Nigeria and Uganda – and identified key areas of action to reduce the negative effects.

Attigah and Mayer-Tasch (2013) did a literature review on the Impact of Electricity Access on Economic Development. At the macro-level, they found that empirical research shows a modestly positive impact of electricity on productivity which seems to vary across countries. The literature on poverty reduction reports a relatively small impact of electricity compared to other infrastructure investments (most importantly roads). The empirical research on electricity and growth presents an ambiguous picture. The energy economics literature analyzing the energy-growth nexus is generally inconclusive: there seems to be no consensus on the existence or the direction of causality between energy (or electricity) consumption and

economic growth. The studies on infrastructure and growth report a mostly positive effect of electricity on economic growth.

On the other hand, Attigah and Mayer-Tasch (2013) found that the micro-level-literature on productive use impacts of electrification programs is generally inconclusive. According to the research done so far, access to and use of electricity by MSMEs does not automatically lead to intended development results such as increased productivity, profits and income, and knowledge on the conditions under which this is the case are still sketchy. There is some evidence that electricity access can lead to the creation of informal (sometimes home-based) and formal enterprises. However, more research applying rigorous methods to avoid/control for any selection bias would be needed to confirm this finding. A growing body of literature shows positive impacts of both electricity use and electricity quality on firm productivity. Nevertheless, the magnitude of such impacts is highly country and context-specific. Concerning the impact of electricity on business income it is hardly possible to draw any conclusions at this point, as the available literature is very thin. There are significantly more studies measuring effects on household income. In this case there seems to be an overall positive impact yet results vary, e.g. regarding gender differences or differences between farm and non-farm income. The micro-level evidence on employment effects, too, is not quite clear. While some studies report a significant total increase in employment, others find that increased labour market participation is restricted to women or family members who are not paid. Regarding poverty reduction effects, the micro-level evidence does not yet provide a sound basis for the assumption that investing in electricity is an effective approach to lift people out of poverty. Overall, it seems that the full potential of the economic impact of electricity can only be exploited if certain necessary preconditions are fulfilled, such as a certain endowment with capital e.g. for investment in electric appliances and access to markets and transport infrastructure.

Hartvigsson et al (2015) studied Rural Electrification through Minigrids in Developing Countries and focused on Initial Generation Capacity Effect on Cost Recovery. The paper investigated the issue of cost-recovery for minigrid utilities in developing countries. They developed system dynamics model to investigate the effects of initial capacity generation on cost- recovery, user diffusion and electricity usage. The results showed that it is essential to correctly dimension the capacity of a minigrid and that the effects on cost recovery from an

incorrectly sized minigrid can be delayed up to several years. Furthermore, the results showed that in order to evaluate the performance of minigrids it is important to make a comprehensive analysis also looking at growth and absolute number of electricity users and their electricity usage. The study recommended that for future work it is important to endogenously describe the amount of connections the utility can perform and to further investigate the relationship between electricity provision and economic development.

Forkuoh and Li (2015) assessed the impact of the power insecurity on the growth of SMEs with a particular study on cold store operators in Asafo Market of Kumasi in Ghana, The research findings indicated that power outages had a negative effect on SMEs growth, while the cost of operating businesses saw a significant in-crease under the power outages. Cost of alternative sources of power also significantly pushes the operation cost of businesses high.

Scott et al. (2014) revealed that the proportion of SMEs in high-income countries (HICs) citing electricity as a major constraint is half of their counterparts in the Sub-Saharan African and Asia countries. Cost and time spent on acquiring electricity were also higher in the Less Developed Countries compared with that of High-Income Countries (HICs).The study went on to establish that the absence of reliable electricity supply to most SMEs in low income countries and its high tariffs to SMEs was becoming the number one challenge to SMEs in most developing countries (Scott et al 2014)

Research by ISSER (2015) on the effect of electricity power outage on SMEs in Ghana posited that, the current electricity crises in the country were costing the SMEs over US $686.4 million of annual sales. Based on previous re-search finding using a population of over 4 million SMEs in Ghana with a sample size 1250, micro businesses were the most affected by the electricity problems, recording a loss of around UD$2.2 Million daily, which represented over 50% of their daily sales. These have been partly blamed on market and state failures, which have led to the poor electricity supply.

Doe and Asamoah (2014) studied the effect of poor electricity supply on SMEs growth in Ghana and established that, the absence of reliable electricity supply and its compounded

high tariffs was having a negative impact on the quantity and quality of produce which had led to poor sales and low profitability.

