AN ASSESSMENT OF INFORMAL POWER DISTRIBUTORS IN LOW INCOME URBAN AREAS: THE CASE OF KIBERA, NAIROBI

BY

LUGARD E. MAJORO

UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

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A Project Report Submitted to the Chandaria School of Business in Partial Fulfillment of the Requirement for the Degree of Masters of Business Administration (MBA)

UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

SUMMER 2014
STUDENT’S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: ___________________________       Date: _________________
Lugard E. Majoro (ID 230727)

This project has been presented for examination with my approval as the appointed supervisor.

Signed: ___________________________       Date: _________________
Dr. Paul Katuse

Signed: ___________________________       Date: _________________
Dean, Chandaria School of Business
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ABSTRACT

The purpose of this study was to assess how informal power distributors (IPDs) have been able to provide electricity services in low-income urban areas. The study was guided by three research questions, namely (i) What are the competitive advantages of IPDs over Kenya Power? (ii) What factors enable IPDs to supply power where Kenya Power (KP) has challenges? And (iii) Are IPDs aware of the legal/regulatory challenges in their business of electricity supply to low income urban areas?

The study employed inferential research design to assess the informal power distribution business as well as their beneficiaries / tenants and was based on a sample of 100 IPDs and their beneficiaries. Data was captured using an administered questionnaire developed by the researcher. The questionnaire respondents were landlords who supply power as well as beneficiaries of the informal power distribution. Data collected was analyzed using Statistical Package for Social Sciences (SPSS) and Microsoft Excel.

The findings of the study show that, indeed, informal power distributors (IPDs) in Kibera use strategies that give them a competitive advantage over Kenya Power (KP) such as tight management of their distribution network through ‘agents’ to maintain and/or collect revenue and provide flexible payment systems. The IPDs also priced their services to make it favorable to them. For instance, they do not charge standing/fixed charges and in some cases provided electricity consumption based charges.

On the question of factors have enabled IPDs to be successful, the study findings show that IPDs provide a flexible payment system and are very efficient in connecting new tenants. In some instances, they also provide generator back-up services to business tenants. The IPDs have also improved customer satisfaction by ensuring that they use well insulated standard cables that have reduced fire and electrocution incidences.

The findings on legal and regulatory challenges faced by IPDs show that they are aware of the legal ramifications of illegal power connections and the associated penalties. The study found that they were willing to legitimize their services through use of postpaid and/or prepayment meters as well as partnering with Kenya Power (KP) for a commission.
The study conclusion is that the success of informal power distributors (IPDs) can be mainly attributed to the simplified connection process and a network of technicians and/or agents who install and maintain the system.

The study recommends that Kenya Power (KP) should redesign its strategies to engage the informal power distributors (IPDs) as agents, train the agents on safety standards as well as design flexible payment systems.

For further research, it was recommended that studies are carried out on the effects of available power legislation and policies on marginalized groups, specifically the urban poor.
ACKNOWLEDGEMENT

I acknowledge my wife for her patience, being very accommodating and willingly taking on the challenges of running the family affairs when I had to be absent from home for extended periods during my studies as well as the research work. She also provided valuable assistance in the editorial review of draft reports. I am also grateful to Stephen Karekezi who spurred by interest in urban poor issues and specifically their energy access challenges as well as provided the financial assistance to complete the course.

I acknowledge my research supervisor, Professor Dr. Katuse for agreeing to assist me with this research, right from the proposal stage and providing invaluable guidance and advice up to the end as well as being understanding when my work schedule would cause undue inconvenience and delays. I am very grateful.

Last, but certainly not least, I am deeply indebted to my friends Isaac Chuma, Samwel Ombuki and Consolate Makale for getting me in touch with all the relevant people that enabled me to finalize the research.

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<th>Full Form</th>
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<tr>
<td>CBO</td>
<td>Community-based Organization</td>
</tr>
<tr>
<td>ERB</td>
<td>Energy Regulatory Board</td>
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<td>IPDs</td>
<td>Informal Power Distributors</td>
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<td>IPPs</td>
<td>Independent Power Producers</td>
</tr>
<tr>
<td>KenGen</td>
<td>Kenya Electricity Generating Company</td>
</tr>
<tr>
<td>KP</td>
<td>Kenya Power (formerly Kenya Power and Lighting Company - KPLC)</td>
</tr>
<tr>
<td>PEST</td>
<td>Political &amp; Legal (P), Economical (E), Socio-cultural (S) and Technological (T)</td>
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<td>PPM</td>
<td>Prepayment Meters</td>
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<td>SMEs</td>
<td>Small and Medium Enterprises</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<tr>
<td>SWOT</td>
<td>Strengths, Weaknesses, Opportunities and Threats</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>VAT</td>
<td>Value-added Tax</td>
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<td>WARMA</td>
<td>Water Resources Management Authority</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Problem

Although situated within the same urban area as wealthier neighborhoods, Kenyan urban low-income areas/settlements, largely, lack basic infrastructure such as electricity, water, and sanitation (Omambia, 2010). The almost unplanned settlement pattern in low-income urban areas makes provision of basic infrastructure so difficult. For utility providers to service the low-income areas, they need to rethink their traditional strategies of service provision because they need to surmount some key challenges that they do not encounter in other urban and rural areas. Key among these challenges is unplanned settlements, sub-standard/semi-permanent housing, land ownership, a transient population, and most important informal sector utility providers that would be competitors or collaborators depending on the strategy selected by the official utility providers (Oketch, 2012).

Faced with these kinds of challenges, a strategic approach is paramount for the formal utility providers, because, as is shown in the literature review, technology-based solutions to deal with illegal electricity theft in low-income areas, has largely failed. A strategic approach, the focus of this study, to address the aforementioned challenges in provision of basic infrastructure in low-income areas is vital.

The study addresses the above mentioned challenges from a strategic management point of view, and more specifically tries to understand the existing competitors in provision of electricity, the focus of the study, and the strategic decisions that need to be taken.

To assess competition in an industry or sector, in the strategic management discipline, Michael Porter’s competitive five forces provide a good model of analysis (Porter, 1998). Based on this model, general and specific strategies that address the substitutes, barriers to entry, buyer and supplier powers and rivalry, can be proposed to address the identified challenges.
An understanding of the strategic challenges enables strategic decisions and responses to be formulated (Richard, 2004).

The study looked at a low-income area in Nairobi, the capital of Kenya. Like most other cities in developing countries, Nairobi is a paradox. Nairobi contributes close to 60% of the Kenya’s GDP and is one of the important economic hubs in eastern Africa. It is estimated that close to two-thirds of Nairobi’s population live in slums (Dafe, 2009). The slum dwellers are excluded from formal delivery systems in three major areas, namely lack of formal access to land, housing and services.

According to KPLC (2010), about 50% of the urban population in Kenya was electrified. Given that Nairobi is the largest city and more than half of its population is slum dwellers, it is therefore reasonable to infer that they are largely not electrified, at least formally.

In Kenya, the distribution of electricity is the sole responsibility of the Kenya Power (KP), formerly called Kenya Power and Lighting Company (KPLC). The Kenya Power (KP) is 51% Government owned national power utility company and is the sole body licensed by Law to distribute electricity in the country (KPLC, 2011). The generation sector has several players, chief among them is the state owned Kenya Electricity Generating Company (KenGen), and several other independent power producers (IPPs), namely IberAfrica, Tsavo Electricity Generating Company, Aggreko, Orpower 4 electricity generating company and Westmont Power (KPLC, 2011). The Kenya Electricity Transmission Company is responsible for transmission, with the Energy Regulatory Commission and Ministry of Energy providing the regulatory and policy guidance respectively (MoE, 2011).

Ajodhia, Mulder, and Slot (2012) analyzed the cost of electricity and found that the actual cost of electricity paid by the consumer includes several components, namely the fixed charge, base electricity tariff, adjustments for foreign exchange rate fluctuations, adjustments inflation and fuel cost, rural electrification levy, a levy to finance the Electricity Regulatory Board – ERB, value added tax (VAT) and, recently, the WARMA levy.
In spite of the base tariff remaining relatively low and unchanged for nearly a decade, over time, the total costs of a unit of electricity (measured in kilowatt hours) has risen. In particular, the foreign exchange and fuel adjustments have changed substantially. This is due to heavy use of emergency power generators that are thermal based – run on diesel and heavy fuel oil generators (Ajodhia et al, 2012). Independent power producers (IPPs), who in most cases provide emergency power, are almost always a sign that new electricity generation is not meeting demand which in turn shows poor planning. As a result, the actual cost of electricity becomes prohibitively high making it unaffordable to a significant proportion of the population.

Karekezi, Kimani and Onguru (2008) carried out a survey carried out in the slums of Kibera and found that most of the people using electricity did not source it directly from the main utility company Kenya Power (KP), but paid the electricity as part of their monthly rent. The majority of the houses connected to electricity in the area had illegal connections tapped from a single point (AFREPREN/FWD, 2007). There was also a large portion of the population in Kibera that did not have access to electricity in spite of their houses being near electricity transformers and power supply lines. The survey also found numerous incidences of electrocution and electrical-based fires arising from the poor handling of electricity and overloading had made most slum dwellers wary of the use of electricity (Karekezi, et al, 2008).

Empirical data shows that low income areas, especially the slums, are not formally supplied with electricity by the power utility at household level due to the nature of the semi-permanent / temporary housing structures and the settlement pattern that makes setting up power reticulation infrastructure nearly impossible. The power utility in Kenya, KP, and indeed, in the east and southern Africa region have minimum standards for a given building to be electrified. For example, the building should be permanent, meaning it should be made of blocks, have corrugated iron roof etc. As a result, a substantial proportion of low income areas have not been formally electrified (Karekezi et al, 2008).

Inspite of this, the low income areas have access to electricity even in the remotest parts and this has been possible due to what Kenya Power (KP) refers to as illegal power distributors – for the purposes of this study, they will be referred to as ‘informal power
distributors’ (IPDs). According to AFREPREN/FWD (2007), the IPDs are legal KP customers, usually landlords, who on-sell the electricity to their tenants, albeit illegally. In some rare cases, the on-sellers would actually have illegal connections evidenced by the nature of the electricity cables that connect their premises.