Ejose and Grunfeld (2010) established that lack of finance and unstable electricity supply was the most severe obstacles to SME growth in developing countries similar to the findings from research on the obstacles to SMEs growth and development in the Sub-Saharan African countries by Hategа (2007) and Kauffmann (2006) who revealed that, weak financial markets and unreliable electricity supply were the most obstacles to SMEs growth. These findings show that, the electricity problems have been with the SMEs in developing countries for a longer period.

Empirical research by Akuru and Okoro (2011) on the effect of electricity power outages on the growth and survival of firms in Nigeria, established that, between 2000 and 2008 around 820 manufacturing firms were closed down, with the figure moving up to 834 in the following year, all because of poor electricity power supply and high cost on the alternative energy supply.

The studies above examined different areas around electrification and performance and or development. Whereas Akuru and Okoro (2011) examined effect of power outages on performance of manufacturing firms in Nigeria, Hategа (2007), Kauffmann (2006) and Ejose and Crunfield studied reliability of electricity supply and SME performance and so did Doe and Asamoah (2014), ISSER (2015) and Arnold (2008) Scott et al. (2014) compared constraints on SMEs in high income countries and sub Saharan African and Asian countries and found twice as many find electricity a constraint in the latter area. Quite apart, Korfuoh and Li l (2015) assessed power insecurity and growth of SME cold sore operators in Kumasi Ghana and Hartvigsson et al. (2015) who focused on minigrids and cost recovery. Neelsen & Peters (2011) assessed the impact of electricity access in micro-enterprises while Peters, Vance and Harsdorff (2010) conducted an Ex-Ante Impact Assessment on Rural Electrification and Manufacturing Firm Performance.

The studies above vary in their intentions and results. They covered various contexts and concepts but failed to address specifically rural electrification as a penetration strategy by an institution and its association with SME performance in a particular region as is the case of Siaya county. Information on the association between rural electrification as a specific market

penetration strategy and SME efficiency, growth and customer satisfaction is lacking. This presents the gaps the study objectives sought to fill.

CHAPTER THREE

RESEARCH METHODOLOGY

This section describes the methods that were used in the study. It explains the research design, the study population, sampling method and procedures, data collection procedure sand instruments, data analysis, data presentation and reporting.

3.1 Research Design

The study adapted a correlational survey research design. The design was expected to answer the research questions and meet the objectives of the study. Nachmias and Nachmias (2008) explain that a survey design is most suitable in a research aimed at establishing a problem and determining its extent. They contend surveys are so important that researchers of case studies complement their works with survey research. Correlational approach is useful in determining whether and to what degree a relationship exists between variables (Mugenda and Mugenda, 2003).

3.2 Study Area

This study was conducted in Siaya County. Siaya County is number 41 of the 47 counties in Kenya and is located in the former Nyanza Province in the southwest part of Kenya (GoK). It is bordered by Busia County to the north, Kakamega and Vihiga Counties to the northeast, Kisumu County to the southeast and Homa Bay County to the south. It shares the shores of Lake Victoria with Busia, Kisumu and Homa Bay Counties. The total area of the county is approximately 2,496.1 square kilometers and it lies between latitude 0° 26' to 0° 18' north and longitude 33° 58' east to 34° 33' west. Siaya County was chosen for the study because it is one of the two early targets by REA for electricity penetration and of the two, had higher electrification level. Further the SMEs in Siaya County are among the worst performing as a result of the impact of high levels of poverty. Study focused on rural county excluding the county more urban areas namely; Akala, Bondo, Sega, Siaya, Ugunja, Ukwala, and Yala. These areas had been electrified before the study period.

3.3 Population of the Study

A population of 1740 owner and or managers of these SMEs was adopted. The population is distributed as follows;

Table 3.1: Population Categorization

Entity	Population
SMEs	
Small	1218
Medium	522
Total	1740

Source: Adapted from Kenya Power (2015) and REA (2015)

3.4 Sampling

3.4.1 Sample Size

A sample of 325 owner and or managers of these SMEs was used. The sample size 325 owner or managers of the SMEs are determined using the formula by Yamane (1967) as follows;

$n = N/ [1+N (e)^2]$

n = Sample Size

N = Population Size

e = confidence level at 95%

Therefore when N=1740, and e=0.05,

$n = 1740/ [1+1740(0.05)^2]$

n= 325

3.4.2 Sampling Technique

Stratified sampling approach was used to pick the 325 owner and or mangers of the SMEs in Siaya County. Stratification was important for representation of all the sizes of the SMEs in the sample. Size of the SMEs was the basis for stratification.