Literature on how informal power distributors (IPDs) work is not available making it difficult to understand their operations. Lack of understanding of the operations, also makes it difficult to regulate, control and improve the services. The informal provision of basic services is not confined to electricity only, even water services as well as provision of housing face similar problems (Gulyani Talukar and Potter, 2006; Huchzermeyer, 2008). As shown in the photo below of a section of Kibera, the layout of the housing is highly informal, unplanned and largely temporary or semi-permanent structures. It is this conditions that seem to be favored by IPDs who take advantage of the informal settlement patterns as well as housing structure.

![Image of informal settlements in Kibera](image)

**Figure 1.1: Informal Settlements in Kibera**

As a result, informal power distributors (IPDs) have been able to take advantage of their clients in terms of pricing for services because of lack of alternative suppliers in form of
formal utility providers. Due to the monopolistic nature of the relationship between the IPDs and their clients, the quality of service may not correspond with the price charged.

The study, therefore, provides information on the operations of IPDs, with emphasis on electricity, and fills this existing knowledge gap.

1.2 Statement of the Problem

Information on informal power distributors (IPDs) is not readily available due to the informal nature of the service provided. The provision of power by the IPDs in the slums is illegal (KPLC, 2011) and therefore information on operations of IPDs is scarce.

Previous studies focused on small and medium enterprises (SMEs) in Kibera, including those that distribute electricity, however none focused on the informal or illegal power distributors. One study looked at the non-technical losses by Kenya Power which include illegal power connections and proposed strategies to minimize the losses (Njenga, 2011). However, it focuses strategies that Kenya Power can implement to reduce illegal power connection and not the informal power distribution business. Other studies on energy access among the urban poor (Karekezi and Majoro, 2002, Karekezi, Kimani and Onguru, 2008, and Dafe, 2009) simply provide a cursory look at the informal power distribution business. An earlier study by Nigel (1995) highlighted the challenges of electricity provision in low income households from a utility perspective, but did not address the strategies employed by informal power distributors that same service. Similarly, studies carried out in Ghana by King, Amponsah, and Quansah (2012) as well as Mimmi (2008) in Brazil look at illegal power connections and how they provide a useful service to the urban poor, but the IPDs are not specifically interviewed to understand their operations.

The study filled this gap by carrying out interviews specifically with informal power distributors (IPDs) and their clients to understand the nature of the IPD operations. Gray literature in form of newspaper articles shows that informal power distributors (IPDs) who are typically landlords in the slum areas provide electricity to their tenants, albeit illegally, by extending their legal electricity connection from Kenya Power (KP) the national utility. Given that there is a demand and informal distribution of power is a
thriving business, the study proposes ways that informal power distribution could be carried out in a risk-free fashion.

1.3 Purpose of the Study

The purpose of this study was to understand the operations of informal power distributors (IPDs) in Kibera, a low income area.

1.4 Research Questions

1.4.1 What are the competitive advantages of IPDs over Kenya Power?
1.4.3 What factors enable IPDs to supply power where Kenya Power (KP) has challenges?
1.4.5 Are IPDs aware of the legal/regulatory challenges in their business of electricity supply to low income urban areas?

1.5 Importance of the Study

Studies on electrification in slums have addressed the issue of IPDs from the angle of electricity theft and have proposed technologies that either eliminate or minimize electricity theft, while other studies have proposed legal and/or regulatory measures of dealing with electricity theft. This study assesses IPDs as entrepreneurs providing a service to a market segment that has been ignored by the power utility, KP. The study focuses on how a symbiotic existence can be fostered between the IPDs and KP, then proposes ways that the various stakeholders in the energy sector can improve electricity access to low income areas. Below is a brief explanation of how the key stakeholders could benefit from the study.

1.5.1 Power Utility, KP

KP could tap into the urban poor market segment by, for instance, legalizing the informal sector distributors and make them agents and in turn control their activities. For instance, in the agricultural sector, e.g. sugar and tobacco industries have successfully used a similar model of indirect control of their distributors. In cases of households that have
productive activities, KP may be better off supplying power directly to them due the higher consumption which would create economies of scale.

1.5.2 Ministry of Energy and Energy Sector Regulator

The study provides data on informal power sector distributors, that is not readily available and proposes ways of improving access to modern energy – a key objective of the national energy sector policy.

1.5.3 Informal Power Distributors

If existence of the informal power sector distributors is viewed as evidence of suppressed demand for electricity, then the 3 other stakeholders, namely KP, the Ministry of Energy and the Energy Regulatory Commission, should be keen to facilitate the role of IPDs by legalizing them, providing training as well as sensitize them. At the minimum, the study demonstrates that IPDs are playing major role in electricity access to low income areas that KP seems to have largely failed, and that their existence could be used to enhance energy access to an otherwise inaccessible group.

1.6 Scope of the Study

The study only covers one (1) low income area of Kibera in Nairobi and the data was collected over a 1-month period. The study targeted both the informal power distributors and their customers, namely households and businesses. A preliminary survey by the author through observation by walking through Kibera showed that businesses that do not have official electricity connection from KP are usually informal and home-based. In addition, KP officials responsible for urban electrification were interviewed too.

The key challenge in data collection was how to identify what is a poor household. It was assumed that all households in a given geographical location are poor. However, the study differentiated households with productive activities from those that have none. This distinction was important because the higher income households were found to react differently to IPDs since they could afford to get the power directly from KP.
1.7 Definition of Terms

1.7.1 Strategy
According to Ahlstrand, Lampel and Mintzberg (1998), strategy can be an approach, design, maneuver, method, plan, procedure, program, schemes or tactics.

1.7.2 Porter’s Five Forces
Porter’s Five Forces is a tool that can be used to better understand the competition, a framework developed by Prof. Michael Porter. They include competitive rivalry, threat of substitutes, buying power, supplier power, and barriers to entry (Porter, 1998).

1.7.3 Strategic Decision
Drucker (1993) defines strategic decision as ‘doing the right thing is far more important than doing things right’

1.7.4 Rivals
Rivals are competitors / opponents within an industry (Porter, 1998)

1.7.5 Strategic Response
Scholes and Johnson (1999) defined strategy response as “the direction and scope of an organization over the long-term” which gives the organization advantage through its allocation of resources within a changing environment; meet the needs of markets and to fulfill stakeholder expectations.

1.7.6 Generic Strategies
Porter (1998) explains that a “strategic approach to competition could be differentiation, low cost leadership or focus applied at the business unit level”.

8
1.8 Chapter Summary

The foregoing chapter has outlined the focal area of the study, which is an assessment of informal power distributors, as well as its key objectives. This introductory chapter has provided a background to the problem and how it will be addressed.

In the next chapter, current literature is reviewed highlighting what has been done and what research gaps still exist that could be filled by the study. In addition, the literature review covers classical theories on industry competitiveness such as Michael Porter’s 5 forces that are used to explain the competitive advantage of IPDs over KP in providing access to electricity in low income urban areas. The chapter is divided in three sections. The first section reviews Michael Porter’s five forces of analyzing competiveness, the second section reviews various studies that assessed electricity access and illegal electricity connections among low-income urban areas, and the third section summarizes the key findings of the chapter and introduces chapter 3 on the research methodology that was used in the study. Chapter 3 highlights the sampling technique used and the analysis tool to summarize the data collected.

Chapter 4 of the project report presents the findings of the study and summarizes the data in form of tables and figures, namely bar charts and pie charts. The last chapter of the report, chapter 5, discusses the findings in chapter 4, and provides conclusions and recommendations based on the research questions in chapter 1. The final section of chapter 5 highlights areas for further research.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction
This chapter presents a review of published literature on informal power distribution or illegal power connections. The literature review is structured on the basis of the research questions. Section 2.2 deals with the competitive advantage of informal power distributors (IPDs), section 2.3 examines the factors that give IPDs a competitive advantage in poor urban areas, while section 2.4 highlights literature on the legal and regulatory framework of the power sector with specific focus on illegal power connection. The final section is a summary of the chapter and then introduces chapter 3.

2.2 Competitive Advantage of Informal Power Distributors (IPDs) Over Kenya Power (KP)

2.2.1 Major Competitive Forces

According to Chapman (2005), the five competitive forces model of Michael Porter is an “outside-in business unit strategy tool that is used to make an analysis of the attractiveness of an industry structure”, and the framework shows a relationship between competitors within an industry, potential competitors, suppliers, buyers and alternative solutions.

Based on the model, Silbiger (2005) identified five competitive forces which help managers understand the basics of competitive strategy by identifying forces that influence the level of competition in an industry. As demonstrated by Porter (1998), the five forces are, namely: Suppliers Power, Buyers Power, Threat of Substitutes, Barriers to Entry and Extent of Rivalry. This model does not consider other factors such as government, but it is nonetheless ideal for analyzing the dynamics of an industry such as the power sector in Kenya.
Before delving into competitive strategy, it is important to highlight the crucial role of strategic positioning. Porter (1996) highlights three key principles that form the basis of strategic positioning. First is the creation of a “unique and valuable position involving a different set of activities” such as providing a wide range of services that meet needs of a specific category of clients or vice versa. Secondly, strategy might require one to make trade-offs by deciding what not to do. In other words, one chooses to low a certain market segment so that they can focus on a specific product/service. In case of the power sector, one could argue that the Kenya Power (KP) could decide forego the potential revenue from low income urban areas, due to the associated cost of providing electricity and revenue collection, and instead focus on high income areas where it is likely to recoup the foregone revenue by charging a little higher. Third, strategy involves creating a synergy among the services/products offered by a company so that they various activities enhance and/or feed off each other. The power sector has utility this strategic positioning technique by promoting the electrification of rural trading centres and/or major institutions. This rural electrification policy is based on the premise that the trading centres will spur productive activities around them.

In sum, strategic positioning enables an organization to realize sustainable competitive advantage by providing a unique service/product. As shown later in the study, one of the ways that informal power distributors (IPDs) achieve strategic positioning is through personalized and/or customized service.

From a practical perspective, Mankins and Steele (2005) assert that strategy execution ensures high performance. Some of the key issues highlighted in the study is that strategy execution hinges on avoiding elaborate strategies, prioritizing areas, with high positive impact, where resources should be allocated and implementing a continuous monitoring system. In case of informal power distributors (IPDs), this is crucial because they operate in a highly competitive environment and have limited ways of differentiating their service.

The systems theory also provides a framework of understanding how SMEs such as informal power distributors (IPDs) interact with their environment. A study carried out by Chadamoyo and Dumbu (2012) on the small manufacturing firms in Zimbabwe highlights that all businesses are dynamic systems that respond to their business environment as a
way of responding to changing circumstances. In other words, “open systems theory provides tools for thinking about change” (Chadamoyo nad Dumbu, 2012).

2.2.1 Power of Suppliers

According to Porter (1998), suppliers are businesses that supply materials and other products. A supplier like Kenya Power (KP) is a major force that determines the local competition. In the Kenyan electricity sector, the Kenya Generating Company (KenGen) is the predominant electricity generator of electricity; Kenya Power (KP) is the main distributor of electricity. Factors relating to the bargaining power of the suppliers in the industry include the threat of forward integration and the concentration of suppliers (Porter, 1998).

2.2.2 Powerful Buyers

The other competitive force is the bargaining power of buyers. According to Porter (1980), the buyers’ power is the impact they have on a producing industry and thus create demand in an industry. Buyers are considered powerful if they command a substantial share of the market and have a credible ability integrate backwards. Factors such as switching costs, the relative volume of purchases, standardization of the product, elasticity of demand, brand identity, and quality of services will determine the buyers’ power (Porter, 1980). Large customers with their high demand of electricity have substantial power and in Kenya powerful buyers can be attributed to mainly large industrial commercial buyers such as Bamburi Cement, Magadi Soda etc. In addition, large consumers or buyers have substantial bargaining powers, in terms of pricing, if they have bulk storage facilities.

However, Porter (1980) cautions that buyers can be weak if they are many and significant switching costs exist and this would be further exacerbated by producers who threaten forward integration.

2.2.3 Substitute Products
The fourth factor is the availability of substitutes. The model by Michael Porter shows that an industry will be affected by the price of a product relative to its substitutes and the proclivity of buyers to substitute. The presence of substitute products can lower the industry attractiveness and profitability because it limits the price levels. Porter (1980) identifies the threat of substitute products as dependent on the buyer’s willingness to substitute, relative price of the product vis-à-vis the substitute, performance of substitutes in the market and the cost of switching to substitutes. In the Kenyan energy sector, households in urban areas mainly use charcoal, kerosene and liquefied petroleum gas for cooking as substitutes to electricity (Kenya National Bureau of Standards, 2011).

2.2.4 Threat of Entry

Threat of new entrants can be in form of reduced industry returns due to lower product prices and high cost of competition. Factors that determine the threat of entry include capital requirements, economies of scale, switching costs, and government policy (Porter, 2008). Abekar (1996) found out that companies were striving to meet consumer expectations through improvement of products and services offered.

In the power industry, the informal power distributors (IPDs) have found themselves in an unfair playing ground as new entrants in the industry whose rules and regulations are set by the dominant power distributor, Kenya Power.

2.2.5 Extent of Rivalry

The extent of rivalry among existing competitors can be in the form of “jockeying for position” through pricing, advertising and customer service (Porter, 1998). Porter (1998) further states that the intensity of rivalry in some industries is characterized by phrases such as ‘warlike’, ‘bitter’, or ‘cut-throat’ and in others as ‘polite’ or ‘gentlemanly’.

Rivalry in an industry becomes even more volatile if a number of firms have high stakes in achieving success there, which means that the relevant market is attractive in terms of firms achieving their profit objective and therefore firms will go flat out to compete and achieve targeted profits in the market (Porter, 2008).
2.2.5.1 Numerous or Equally Balanced Competitors

This is the extent to which competitors are in balance. The competition is likely to reach a dangerous level if the competitors are of roughly equal size, as each competitor will attempt to gain dominance over the other (Pearce and Robinson, 1994). It was further observed that in an industry where there are many firms, the likelihood of a firm rebelling is great because some believe they can make these moves and not be noticed. Even in an industry with few firms’ with equal strength in size and resources, there is instability because the other firms can retaliate (Pearce and Robinson, 1994).

2.2.5.2 Slow Industry Growth

Scholes and Johnson (1999) observed that rivalry among competitors could be influenced by the level and stage of market growth. They further observed that competitive behavior is affected the stage of the firm in the market lifecycle. For example, in situations of market growth, a firm might expect to achieve its own growth through growth in the market place whereas when markets mature or slow down, this has to be achieved by taking market share from competitors in order to expand.

2.2.5.3 High Exit Barriers

High exit barriers force companies that might be earning low or even negative returns to stay in an industry (Isaboke, 2001). Even if a product is making losses, a firm is forced to stay in the industry if it has made a high investment in a non-transferable fixed assets or is dependent on a single product (Scholes and Johnson, 1999).

Based on the above seminal work by Michael Porter, Barney (1991) defines competitive advantage as a “value creating strategy not simultaneously being implemented by any other current or potential competitors”. In addition, Barney (1991) emphasizes the need for sustained competitive advantage as implementing a value creating strategy that is not simultaneously being implemented by any other current or potential competitors. The key emphasis of this definition is that a firm’s competition is assumed to include potential competitors that will enter the industry as well as the current competitors.
2.3 Factors that Enable Informal Power Distributors (IPDs) Supply Power where Kenya Power (KP) has Challenges

According to Scholes and Johnson (1999), strategy is the “direction and scope of an organization over the long term” and these strategies exist at a number of levels in an organization, for example at the corporate strategy where the overall purpose and scope of the organization is to meet the expectations of owners or major stakeholders; business unit strategy is about how to compete usefully in a particular market and a strategic business unit is a part of an organization for which there is a distinct external market for goods and services. The 3rd level of strategy is operational strategies which are addresses how the component parts of the organization in terms of resources, processes, people and their skills effectively deliver the corporate and business level strategic direction (Kraus and Kauranen, 2009).

In strategy development, research has shown that the strategic response grows out of the assessment of the current situation, for example the environment in which the firm operates, core competencies that provide the basics of which to identify, develop and exploit new opportunities that could rise from the changing environment, and also expectation of the stakeholders. As identified by Scholes and Johnson (1999), development of new strategies has to follow a process which questions the practicability of certain strategic responses that a firm chooses to pursue.

Another area that plays a key role for informal power distributors (IPDs) is entrepreneurship, an academic field that is considered to be distinct from strategic management. While entrepreneurship and strategic management differ in foci, both are inevitably inter-related and often complement each other (Ireland et al, 2003). Kraus and Kauranen (2009) describe entrepreneurship as the process of value creation through identification and exploitation of opportunities such as seeking new markets, developing new products / services or both. Entrepreneurial enterprises identify and exploit opportunities that their competition has not yet taken advantage of or that has been underexploited the entrepreneurial enterprise’s resources are often intangible, such as unique knowledge (Hitt, Ireland, Camp and Sexton, 2002). Ireland, Hitt, Camp and Simon (2001) observes that entrepreneurial behavior arises from being innovative, proactive and risk-taking. These entrepreneurial enterprise characteristics are essentially key drivers
behind IPDs – they are exploiting a market opportunity that has been left untapped for various socio-political reasons.

The basis of strategic management is that strategy creates an alignment between the enterprise’s internal strengths and weaknesses on the one hand and its opportunities and threats (SWOT) in its external environment on the other (Andrews, 1987). Hitt, et al (2001) and Ireland, et al (2001) point out that the most obvious link between entrepreneurship and strategic management is opportunities. Enterprises create value by identifying opportunities in their external environment and subsequently creating competitive advantages to exploit them.

The use of strategy in small and medium enterprises (SMEs) is a key intersection between entrepreneurship and strategic management. In the case of SMEs such as the informal power distributors (IPDs) the entrepreneur and the SME are one and the same. Kraus and Kauranen (2009) identified four major constitutive elements of SME strategy and their characteristics (see table below).

<table>
<thead>
<tr>
<th>Table 2.1: Constitutive Elements of SME Strategy</th>
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</thead>
<tbody>
<tr>
<td><strong>Characteristics</strong></td>
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<tr>
<td>--------------------</td>
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<tr>
<td></td>
</tr>
<tr>
<td><strong>Other Issues and Challenges</strong></td>
</tr>
</tbody>
</table>
is regarded as more important than long-term strategies.

Source: Kraus and Kauranen (2009)

In business management, the organization is an entity that is built of individuals grouped together for a common cause but in an effort to achieve that common cause, the organization is affected by other organization and the environment (Chadamoyo and Dumbu, 2012). This implies is that the business system receives input transforms these inputs and release outputs back into the environment. The nature of the inputs determines the output and the reaction of the customers who finally consume the products.

Freedman (2003) explains that strategic response can be achieved in five phases, namely, phase I that entails strategic intelligence gathering and analysis. It ensures that the depth and breadth of information on which strategic decisions are based is up-to-date, accurate and relevant. In phase II, strategy is formulated that gives leads to creation of a strategic vision or profile, phase III is referred to as strategic project planning during which the plan for strategic implementation is developed in order to align the organization structure with the strategy. Phase IV involves strategic implementation during which planned actions are taken, implementation is monitored and the strategic project plan is modified if required. In phase V, strategy monitoring, review and updating assists to determine whether there is success in the overall strategic response.

Another aspect to consider is strategic control that involves the monitoring and evaluation of plans, activities and results with a view towards future action. This is complemented with strategic surveillance which is a broad-based monitoring of the environment whereby the organization interprets, analyzes and responds to strategic issues (Preble, 1992).

According to Isaboke (2001), who carried out a study on the oil industry which has close analogies to the power sector, he observed that the major players in the oil industry used a combination of generic strategies, which included cost leadership, differentiation, market focus, segmentation, penetration and development of new markets. However, the study focused on only the threat of new entrants and the responsive strategies the major oil
companies have used in terms of changing prices to gain temporary advantage, product differentiation, unique features, labeling, aggressive advertising, and product innovations, strategic use of channels of distribution, and taking advantage of relationships with suppliers.

Wamathu (1999) did a similar study to establish the strategic postures for each of the major oil companies in the Kenyan market, and also to determine the generic strategies of the respective firm and whether such strategies were appropriately using the SPACE matrix (Service Provisioning and Creation Environment). His findings established that all the players fell in the same quadrant posture, indicating they used aggressive and generic strategy of cost leadership. Wamathu further established that some of the oil companies had a definite competitive advantage over the others in their current strategic posture. However, the study did not establish whether the strategically aligned oil companies performed better than strategically misaligned ones.