Table 3.2: Sampling Stratification

Entity	Population	Sample Distribution
SMEs		
Small	1218	228
Medium	522	97
Total	1746	325

Source: Adapted from Kenya Power (2015) and REA (2015)

3.5 Data Collection

3.5.1 Data Type and Source

Both primary and secondary data were sought. The researcher collected secondary data from the SMEs' and REA's internal archives and from reports and journals by various authorities. Primary data was obtained from the owner and or Managers of the SMEs in Siaya County and also senior managers at REA.

3.5.2 Data Collection Procedure

The researcher scoped for the task of data collection first. Authority to collect the data was then sought from the university. A visit was made to the SMEs to drop the questionnaires and arrangements made to pick them later. For the respondents that were not be able to give data at the first attempt, repeat visit was be made.

3.5.3 Data Collection Instrument

Structured and semi structured questionnaire was used to obtain primary data from the sample. Statements bearing on the theoretical constructs were developed based on the literature review. Both the independent and dependent variables' constructs were measured on a range of items to allow for high variability. The respondents were required to indicate customer satisfaction in very specific elements such as decreased number of complaints, indicate growth in such elements as increased number of employees and indicate profitability in such elements as increased market share along a five (5) point Likert scale with specific anchors relevant to performance such as 'strongly decreased' (Germain et al., 2001, Allen and Helms 2006). These authors contend that the approach is the best in cases where data is

likely not to be available or difficult to obtain, where the data may not be presented in comparable format across all subjects, where firms studied are small in size with unsatisfactory records and where key informants are involved because there is strong correlation between the information they provide and the actual performance data. The current study is characterized by all of the above thereby strongly supporting the approach.

3.5.4 Reliability

Prior to embarking on main field work, the instrument for data capture was tested for reliability. A pilot test was carried out on a section of the population who were not therefore used for main data. This section consisted of ten (10) respondents which included nine (9) owner and or managers of SMEs in Siaya County and one (1) senior manager at REA. For reliability, the study relied on Cronbach's alpha coefficient test which was conducted on the pilot data. Cohen et al. (2003) recommended the test at a threshold of 0.70.This threshold was adopted for this study. Results of the reliability test are as shown on table 3.3 below

Table 3.3: Reliability of Study Instrument

Construct	Reliability Coefficient
Market Penetration Strategy	0.78
SME performance	0.71

Source: Research Data (2015)

3.5.4 Validity

Validity implies the extent to which measures in a data collection instrument represent the study concept and the degree to which it is free from subjective error (Nunally, 1978). Prior to data collection, the survey instrument was reviewed for validity. Validity was tested by use of expert researchers in this case, the supervisors and professionals in the field. They were asked to assess the extent to which the indicators addressed the subject area based on theoretical and practical considerations (Dillman, 1978).

3.6. Data Analysis

Data analysis was done using descriptive and inferential statistics. Means, percentages, frequencies and standard deviation were used to describe status of each variable. Pearson's Correlation was used to establish association between independent variable constructs and dependent variable constructs as are in objectives one to three.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents findings and discussion on the same. It highlights the results on each of the objectives

4.1 General Information

Questionnaires issued were 325. Total number of respondents whose responses were received and used in the analysis was 281. This represented 86% response rate.

Table 4.1 shows the distribution of the SME's by size in terms of number of employees. Those that were categorized as small were the largest comprising of over 75%

Table 4.1: Distribution of Businesses by Size

Size of Business	Frequency	Percentage
Small (11 to 50)	211	75.1
Medium (51 to 100)	70	24.9
Total	**281**	**100**

Source: Research Data (2015)

Table 4.2 shows the distribution of SMEs surveyed by age. Most of the businesses were found to be between 3-4 years old. The second largest groups were those between 0-2yrs old.