Dafe (2009) observes that informal settlements or slum are deliberately excluded from public services, which has created benefits for a variety of actors, among them informal power distributors (IPDs), who are interested in maintaining the status quo. This gap in provision of services such as electricity by public service providers such as Kenya Power, is what makes informal power distribution a profitable business. In other words, the IPDs are operating in a market with a little or no formidable competitors as well as limited regulation. The 2009 study by Dafe, also makes two additional, subtle but vital, observations. First, the landlords use intermediaries, referred to later in this report as agents, to collect rent as a strategy to distance themselves from the tenants which in turn enables them to extract higher rents. Second, the landlords maximize their profits by minimizing the cost of house construction, increasing the number of units in a given plot of land and in turn maximizing the rent. The situation is exacerbated by the lack of regulation and formal services which incentivizes landlords to provide the low quality housing. This in turn makes public utility provision a challenge due to the unplanned and low quality structures. This situation creates a vicious circle whose principal victims are the tenants or slum dwellers, but on the other hand creates opportunities that businesses such as the informal power distribution thrive on.
2.4 Legal and Regulatory Challenges Related to Informal Power Distribution

2.4.1 Power Sector in Kenya

Prior to power sector reforms, neither the Electricity Regulatory Agencies and Rural Electrification Agencies nor independent power producers (IPPs) existed. With the reforms, IPPs appear in the institutional framework alongside the state-owned utility at generation and distribution levels. In addition, the Electricity Regulatory Agencies were established as independent bodies with arms-length relationships with the Ministry of Energy as well as the state-owned and private utilities (MoE, 2011).

MoE (2011) highlights also highlights that the reforms transformed mandated parliament with formulating and amending the Electricity Act that governs the sector (MoE, 2011). In the reformed sector, the Ministry of Energy is remains a key player responsible for policy formulation, implementation and appointment of key senior personnel in state-owned electricity sector entities. The Ministry of Finance also plays a key role in power sector financing and investment decisions (MoE, 2011).

The Energy Act of 2006, assented into law by the President on 30\textsuperscript{th} December 2006, established an Energy Regulatory Commission, which regulates the energy sector, including electricity (MoE, 2011). The status of power sector reforms in Kenya is summarised in the table below. It is important to note that while the Act specifically establishes a Rural Electrification Agency, the urban areas are assumed to a homogeneous group that does not require a specific agency to deal with challenges such as the slum areas.

<table>
<thead>
<tr>
<th>Reform Measures</th>
<th>Kenya</th>
</tr>
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<tbody>
<tr>
<td>Amendment of the Electricity Act</td>
<td>√</td>
</tr>
<tr>
<td>Corporatisation/ Commercialisation</td>
<td></td>
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<tr>
<td>Establishment of Independent Regulator</td>
<td>√</td>
</tr>
<tr>
<td>Restructuring (unbundling)</td>
<td></td>
</tr>
<tr>
<td>Independent Power Producers</td>
<td>√</td>
</tr>
<tr>
<td>Privatisation of Generation</td>
<td>√*</td>
</tr>
<tr>
<td>Privatisation of Distribution</td>
<td>√*</td>
</tr>
<tr>
<td>Establishment of Rural Electrification Agency</td>
<td>√</td>
</tr>
</tbody>
</table>

*Distribution and generation in Kenya is not fully privatised
Source: MoE, 2011 and http://www.slideshare.net/Nomadaid/the-energy-sector-in-africa
2.4.2 Informal Power Distribution or Illegal Power Distribution

Power utilities attribute non-technical losses in electricity transmission to electricity theft. Smith (2004) observes that electricity theft can be in form of fraud (meter tampering), stealing (illegal connection), billing irregularities, and unpaid bills. The study carried out in 102 countries found that higher electricity theft was closely related to governance indicators such as political instability, low government effectiveness and high levels of corruption. The study proposes technology-based solutions, such as tamper-proof electricity meters, and non-technology-based solutions, such as managerial methods like inspection and monitoring, and in some cases restructuring power systems ownership and regulation.

An earlier study by Karekezi and Kimani (2002) attributed the electricity theft to poorly planned power sector reforms. The study found that while the power sector reforms had managed to improve generation capacity and financial performance in some utilities, they had failed to address the challenges of poor performance at the transmission and distribution end, increasing electrification of the poor and increasing local participation in the power sector. These shortfalls were manifested in increased electricity theft. Therefore, the solution provided by Smith (2004) to restructure power systems ownership and regulation is unlikely to solve the problem of electricity theft.

A study on how to improve energy access among the urban poor by Karekezi and Majoro (2002) found that the key challenge in energy access, including electricity, is up-front costs. In the case of electricity this would include application fees, reticulation costs and a deposit.

Mwaura (2012) analyses the use of prepayment meters as a way of dealing with electricity theft in Uganda and bases his analysis on the successful implementation of prepayment meters in Rwanda.

In contrast to Mwaura (2012) who analyses a technology-based solution to electricity theft, Winther (2012) observes that conventional, technology-oriented means of combating electricity theft have shown major limitations. The study, therefore, addressed
the electricity theft problem through a social-technical and relational analysis. The fieldwork was carried out in Zanzibar and Sunderbans Islands in West Bengal, India which have centralized and decentralized electricity systems respectively. In addition, Zanzibar and the Sunderbans differ in their types of electricity governance structures, technologies, organization and procedures for metering, billing and supply, as well as in their socio-cultural setting. The study found that the people's level of trust in their supplier (the utility) was the key to electricity theft and improving the customer–supplier trust relationship increased the electricity customers' degree of compliance.

A study carried out in Brazil by Mimmi (2010) based on a survey of 15,279 low-income households shows that illegal electricity connections or theft is not explained by only low income, but by a combination of other factors such as sub-standard energy provision and equipment; inefficient/incorrect use of domestic electric appliances and existence of informal home-based business. The study found that these factors lead to a sense of exclusion, which could trigger illegality. The study concludes that positive change can be realized through provision of efficient equipment, metering and maintenance, promotion of beneficiaries’ awareness of energy usage, and energy-saving behaviors.

Fall, Sarr, Dafrallah and Ndour (2008) analyzed access to clean energy services (which include electricity) for household use and also for productive purposes in Dakar, Senegal. The study found that the main barriers to modern energy access are: lack of proper understanding of the characteristics of urban areas creating an institutional gap and an energy policy vacuum; land tenancy issues; and prohibitive connection policy for households located far from the grid (more than 30m). This and other studies cited above emphasize that electricity theft can be addressed through technology and non-technology-based approaches.

Ruiters (2011) observes that in South Africa there was wide scale illegality in electricity ranging from illegal extensions; illegal reconnections, tampered meters, meter bypassing and tapping from street lights. He points out that this constitutes risky but desperate strategies that indicate lack of affordability, political alienation and social exclusion. He further observes that the illegal re-selling and extensions have become a means for households to supplement income. Surveys carried in the townships of Alexandra and
Johannesburg South over 80% and 77% respectively of the households were found to have illegal electricity connections.

In India, the city of Ahmedabad, in the state of Gujarat, with assistance from the World Bank and the United States Agency for International Development (USAID) implemented a project to provide electricity to slum dwellers. The project would install the electricity and the help of local community based organizations (CBOs), the slum dwellers were sent monthly billed. The slum dwellers faced the challenge of adapting to the change that followed because most of them already had illegal electricity connections. The illegal connections were paid based on the number of points in the house. For example, if a house was operating 2 bulbs and one fan it would pay for 3 points, irrespective of the total consumption – an effective flat rate per point. With the legal connection which was based on metered consumption, the households had major difficulty in adjusting to the higher rates which were 4-5 times more (World Bank, 2011). It was that the slum dwellers had to be made aware of the danger and risks of illegal connections, as well as the benefits of legal and regular electricity supply. Further, the need for training in energy efficient lifestyle practices was identified. To address this, training programmes were designed and conducted for the slum community by CBOs to educate the residents about the benefits of legal electricity connections and train them in energy efficient practices.

The case study of Ahmedabad also highlights legal and regulatory barriers that are faced in most urban poor areas. In Ahmedabad, they local electricity utility that was implementing the project on behalf of the city authorities faced three main barriers. First, the slum dwellers did not have legal status and security of tenure. Second, they faced limited access to finance and/or loans to pay for the connection costs – an upfront cost that mandatory in getting legal connection. Third, there was lack of trust between the electricity company and the slum dwellers about the regular collection of bills (World Bank, 2011). To overcome the barriers, the electricity company used the CBOs to sensitize the community thus creating an environment of trust as well as obtaining non-eviction certificates for a 10 year period that enabled the electricity to provide electricity connections. Financial aid from USAID, loans from local microfinance institutions and subsidies helped the slum dwellers to pay for the electricity connections.
Many studies have proposed technology-based self regulatory systems in form of smart meters and prepayment meters - PPMs (Jain and Bagree, 2011, Njenga, 2011). The prepayment meters have been successful in urban areas, and in particular the the middle and high income areas. Proponents of the prepayment meters (PPMs) give the advantages of PPMs for the utility: improved municipal / utility cashflows, reduced administrative costs such as postage and meter reading, recovery of other debts (for example, every time a customer buys prepaid cards, a small percentage, say 15% goes towards redemption of old debts), no need to access the customer’s property, thus reducing the risk of utility employees’ lives in dealing with angry customers, and dealing with inaccurate metering reading. For the customers, the advantages of PPMs are accurate meter readings, ability to economize and learn to manage a budget, no waiting for reconnections, and generally empowering customers by giving them responsibility (Ruiters, 2011). The main disadvantage of PPMs, and in particular poor households, is that they essentially force poor households to consume less by cutting them off. In addition, rather than the utility having to go and cut the service for non-payment, the utility lets the technology do it, thus distancing themselves from the violence of cost recovery (McDonald & Ruiters, 2005).

The foregoing literature on electricity theft highlights three issues. First, attempts have been made to address electricity theft through technology-based solutions and non-technology based solutions. Secondly, the power sector policies and the concomitant institutional structure recognizes the rural population, but assumes that the urban population is homogeneous which is a problem because the urban poor households are characteristically very different from the middle and high income households. Thirdly, it seems none of the studies have investigated the option of the power utility collaborating with the so-called electricity thieves. This study addressed this option taking the view that electricity theft, by what it refers to as independent power distributors (IPDs), can be addressed by legalizing their operations.

2.5 Chapter Summary

The chapter has reviewed Porter’s five forces and how they relate to the power sector in Kenya, and strategic responses that could be used in the power sector. Then a review of the power sector reforms in Kenya is carried to give the reader an overview of how the sector has evolved. This is followed by literature review focused on electricity theft
outlining what previous studies did and what their findings were. The chapter then concludes by highlighting the knowledge gap that his study will fill that previous studies have not addressed.

The next chapter presents the research methodology and will discuss in detail the research design, population and sample size, data collection methods and research procedure.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter presented a review of relevant literature published on the subject of this study by highlighting major issues related to electricity access in low income areas and some of the strategic responses. The chapter also identified gaps in the literature and how the current study will fill them.

This chapter presents the overall methodology used in the study based on the research questions as follows: section 3.2 covers the research design; section 3.3 highlights the population and sampling design; and section 3.4 deals with the data collection methods. Section 3.5 covers the research procedure and section 3.6 deals with the data analysis methods, and finally section 3.7 gives a synopsis of chapter 3.

3.2 Research Design

The research design is a lay out of a plan used to answer questions that respond to the research objectives (Cooper and Schindler, 2003). Kombo and Tromp (2009) explain that descriptive research design is a method used to systematically and accurately describe the characteristics or behavior of a particular population. In other words, descriptive research is a description of the state of affairs as they exist. The study employed descriptive research design to determine the current state of informal power distributors (IPDs).

The number of IPDs was relatively small since the study only focused on part of Nairobi, namely Kibera. The study was descriptive in nature because it provides insights into what is happening. The study aim was to assess IPDs and how the competitive forces have impacted them and what strategic responses have been adopted by IPDs to defend themselves as a result of competitive rivalry.
3.3 Population and Sampling Design

3.3.1 Population

According to Cooper and Schindler (2003), a population is the total collection of elements that inferences are to be made and the basic objective of sampling a portion of the population is to be able to make conclusions can be drawn about the entire population. The advantage of the sampling include: lower costs, greater accuracy of results, faster speed of data collection and availability of population elements. The target population for the study was informal power distributors, and the study specifically targeted IPDs in Kibera in Nairobi.

3.3.2 Sampling Design

3.3.2.1 Sampling Frame

To be able to get information about a population, the properties of a sample, which is a finite part of a statistical population, are studied (Kombo and Tromp, 2009). In other words, a sample is a carefully selected part of a target population to represent it (Cooper and Schindler, 2003). “A sampling frame is an objective list of the population from which the researcher can make a selection” (Denscombe, 1998). Cooper and Schindler (2003) add that a sampling frame should be complete and a correct list of the population members. The sampling frame for this study was IPDs in Kibera based on known landlords. Only landlords that are involved in provision of power were interviewed.

3.3.2.2 Sampling Technique

To be able to pick a sample from a general population a sampling technique is used. In this study, a clustered random sampling technique was used to select the sample (Kombo and Tromp, 2009). This method allowed the researcher to divide the sample into appropriate clusters that are mutually exclusive. The use of clustered random sampling increases statistical efficiency of a sample, and as mentioned above, the sample is only useful if it accurately represents the larger population. The researcher, therefore, needs to determine the required sample size and the best method for selecting the sample from the
larger population (Cooper and Schindler, 2003). Clustered random sampling technique was used to select the sample because it was more appropriate. Information was obtained from a smaller representative sample carefully chosen through random sampling. The sample clusters were informal power distributors (IPDs) and their clients near the main road, in the centre of the slum and those at the far end of Kibera slum towards Langata.

3.3.2.3 Sample Size

Denscombe (1998) emphasizes that to get a good representation of the population, the sample must be carefully and accurately selected. A sample size of 30 IPDs/landlords and 60 clients/tenants was selected from the 3 clusters mentioned above. Given that the informal power distribution (IPD) business is uniform (essentially all IPDs extend power cables to their clients), the sample size was statistically significant. However it should be noted that obtaining a larger sample was a challenge because of the illegal nature of the business which made most of the IPDs/landlords unwilling to discuss their business. They were not sure if they would not expose themselves to potential prosecution. Some even declined to participate because they were suspected us to be potential competitors who wanted to ‘steal’ their trade secrets.

<table>
<thead>
<tr>
<th>Category</th>
<th>No. Targeted</th>
<th>No. Sampled</th>
<th>Percentage from Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landlords / Informal Power Distributors</td>
<td>30</td>
<td>24</td>
<td>80%</td>
</tr>
<tr>
<td>Tenants / Clients / Beneficiaries</td>
<td>60</td>
<td>50</td>
<td>83%</td>
</tr>
</tbody>
</table>

Questionnaires were administered to 10 IPDs/landlords and 20 tenants in each of the 3 clusters. Out of the initial target of 30, only 24 IPDs/landlords responded, while 50 clients/tenants responded out of a sample of 60.

3.4 Data Collection Methods

The study used primary data collection by questionnaires that consisted of close-ended and open-ended questions. They consisted of the following sections: Section 1: investigation of the individual; section 2: investigation of the key competitive advantage
employed by the IPDs, section 3: investigation into the strategic responses that IPDs are using. A predetermined checklist of items was used during the interviews to elicit responses on aspects that are considered sensitive, e.g. pricing, operational earnings, operating expenses etc.

Secondary data was also gathered from journals, publications, literature review on strategic changes. The data was obtained from USIU library material, Ministry of Energy, KPLC, etc.

3.5 Research Procedures

A structured questionnaire was developed by the research and administered to each respondent. Prior to administering the questionnaire to all the targeted respondent, a pretesting was carried out to ensure that the questionnaire responds to the research questions by administering it to 3 respondents. The questionnaire was then adjusted and final version of the questionnaire was administered by 4 research assistants. Prior to this consultations and conversations were held with people who had carried out surveys in Kibera and other slums in Nairobi to ascertain the most appropriate questions to ask and how to approach the survey. One of the key finding of the finding this exercise was to ensure that local officials such as elders, the area chief and/or someone locally known to most of the respondents/interviewees accompanied the interviewers. The interviews, in total, took 4 days spread over a week to be done and each interview took 20-30 minutes. At the end of day the questionnaires were reviewed for clarity, gaps or statements that were not clear. After receiving all the filled in questionnaires, the data received was entered in Excel and SPSS.

3.6 Data Analysis Method

Both qualitative and quantitative methods were used in the analysis of data. According to Dey (1993), qualitative research analysis is based on meanings expressed through words. Through conceptualization, the data collected in a non-standardized manner, needs to be classified into categories. On the other hand, quantitative research analysis using inferential statistics is based on meanings derived from numbers, thus the analysis is done
through diagrams and statistics based on the numerical information collected usually in a standardized manner.

The questionnaires were summarized and coded to be in frequency distribution tables. This was used in the calculation of the relevant frequencies of each response. The data was analyzed using SPSS to obtain the frequencies and percentage of the respondents on each question. Percentages above 50 were assumed to represent the general trend. Some of the data was also further summarized to a 5 and 3-point Likert Scale i.e. ‘very large extent’ and ‘large extent’ were considered as largely agreeable with the observation, ‘moderate extent’ were considered as moderately agreeable to the observation, and finally ‘small extent’ and ‘no extent’ were considered as not agreeable to the observation. The data was then summarized into tables to aid quick comparisons.

3.7 Chapter Summary

This chapter covers describes the methods that were used to obtain information, i.e. through questionnaires and secondary data. Based on random sampling, a sample of the population was used to collect the data. The next chapter presents the data analysis and research findings of this study that set out to examine the factors that have enabled IPDs to outcompete KP, challenges faced by IPDs and KP and the response options employed by the IPDs.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

The purpose of this study was to understand the operations of informal power distributors (IPDs) in Kibera, a low income area in Nairobi and was guided by the following research questions: What are the competitive advantages of IPDs over KP?; What factors enable IPDs to supply power where Kenya Power (KP) has challenges?; and Are IPDs aware of the legal/regulatory challenges in their business of electricity supply to low income urban areas?

The questionnaire was broadly split into 2 parts. Part one dealt with the informal power distributors; while part two covered the beneficiaries. The two parts were preceded by a general section that characterized the respondents by gender, age and education level. The following sections of this chapter present the study findings.

4.2 General Information

4.2.1 Response Rate

Twenty four (24) landlords, out of possible 30 respondents approached, responded to the survey questionnaire and fifty (50) tenants / clients out of 60 responded were interviewed for the study. Each landlord and tenant was issued with a questionnaire. Out of 90 questionnaires, 74 questionnaires were responded to. This constitutes 80% of the survey sample that formed the basis of data analysis. According to Cooper & Schindler (2003), a response rate of more than 70% is dimmed satisfactory and representative.

4.2.2 Background Information on the Respondents

This section presents the general characteristics of the respondents which include the gender, age and education.
4.2.2.1 Gender Distribution
Respondents were asked to indicate their gender and as shown below, 21% were female and 79% were male.

![Figure 4.1: Respondents’ Gender Distribution](image)

4.2.2.2 Age Distribution
The respondents’ age brackets/groups were distributed as follows: 2.60% were between 21 & 30 years, 60.50% were between 31 & 40 years, 23.70% were between 41 and 50 years while 13.20% were above 51 years of age as shown in figure 4.2. More than half of the respondents were middle aged.

![Figure 4.2: Respondents’ Age Distribution](image)

4.2.2.3 Level of Education
The respondents were well educated with over 90% possessing a secondary school education. The distribution of education levels of the respondents is as follows 5% had primary education, 21% had college certificate, 63% had secondary school certificates and those with university degrees accounted for 11% of the sample (see figure 4.3).
4.2.2.4 Suppliers of Electricity

When the respondents were asked to indicate whether they received the electricity distributed directly from Kenya Power and if they make the requisite monthly payments, 55% indicated that they did not get their power from Kenya Power, while 45% confirmed that they got the electricity from Kenya Power.

4.2.2.5 Electricity Payment

Majority of the IPDs (65%) indicated that they paid Kenya Power Kenya Shillings 1,000-2,000, 31% stated that they paid between Kenya Shillings 500 and 1,000 and only 4% paid less than Kenya Shillings 500.
4.2.2.6 Cost Recovery
The IPDs were asked to confirm if whether they were able to recover the running costs from revenues received and about 82% (13% strongly agreed, while 68% agreed with the statement) confirmed in the affirmative. About eight percent of the sample surveyed said they were not recovering costs incurred with about 10% of the respondents being unsure if they broke even.