Table 4.2 Distribution of Businesses by Age

Age of Business	Frequency	Percentage
<= 2 years	84	29.9
3-4 years	168	59.8
5-6 years	13	4.6
7-8 years	16	5.7
Total	**281**	**100**

Source: Research Data(2015)

Table 4.3 Distribution of Businesses by Category

Business Category	Frequency	Percentage
Financial	19	6.8
Agriculture Based	3	1.1
Manufacturing and Processing	27	9.6
General Trade	84	29.9
Health	10	3.6
Educational	2	.7
Other	136	48.4
Total	**281**	**100**

Source: Research Data (2015)

Table 4.3 shows the distribution of the SMEs surveyed in terms of category. Among the categories that participated in the study, 29.9% were in general trade and only 0.7% in education. Majority (48.8%) fell under other categories.

4.2: SME Performance

Performance was measured using Customer Satisfaction, SMEs Growth and SMEs Efficiency. Three questions were used in each item and responses given in a five-point scale with two extremes (very low and very high) and a middle point (moderate). Performance indices were compared and results are summarized in table 4.4, 4.5 and 4.6below. Results indicate that businesses of size 51-100 had the higher performance index compared to their smaller counterparts. Further those who were in the financial business category had the highest performance index in all the three items used to measure performance. Results further showed that those between 3-4 years old in the business had the highest growth index and efficiency index. However, the youngest business had the highest customer satisfaction index.

Table 4.4: Customer Satisfaction Performance of the SMEs by Category, Age and Business Size

Business size	N	Mean	Std dev	Business category	N	mean	Std dev	Age of business	N	Mean	Std dev
51-100	44	3.74	0.51	Financial	19	3.81	0.61	<=2yrs	84	3.74	0.52
11 - 50	237	3.58	0.55	Manufacturing	27	3.78	0.59	3-4 yrs	168	3.67	0.49
				Health	10	3.77	0.31	7-8 yrs	16	2.86	0.27
				Agriculture	3	3.67	0.34	5-6 yrs	13	2.85	0.32
				General Trade	84	3.58	0.51				
				Other	136	3.55	0.56				
				Education	2	3.50	0.24				

Source: Research Data(2015)

Table 4.5: Growth Performance of the SMEs by Category, Age and Business Size

Business size	N	Mean	Std dev	Business category	N	mean	Std dev	Age of business	N	Mean	Std dev
51-100	44	4.25	0.51	Financial	19	4.74	0.26	3-4 yrs	168	3.88	0.51
11 - 50	237	3.6	0.66	Manufacturing	27	4.44	0.26	<=2 yrs	84	3.84	0.52
				Agriculture	3	3.67	0.34	7-8 yrs	16	2.33	0.3
				Health	10	3.6	0.41	5-6 yrs	13	2.33	0.24
				General Trade	84	3.49	0.57				
				Other	136	3.34	0.64				
				Education	2	3.17	0.23				

Source: Research Data (2015)

Table 4.6: Efficiency Performance of the SMEs by Category, Age and Business Size

Business size	N	Mean	Std dev	Business category	N	mean	Std dev	Age of business	N	Mean	Std dev
51 -100	44	4.25	0.51	Financial	19	4.61	0.3	3-4 years	168	3.88	0.51
11 - 50	237	3.60	0.66	Manufacturing	27	4.53	0.35	<=2years	84	3.84	0.52
				Health	10	3.97	0.33	7-8 years	16	2.33	0.3
				General Trade	84	3.61	0.51	5-6 years	13	2.33	0.24
				Agriculture	3	3.56	0.2				
				Education	2	3.5	0.24				
				Other	136	3.46	0.65				

Source: Research Data (2015)

4.3: Rural Electrification as a Market Penetration Strategy

Six senior managers of rural electrification authority were also asked to rate the penetration strategy. Table 4.7 gives the summary of the responses. Results indicate that 100% of respondents (the six senior managers) rated increase in number of units being connected and incerase in share of number units connected in relation to total units having potential for connection to be very high. Further, 100% of respondents (the six senior managers) rated Amount of subsidy on connectivity and awareness of the customers about the electricity connectivity strategy to be high. The median of 4 and inter quartile range of 0 (zero) shows that all responses clustered at High and median of 5 and inter quartile range (IQR) of 0 (zero) indicated that all the responses clustered at Very high.

4.4: Objective 1: Association between REA's Market Penetration Strategy of Rural Electrification and SMEs growth

Spearman's rank correlation between market penetration strategies and SMEs growth was performed and results tabulated in table 4.8. Results show that all the variables were significantly positively correlated at 5% significance level. Correlation coefficients (r-values) ranged from weak (r=0.164) to moderate (r=0.427) (Dancey and Reidy, 2004). It is worthy to note that increase in assets particularly had moderate positive correlation with Rate increase in number of unitsbeing connected and increase in share of number units connected in

relation to total units having potential for connection (r=0.427, p=0.000 and r=0.410, p=0.000) respectively.