4.3 Competitive Advantages of Informal Powers Distributors (IPDs) Over Kenya Power (KP)
This section presents the findings of the interviews with the informal power distributors

4.3.1 Benefits Offered by Informal Power Distributors (IPDs)
The IPD respondents were asked to indicate what they thought was their competitive advantage over Kenya Power (KP) which was not able to reach the IPD customers, and
about 50% indicated that they provided electricity to houses that cannot be reached by KP. Thirty four percent asserted that they offered cheaper electricity compared to KP; 12% indicated that they did not charge any application fees and only 3% thought the inclusion of electricity cost in rent was their competitive advantage (see figure 4.6).

Figure 4.7: Competiveness of IPDs over Kenya Power

### 4.3.2 Service to Businesses

The IPDs were asked if they provided electricity to business and 64% of the respondents indicated that they supplied electricity to home-based businesses while 36% supplied to business premises.

Figure 4.8: Type of Businesses Serviced by IPDs

### 4.3.3 Use of Technicians to Maintain Distribution Network

IPDs were asked whether they hired temporary laborers / technicians to set-up, fix and collect electricity charges or did the work themselves. As shown in the figure below, 92% confirmed that they hired technicians to do the work, while 8% claim that they carried out
the work themselves. Out of the 92% who confirmed that they hire technicians, about one third strongly agree with the statement, while the remaining two thirds were agreeable statement.

![Figure 4.9: Use of Technicians To Maintain Distribution Network](image)

4.3.4 Low Pricing of Services as a Competitiveness Strategy

Respondents were asked if they agree/disagree that they priced their electricity to be the lowest in the market. 37% strongly agreed, 60% agreed, while a paltry 3% disagreed.

![Figure 4.10: Low Pricing As a Competitive Tool](image)

4.3.5 Non Interrupted Power Supply

Respondents were asked if they have secured a non-interrupted power supply for their customers and as shown in table 4.2, about 60% confirmed they have secure power supply, while approximately 21% were not were uncertain of the supply reliability. Eighteen percent (18%) of the IPDs did not have un-interrupted supply.
Table 4.1: Security of Electricity Supply

<table>
<thead>
<tr>
<th>Degree of Certainty of Electricity Supply</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely Unreliable Electricity Supply</td>
<td>18.4</td>
</tr>
<tr>
<td>Unreliable Electricity Supply</td>
<td>21.1</td>
</tr>
<tr>
<td>Reliable Electricity Supply</td>
<td>60.5</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

4.3.6 Additional Charges

According to the findings of the study, 84% (16% strongly agreed, while 68% agreed with the statement) of the IPDs confirmed that they incur additional charges to create competitive advantage over other IPDs, while eleven percent (11%) said they did not incur additional costs. The remaining 5% were not sure of whether they incur additional costs.

![Figure 4.11: Additional Charges Incurred](image)

4.4.7 Network of Maintenance Technicians

When the respondents were asked whether they maintain a strong network of technicians from KP who are either existing employees or former employees, 79% (5% strongly agreed, while 74% agreed with the statement) of the respondents said they keep a roster of technicians, 16% said they did use KP technicians and about 5% were not sure if the technicians were KP employees.
4.4.8 Supply to Own Tenants

Seventy nine percent (5.3% strongly agreed, while 73.7% agreed with the statement) of the IPDs confirmed that they only distributed electricity to tenants of their premises. Five percent of the remaining IPDs were free-lance distributors of electricity and disagreed with the statement. The remaining 16% distributed were uncertain who they supplied to.

4.4.9 Sufficiency of Supply

Respondents were asked whether they ensured that their customer’s electricity demands are met i.e. for commercial and household uses. According to the findings of the study, 86.9% confirmed that they met the electricity demand of their customers, while 7.9%
believed that they did not meet the electricity demand of their customers. The remaining 5.2% were uncertain of the demand satisfaction.

<table>
<thead>
<tr>
<th>Degree of Satisfaction</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meet Customer Electricity Demand</td>
<td>86.9</td>
</tr>
<tr>
<td>Believe Customer Electricity Demand Is Not Met</td>
<td>7.9</td>
</tr>
<tr>
<td>Uncertain If Customer Electricity Demand Met</td>
<td>5.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**4.4 Factors that Enable Informal Power Distributors (IPDs) Supply Power where Kenya Power (KP) has Challenges**

**4.4.1 Flexible Payment**

When the respondents were asked to indicate the extent to which they carried forward electricity bills if a customer has financial challenges, 95% of the IPDs allowed some form of credit.

<table>
<thead>
<tr>
<th>Credit Provided</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Credit Provided</td>
<td>5</td>
</tr>
<tr>
<td>Reasonable Credit Amount (about 50%) is Allowed</td>
<td>5</td>
</tr>
<tr>
<td>Small Credit (less than 50%) Is Allowed To Be Carried Forward</td>
<td>14</td>
</tr>
<tr>
<td>Credit Provided</td>
<td>76</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**4.4.2 Charge per Number of Consumers**

When the IPDs were asked to indicate the extent they charge electricity based on the number of occupants in a house, 29% of the respondents indicated the number of occupants was not considered, 19% considered it to a limited extent, while the remaining 52% took into consideration the number of residents in the house.
4.4.3 Offer of Alternative Sources of Electricity

The IPDs were asked if they provided alternative sources of electricity during outages and 98% confirmed that they did not provide an alternative.

Table 4.4: Offer of Alternative Source of Electricity During Outages

<table>
<thead>
<tr>
<th>Offer of Electricity During Outages</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Alternative Form of Electricity is Provided</td>
<td>98</td>
</tr>
<tr>
<td>Other Forms of Electricity Offered During Outages</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

4.4.4 Use of Well Insulated Cables

Thirty eight percent (38%) of the IPDs indicated that they use well insulated standard cables to connect electricity to their clients/tenants. Out of the remaining 62% surveyed about 43% used insulated cables, but could not confirm if they were of the right gauge.

Figure 4.14: Charge per the number of consumers

Figure 4.15: Well Insulated Cables

4.4.5 Connection Efficiency
When the respondents were asked to indicate the extent to which they ensured that electricity is connected as soon as a tenant has entered the house, 72% of the respondents indicated they ensured the connection is done within a couple of days.

Figure 4.16: Speed of Connection

4.4.6 Non-Refundable Connection Fees
Respondents were asked if they charged connection fees and over 89% confirmed that indeed they charged connection fees from their clients. The connection fees were non-refundable. Only about 8% did not charge connection fees.

Table 4.5: Non-Refundable Connection Fees

<table>
<thead>
<tr>
<th>Connection Fees</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Connection Fees</td>
<td>7.9</td>
</tr>
<tr>
<td>May or May not Charge Connection Fees</td>
<td>2.6</td>
</tr>
<tr>
<td>Charge Connection Fees</td>
<td>89.5</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

4.5 Legal and Regulatory Challenges Related to Informal Power Distribution

4.5.1 Customer Rights
When the respondents were asked to indicate whether they knew that their customers have the right to have electricity to be provided by KP, 44% said they were not aware while 56% confirmed that they were aware of their clients' rights.
4.5.2 Lack of Infrastructure

When the respondents were asked to indicate whether they knew that one of the reasons why they do not have connected electricity is because of the temporary structures in Kibera, 98% of the respondents concurred with the observation.

![Figure 4.18: Infrastructure as a Challenge](image)

4.5.3 Awareness of Fines Imposed on Illegal Connections

The respondents were also asked to indicate whether they knew that Kenya Power (KP) has big fines if one is caught connecting illegal electricity, 12% denied being aware of the penalty, while 88% confirmed that they were aware of the existence of the penalties.
4.5.4 Community Based Organizations

When the respondents were asked to indicate whether they knew that one can register a community based organization and they can pool resources to have electricity connected, 56% indicated that they did not know and the remaining 44% thought it was not possible to pool resources.

4.5.5 Agency Role

According to the findings of the study, about 84% of the IPDs were willing to be employed by Kenya Power as electricity agents and thus collect revenue from their clients on behalf of KP. Eleven percent (11%) was willing to be agents while 5% were undecided.
4.5.6 Installation of Electricity Meters

Respondents were asked to give their view whether Kenya Power can install postpaid/prepaid meters to ensure accurate billing from their houses. As shown in the figure below, about 82% were agreeable to installation of meters, 8% did not want meter installed and about 11% were un-decided.

4.5.7 Community Training

Regarding the issue of whether Kenya Power can educate the members of the locality on the correct equipment use, and prevention of fires caused by electricity, 74% of the respondents agreed with 5% strongly agreeing to the statement, while 16% disagreed and 5% were uncertain.
4.5.8 Kenya Power Surveys

Respondents were asked whether illegal connections will be reduced if Kenya Power (KP) surveys the area and comes up with a customized plan to supply electricity. According to the findings of the study, 65.8% agreed, while 21.1% strongly agreed, 7.9% disagreed, and 5.3% were uncertain.

### Table 4.6: Reduction in Illegal Power Connections

<table>
<thead>
<tr>
<th>Extent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>7.9</td>
</tr>
<tr>
<td>Uncertain</td>
<td>5.3</td>
</tr>
<tr>
<td>Agree</td>
<td>65.8</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>21.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

4.7 Beneficiaries of Informal Power Distributors’ (IPDs) Services

4.7.1 Household Size

When the respondents were asked to indicate the number of households members, 43% indicated that they were between 5 and 7 members, 24% indicated between 2 and 4, 21% indicated over 7 and 12% indicated they were living alone.
Figure 4.24: Beneficiaries’ Household Size

4.7.2 Accommodation Rent Inclusive of Electricity

Seventy seven (77%) of the respondents indicated that they paid electricity separately whereas 23% indicated that electricity was included in the rent.

Figure 4.25: Rent Inclusive of Electricity

4.7.3 Electricity Cost

On issues of payments, 68% of the respondents indicated that they paid between 200 and 300 shillings whereas 32% indicated that they paid between 401 and 500 shillings.
4.7.4 Home Businesses

Majority of the respondents indicated that they did not do any business at their homes whereas 12% indicated that they had home businesses. The businesses included tailoring, cobbling, salons and small shops. They also indicated that they paid an extra cost for the electricity.
4.7.5 Status of the Service Provided

When the respondents were asked to comment on the status of the services they receive from the IPDs, 77% rated them as excellent whereas 33% rated them as good.