Table 4.7: Correlation results between SMEs growth and market penetration strategy

		Strategy 1	Strategy 2	Strategy 3	Strategy 4
Increase in market share	Correlation coefficient	.239**	.318**	.164**	.375**
	P-value	.000	.000	.006	.000
	N	281	281	281	281
Increase in number of branches	Correlation Coefficient	.280**	.224**	.236**	.381**
	P-value	.000	.000	.000	.000
	N	281	281	281	281
Increase in assets	Correlation Coefficient	.427**	.410**	.218**	.366**
	P-value	.000	.000	.000	.000
	N	281	281	281	281

Source: Research Data(2015)

Notes:

*=Correlation is significant at the 0.05 level (2-tailed).

**=Correlation is significant at the 0.01 level (2-tailed).

Key

Strategy 1=Increase in number of businesses connectedwith electicity

Strategy 2= How fast businesses are being connected with electricity

Strategy 3= Decrease in the electricity connection fee

Strategy 4= Increase in the drive by REAto connect businesses with electricity

The results here are similar to those by Akuru and Okoro (2011), Hategа (2007), Kauffmann (2006) and Ejose and Crunfield (2010), Doe and Asamoah (2014), ISSER (2015) and Arnold (2008)

4.5: Objective 2: Association between REA's market penetration strategy of rural electrification and SMEs efficiency

Spearman's rank correlation between market penetration strategies and SMEs efficiency was performed and results tabulated in table 4.9. Results indicate that there was positive and significant correlation between SMEs efficiency and Market penetration strategy of rural electrification. Correlation coefficients (r-values) ranged from weak (r=0.195) to moderate (r=0.439) (Dancey and Reidy, 2004). It is notable that Reduction in wastages of material and time had moderate, positive and significant correlation with Rate increase in number of units being connected (r=0.439, p=0.000). Further, Use of machines, equipment and other facilities to full capacity was also moderately, positively correlated with Awareness of the customers about the electricity connectivity strategy.

Table 4.8: Correlation between SMEs Efficiency and Market Penetration Strategy

		Strategy 1	Strategy 2	Strategy 3	Strategy 4
Reduction in wastages of material and time	Correlation coefficient	.439**	.296**	.235**	.336**
	P-value	.000	.000	.000	.000
	N	281	281	281	281
Increase in outputs in relation to inputs	Correlation coefficient	.295**	.324**	.202**	.303**
	P-value	.000	.000	.001	.000
	N	281	281	281	281
Use of machines, equipment and other facilities to full capacity	Correlation coefficient	.338**	.317**	.195**	.420**
	P-value	.000	.000	.001	.000
	N	281	281	281	281

Source: Research Data(2015)

Notes:

*=Correlation is significant at the 0.05 level (2-tailed).

**=Correlation is significant at the 0.01 level (2-tailed)

Key

Strategy 1=Increase in number of businesses connectedwith electicity

Strategy2= How fast businesses are being connected with electricity

Strategy 3= Decrease in thevelectricity connection fee

Strategy 4= Increase in the drive by REAto connect businesses with electricity

The results are consistent with those of Kirubi (2006), Cook (2012), Peters, Vance and Harsdorff (2010) and Tuntivante (2011)

4.6: Objective 3:Association between REAs market penetration strategy of rural electrification and SME Customer satisfaction

Spearman's rank correlation between market penetration strategies and customer satisfaction was performed and results tabulated in table 4.10. Results indicate that all variables under customer satisfaction were positively significantly correlated with all the four market penetration strategies of rural electrification except reduction in number of complaints by customers with awareness of the customers about the electricity connectivity strategy (r=0.083, p=0.006). Significant correlation coefficients (r-values) ranged from weak (r=0.083) to strong (r=0.770) (Dancey and Reidy, 2004). Results further show that there was strong positive and significant correlation between reduction in number of complaints by customers and rate increase in number of units being connected (r=0.770, p=0.000). There was also strong positive and significant correlation between increase in complements by customers and increase in share of number of units connected in relation to total units having potential for connection (r=0.656, p=0.000). Number of customers making repear visits and purchases was also a moderate positively significantly correlated with rate increase in number of units being connected (r=0.439, p=0.000).

Table 4.9: Correlation between customer satisfaction and market penetration strategy

		Strategy 1	Strategy 2	Strategy 3	Strategy 4
Reduction in number of complaints by customers	Correlation Coefficient	.770**	.235**	.193**	.083
	p-value	.000	.000	.001	.006
	N	281	281	281	281
Increase in compliments by customers	Correlation Coefficient	.185**	.656**	.140*	.164**
	p-value	.002	.000	.000	.005
	N	281	281	281	281
Number of customers making repeat visits and purchases	Correlation Coefficient	.439**	.318**	.232**	.205**
	P-value	.000	.000	.000	.001
	N	281	281	281	281

Source: Research Data(2015)

Notes:

*=Correlation is significant at the 0.05 level (2-tailed).

**=Correlation is significant at the 0.01 level (2-tailed).

Key

Strategy 1=Increase in number of businesses connectedwith electicity

Starytegy 2= How fast businesses are being connected with electricity

Strategy 3= Decrease in thevelectricity connection fee

Strategy 4= Increase in the drive by REAto connect businesses with electricity

The results resemble those by Scott et al. (2014), Korfuoh and Li l (2015) and Neelsen & Peters (2011).

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter gives a summary of the entire research highlighting the conclusions, recommendations and suggestions for further research. The recommendations and suggestions are based on the findings in the previous chapters and the study objectives which relied heavily on the study questions.

5.1: Summary of Findings

The main objective of the study was to investigate the association between market penetration strategy of rural electrification by REA and performance of SMEs in Siaya County. Accordingly, the study used interviews from the SMEs in Siaya County to come up with data that was cleaned and summarized before being carefully analyzed to enable the conclusions and recommendations for this study. The initial analysis showed that there is an indeed increased connectivity to the grid by SME operators as a result of the strategy and performance of these SMEs improved as they were connected to the grid. Also these SMEs registered improved performance resulting in their growth, efficiency and customers making repeat visits to the businesses because the customer satisfaction level increased.

Lastly, SMEs have become many and more efficient, thus people do not have to access neighboring towns for services. Many cottage industries including tailoring and welding as well as grocery, electric posho mills, cyber cafes, barber shops, salons, woodworks and workshops had sprung up due to the market penetration strategy of rural electrification by REA in the rural areas of Siaya County. To this end, even the services that had initially relied on the major urban areas like Akala, Bondo, Sega, Siaya, Ugunja, Ukwala, and Yala are now able to be self-sustaining and even repairs are done within the vicinity thereby speeding up the turn-around times for most activities.

The main objective of the study was to investigate the association between market penetration strategy of rural electrification by REA and performance of SMEs in Siaya County. The results varied. Association between elements of REAs market penetration strategy of rural electrification and SME performance in terms of growth, efficiency and

customer satisfaction yielded significant positive correlations though ranging from weak to strong.

5.2: Conclusions

From the findings of objective one it can be concluded that there is an association between REAs market penetration strategy of rural electrification and SME growth in Siaya County.

From the findings of objective two it can be concluded that there is an association between REAs market penetration strategy of rural electrification and efficiency of SMEs in Siaya County.

From the findings of objective three it can be concluded that there is an association between REAs market penetration strategy of rural electrification and customer satisfaction among SMEs in Siaya County.

5.3: Recommendations

From the conclusion of objective one, it is recommended that the SMEs emphasize uptake of electricity and that REA intensifies electrification. This will result in further growth of the SMEs

From the conclusion of objective two, it is recommended that the SMEs emphasize uptake of electricity and that REA intensifies electrification. This will result in increased efficiency in the activities of the SMEs

From the conclusion of objective three, it is recommended that the SMEs emphasize uptake of electricity and that REA intensifies electrification. This will result in increased customer satisfaction with the offerings of the SMEs.

5.4: Limitations of the Study

According to the recommendation above, success of the market penetration strategy by REA depended in part on SMEs willingness to uptake electricity. This study did not investigate the factors that affected this uptake of electricity by SMEs, for example socio-economic disposition and cultures of the SME's owners or managers. It is therefore recommended further research should focus in this area.

5.5: Areas of Further Research

The study recommends further study in this area using higher level analysis of relationship such as the use of regression. It also recommends that the study be carried out in other regions in Kenya and in other contexts such as public institutions in order to establish the wider contribution of rural electrification as a market penetration strategy by REA.

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