![Figure 4.28: Level of Satisfaction](image)

4.7.6 Repairs & Maintenance of Electricity Connections

Forty four percent of the respondents indicated that the landlords were responsible for fixing electricity whereas 33% indicated a local technician with 23% indicating Kenya Power.

![Figure 4.29: Repairs & Maintenance of Electricity Connections](image)
4.8 Chapter Summary

This chapter presented an analysis of data collected. The variable data tested included information on informal power distribution, competitive strategies employed, power supply maintenance, willingness to get improved access through KP and, the legal and regulatory challenges. It is evident from the data collected that the IPDs are an organized ‘industry’ and thus Kenya Power can take advantage of their experience and enhance it revenues.
5.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The previous chapter discussed the results and findings of the study. This chapter provides a summary of the key findings of the study. Then it discusses the research findings by interpreting the results from chapter four. The chapter then offers conclusions based on the major findings and finally makes recommendations. In addition, areas which can be further researched are also been provided.

5.2 Summary of the Findings

The purpose of this study was to understand the operations of informal power distributors (IPDs) in Kibera, a low income area.

The study was guided by three research questions. The first research question looked at the competitive advantages of informal power distributors (IPDs) over Kenya Power (KP), while the second research question investigated factors that have enabled IPDs to supply power where KP faced challenges. And finally, research question three dealt with whether IPDs are aware of the legal/regulatory challenges in their business of electricity supply to low income urban areas.

The methodology used was descriptive statistics collate the study findings. The sample was derived from a population of 100, from Kibera, using stratified random sampling technique. Kibera has landlords, who double up as IPDs, and tenants who are beneficiaries of the illegally connected electricity. Data was collected through administered questionnaires and 74 questionnaires were responded to. The data collected was analyzed using Microsoft Excel and SPSS software. Since this research was inferential in nature, summary pie and bar charts as well as tables were used to analyse the data.
The findings on the competitive advantage of informal power distributors (IPDs) over Kenya Power (KP) revealed that IPDs did not charge application processing fees, and in most cases they were able to include the electricity costs in the rent. In addition, they specifically targeted those houses that were not able to connect Kenya Power (KP) due to inaccessibility and/or the temporary nature of the structure. The IPDs also had a network of maintenance technicians, who were former and/or current employees of Kenya Power, to ensure that their distribution network was functional. Besides technicians, they also had agents who administratively run the system by collecting fees and received complaints as well as dealing with defaulters.

On the factors that have enabled informal power distributors (IPDs) to supply power where Kenya Power (KP) has faced challenges, it was found out that the IPDs have allowed flexible payments for the service which made it easier for tenants / clients who received daily or weekly wages. Most tenants / clients were happy with the expeditious connection to electricity and as well as the use of well insulated cables that ensure safety. It was also found that almost all IPDs had a one-off connection fee which is used to cover the cost of cables, internal wiring and associated accessories.

Finally, on the awareness of the legal / regulatory challenges, the study found that most IPDs were aware that unauthorized power distribution or illegal connections in the jargon, attracted a penalty and more than half of those surveyed were aware that the tenants / clients had a right to connection from Kenya Power (KP) directly. The study also found that lack of infrastructure such as planned settlement, roads, permanent houses, and reticulation were hindrance to provision of electricity services and the IPDs exploited this shortfall in infrastructure provision. The study further probed whether IPDs would be willing to act as agents of KP, and the majority was willing to take up the role. A surprise finding of the study was that most of the tenants / clients of the IPDs were not aware that they could set up community based organization and approach KP to electricity their houses as well as be given training on equipment use and other safety measures. Further it was found that the majority of IPDs and their tenants / clients were willing to have meters installed in their premises for accurate billing.
5.3 Discussion

5.3.1 Competitive Advantages of Informal Power Distributors (IPDs)

From the study, it was observed that IPDs apply strategies that give them a competitive advantage over Kenya Power. The clearly observed strategies were tight management of their distribution network that was manifested by the IPDs hiring ‘agents’ or temporary laborers to maintain and/or collect revenue on their behalf. This ensures that the IPDs/landlords concentrate more on effective service delivery thus retaining more customers. This was evident from the survey as there are some tenants / clients who had stayed in the same houses for more than 15 years. This also confirms findings by the study conducted by Ryle (2009) who indicated that an enterprise with core competencies and effectiveness does have some ‘knowledge of how’ (rather than ‘knowledge of that’) that gives it expertise in delivering certain products or services, and in the case of IPDs electricity services.

Another evident strategy that the IPDs used was cost leadership. This was evident from the way they priced the product to be the lowest in the market. Considering that Kenya Power (KP) has standing/fixed charges in addition to electricity consumption based charges, the informal power distributors (IPDs) only charged a flat rate regardless of whether one used electricity or not. This turns out to be advantageous to some consumers, who used electricity for cooking and small businesses within their premises. However, for tenants / clients who use electricity only for lighting, it was dimmed expensive. Most of the IPDs/landlords also introduced cost cutting strategies, which eventually trickled down to the customers, as they indicated that they were eventually able to recover their costs from the customers. The IPDs activities are in tandem with findings of Lumpkin (2003) who indicates that cost cutting requires a tight set of interrelated tactics that include vigorous pursuit of cost reduction, tight cost and overhead control. However, it is important to note some of the cost cutting strategies used by some IPDs such as use of sub-standard cables could be dangerous and in some cases leads to deaths and property damage through fires and electrocutions.

Another key competitive strategy that the IPDs utilized was customer satisfaction and maintaining close link with the supplier which is shown by the good relationship the IPDs
confirmed they have with representatives of KP and their customers. This confirms a study conducted by Monjon and Waelbroeck (2003) who indicates that businesses which collaborated more with their suppliers and their customers, than with specialist intermediaries were perceived to be more effective than others, since these were the major partners. The IPDs also indicated that they ensured that their customers’ demands are met; they have sufficient supply through strategies such as having multiple lines to supply the electricity. In other words, they diversify their sources of electricity to ensure regular supply, but albeit, it is still illegal.

5.3.2 Factors that Enable Informal Power Distributors (IPDs) To Supply Power Where Kenya Power (KP) has Challenges

Bearing in mind the financial challenges of most residents in Kibera, the IPDs have utilized strategies than enable them maintain a constant supply of electricity, and this include flexible payment system such as carrying forward payments in case one has financial difficulties, allowing weekly or bi-monthly payments and in some cases charging electricity as per the consumption rate of a household. The study found that the second strategy of consumption based charges, however, can be risky given that the tenant / client has to disclose all their electronic assets to enable the IPDs assess their consumption levels. This is somewhat risky bearing in mind the security situation in the Kibera. This confirms findings of a study conducted by Pearce and Robinson (2004) who found that business efficiency depends on some fairly unique capabilities to achieve and sustain their positions.

This study found out that the IPDs ensured that electricity is connected as soon as a tenant has entered a house. The IPDs, sometimes, provided generator services to business tenants as a way of ensure constant supply of power. This is in line with a study conducted by Pearce and Robinson (2004) who states that strategies dependent on differentiation are designed to appeal to customers with a special sensitivity for a particular product attribute. By stressing the attribute above other product qualities, the firm attempts to build a customer loyalty. Often such loyalty translates into a firm’s ability to charge a premium price for its product, an approach that can be utilized by Kenya Power, but has certainly been utilized by the IPDs.
Most fires that arise in Kibera are in most cases blamed on illegal power connections. The cases have reduced in recent past as most of the IPDs indicated that they use well insulated standard cables to connect electricity to households. The power cables are in most cases smaller in gauge and cheaper compared to those used by KP, but are still safe for the power consumption levels. The IPDs asserted that they incur the extra cost of using well insulated standard cables in order to retain their customers. This sentiment is supported by a study conducted by Gregory and Lumpkin (2003) who states that to create a competitive advantage a business will incur an additional cost. However, the additional revenue generated through the realized competitive advantage should offset the additional costs incurred.

**5.3.3 Legal/Regulatory Challenges Faced by Informal Power Distributors (IPDs)**

The study found that regulations exist on the ‘dos and donts’ as far as illegal power connections and distributions are concerned, and most of the IPDs knew that all residents, their customers included, have the right to electricity provided by Kenya Power (KP). The IPDs flip the same logic to justify why they were providing the ‘illegal’ power - to ensure that all residents have access to power. They go further to argue that they are effectively assisting KP to reach people who are inaccessible in the conventional distribution models. On the other hand, the beneficiaries/tenants were also asked whether they knew they were not legally connected because of the shanty houses they were living in, and they argued that in rural homes there are houses made of wood and iron sheet that are connected to the electricity grid, and were not clear this is not applied in poor urban areas.

The IPDs were also aware that Kenya Power imposes heavy fines on persons found illegally accessing electricity and even went ahead to quote the amount one was fined if caught stealing electricity. As far as a solution was concern, the IPDs as well as the tenants, indicated that they were not aware of any measures that were instituted to assist and thus blamed the government for neglecting the urban poor. When the IPDs and tenants were asked whether they were aware that they could form community based organizations headed by the IPDs to mobilize themselves into groups that could get legal power connections, they were not aware of such options.
Most of the informal power distributors (IPDs) were amenable to having strategic alliances and/or partnerships with Kenya Power (KP) in order to ensure that the poor residents of Kibera have access to electricity. The IPDs were agreeable to an arrangement where Kenya Power can employ them as electricity agents to collect revenue on its behalf for a modest fee/commission. To legitimise the partnership, the IPDs also indicated that Kenya Power could install postpaid and/or prepayment meters to ensure accurate billing for the households in the area. This is supported by a study by Njenga (2011) which proposes bulk metering of informal settlement areas whereby independent groups would sell power to individuals.

Most of the IPDs as well as tenants/beneficiaries also conceded that to the fact that educating them on the correct use of equipment could reduce fires caused by electricity. They could also learn how to identify counterfeit electronic products, one of the causes of fires. They proposed that illegal connections will be reduced if Kenya Power surveys the area and comes up with a customized plan to supply electricity. These observations are in line with Pearce and Robinson (2004) findings who indicate that with a focused strategy, a firm will target the needs of a particular market segment. This could be based on either a low cost approach or a differentiation base, In this case Kenya Power (KP), could customize its services to fit the low income earners, and in turn earn higher revenue and increase supply of electricity.

According to Monjon and Waelbroeck (2003), a firm pursuing a focus strategy is “willing to service isolated geographic areas to satisfy the needs of customers with special financing, inventory, or servicing problems” or can customize the service to meet their unique demands. This is a strategy that Kenya Power may need to apply in dealing with supply of electricity to slum areas.

5.4 Conclusion

5.4.1 Competitive Advantages of Informal Power Distributors (IPDs)

The study, in relation to research question one, found that IPDs simplified the connection process by not charging application or processing fees. They maintain a network of technicians and/or agents who maintain the distribution as well as carry-out
administrative activities such as collection of fees. IPDs ensured steady and sufficient supply of electricity by offering alternative sources at a premium if required. The conclusion derived from this is that the IPDs have effectively replicated the role of Kenya Power (KP) and have even gone further to provide a customized service such as recruiting agents and simplifying the connection procedure.

5.4.2 Factors that Enable Informal Power Distributors (IPDs) To Supply Power Where Kenya Power (KP) has Challenges

Concerning research question two, IPDs employed factors such as flexible payments, expeditious connection of tenants / clients and a safe service, using well insulated cables, to ensure that they provide a satisfactory service. To achieve the aforementioned factors are possible, the IPDs use trained former and current technicians of Kenya Power to maintain the distribution networks. Collection of fees is also done either by the IPDs themselves or they recruit agents who directly the tenants and respond to their needs on a timely basis. The study found that these, seemingly, simple measures have ensured that the service is satisfactory. In conclusion, such a measure that assures the customer of a customized service and is tailored to meet the needs of the tenants / clients is crucial. The study also shows that IPDs understand their customers more than Kenya Power thus giving them an advantage. The IPDs have been able to ensure that there is constant supply of electricity due to their collaboration with Kenya Power staff and tap the power lines that pass through their area to serve legitimate Kenya Power customers.

5.4.2 Legal/Regulatory Challenges Faced by Informal Power Distributors (IPDs)

Research question three on the legal/regulatory challenges, the study found that the Kenya Power’s rules are only on paper. In practice, nobody follows the laid down rules and regulations. This gives the IPDs leeway to justify most of their activities in spite of being aware of the repercussions in form of heavy monetary fines or even jail time. Both the IPDs and their tenants / clients were aware of their rights to access electricity from Kenya Power and that lack of proper infrastructure was part of the problems in accessing legal electricity. The study also found that the IPDs and their tenants / clients were willing to cooperate with Kenya Power in forging way of the legalizing their operations. Indeed, most of the IPDs were willing to act as agents of Kenya Power for a commission. This
leads to the conclusion that the illegal connection is due to lack of alternatives for the residents. Given that there is demand for the power, the IPDs have step in to satisfy that demand.

The study also found that Know Your Customer (KYC) gap exists between Kenya Power and the urban poor population since the IPD is willing to collaborate with Kenya Power to provide affordable and efficient power.

5.5 Recommendations

5.5.1 Recommendations for Improvement

5.5.1.1 Competitive Advantages of Informal Power Distributors (IPDs)

Based on the research findings, Kenya Power should redesign their strategies to engage the IPDs as agents that would run their distribution network, collect revenue and act as their eye and ears on the ground. Bearing in mind that there is clientele that is already benefiting from IPDs, Kenya Power (KP) should lower their tariffs and bill the IPDs preferably a flat rate.

Kenya Power (KP) should sensitize the members of the public about their laws and regulations governing the sector with a focus on illegal power distribution and connections. This can be done through radio, print media, barazas, and/or leaflets distributed by KP staff. An internal investigation should be conducted to identify staff members that are aiding and/or colluding with IPDs to provide illegal power connections. This will ensure that all connections are legitimate.

5.5.1.2 Factors that Enable Informal Power Distributors (IPDs) To Supply Power Where Kenya Power (KP) has Challenges

The study showed that IPDs have implemented a variety of measures to meet the needs and cash-flow pattern of their clientele. In addition, they have improved safety, the leads to customer loyalty, by incurring additional cost of better connection cables. Based on this, it is recommended that Kenya Power should come up with flexible payment system
that meets cash-flow pattern of the urban poor and in cases where they use agents, to provide commissions. It is also recommended that training of customers is carried out by Kenya Power (KP) as a way of ensuring that potential agents follow set standards.

5.5.1.3 Legal/Regulatory Challenges Faced by Informal Power Distributors (IPDs)

From the study findings of research question three, two interrelated recommendations can be made. First, the informal power distributors (IPDs) have to be legalized because their service will always exist as long as the suppressed demand exists. The legal and regulatory framework should be adjusted to recognize the IPDs and set rules and regulations that should be used by the IPDs. The legalization can be by either licensing the current IPDs as long as they meet set standards or by converting them into agents of Kenya Power who would have legal power act on behalf of Kenya Power.

The second recommendation is related to awareness creation through training which could in form of workshops, barazas, radio and television programs, and the print media. This would enable the potential clientele to be aware of what they are entitled to as well as what options are available to access electricity. As aforementioned, the majority of the IPDs and their clientele were not aware that they could set up community based organizations to pool their resources and approach Kenya Power to provide them electricity. The training would be used to curtail illegal operations since the customers would know their rights.

5.5.2 Recommendations for Further Research

Further research can be done on the effects of available power legislation policies on marginalized groups, specifically the urban poor. Further studies should also be conducted on the effectiveness of the prepaid meters on revenue collection in the slum areas of Nairobi as well as provision of electricity to temporary low cost housing similar to those found in Kibera.
REFERENCES


John A. Pearce and Richard Braden Robinson (2004); *Strategic management*. McGraw-Hill/Irwin, USA.


King, R. S., Amponsah, M. O., & Quansah, M. D. A. Productive Uses of Energy in Enterprises in Slums in Ghana. [www.ijsst.com](http://www.ijsst.com), ISSN: 2277-6168


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APPENDICES

APPENDIX I: Questionnaire

Informal Distributors of Electricity in Kibera, Nairobi

The purpose of this questionnaire is to collect information on informal distributors of electricity in Kibera, Kenya – to establish their motivation, challenges, and clientele.

All the information obtained will be treated as private and confidential and will be used for research purposes only. Thank you for your co-operation.

Section A: Generation Information

1. Please indicate your gender
   - [ ] Male
   - [ ] Female

2. Kindly indicate your age category
   - [ ] Below 25 years
   - [ ] 25 – 35 years
   - [ ] 36 – 45 years
   - [ ] 46 – 55 years
   - [ ] Over 55 years

3. Kindly indicate the highest level of education
   - [ ] Primary
   - [ ] Secondary
   - [ ] College/Diploma
   - [ ] University Degree
   - [ ] University Postgraduate Degree

Section B: Informal Power Distribution

The following is a set of questions to assess the services provided and payment mode

4. Do you get electricity from Kenya Power and pay them monthly?
   - [ ] Yes
   - [ ] No

5. What do you provide that Kenya Power cannot? (Choose one or more)
   - [ ] Low cost electricity
   - [ ] Electricity to houses that cannot be reached by KP
   - [ ] No application process, just need to able to pay.
   - [ ] Electricity is part of the rent
   - [ ] Others specify

6. Do you rent out accommodation rooms and do you include electricity as part of the rent?
   - [ ] Yes, and electricity is included in rent
   - [ ] Yes, but electricity is paid separately
   - [ ] No, only provide electricity
   - [ ] Others, specify
7. Do you provide electricity to business and what type?
   ☐ Home-based
   ☐ Business premises
   ☐ Others, specify

8. How much do you pay to Kenya Power in a month?
   ☐ Less than KShs. 500
   ☐ KShs. 501 – 1,000
   ☐ 1,001 – 2,000
   ☐ 2,001 – 3,000
   ☐ 3,001 – 5,000
   ☐ 5,001 – 8,000
   ☐ Over 8,000

Section C: Competitive Strategies

9. Rate the extent to which you agree with the following issues.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you use temporary laborers/technicians to fix and collect electricity charges when required?</td>
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<tr>
<td>Do you price your electricity to be the lowest in the market?</td>
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<tr>
<td>Do you have secured a non-interrupted power supply for your customers?</td>
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<tr>
<td>Do you incur additional charges to create competitive advantage?</td>
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<tr>
<td>Do you recover the costs from revenues acquired?</td>
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<tr>
<td>Do you maintain a good customer service?</td>
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</tr>
<tr>
<td>Do you maintain a strong dealer network with KPLC?</td>
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</tr>
<tr>
<td>Do you only distribute electricity to your tenants?</td>
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</tr>
<tr>
<td>Do you ensure that your customers’ electricity demands are met, i.e. for commercial and household uses?</td>
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</tr>
</tbody>
</table>

Section D: IPD Success Factors

10. To what extent do you do the following

<table>
<thead>
<tr>
<th>Action</th>
<th>Very Large Extent</th>
<th>Large Extent</th>
<th>Moderate Extent</th>
<th>Small Extent</th>
<th>No Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incur switching costs to connect new customers</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Carry forward electricity bills if a customer has financial challenges.</td>
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<tr>
<td>Charge electricity as per the electricity consumers in a house</td>
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<td></td>
</tr>
<tr>
<td>Give substitutes whenever there is no electricity i.e. generators</td>
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</tr>
<tr>
<td>Use good insulated standard cables to connect electricity to households.</td>
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</tr>
<tr>
<td>Ensure that electricity is connected as soon as</td>
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</tr>
</tbody>
</table>
a tenant has entered the house.

Charge connection fees to the tenants, which is non-refundable.

Welcome competitors in the area and use them for gauging purposes.

Section E: Legal and Regulatory Challenges / Compliance

11. Are you aware of the following?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your customers have the right to electricity to be provided by KPLC.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One of the reasons why you don’t have connected electricity is because of the available structures in Kibera.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KPLC has big fines if one is caught connecting illegal electricity.</td>
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</tr>
<tr>
<td>Do you know you can register a community based organization and pool resources to have electricity connected.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section F: Improved Access by Kenya Power

12. To what extent do you agree with the following?

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya Power can employ you as an electricity agent to be collecting revenue from your houses on their behalf.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Kenya Power can install post/prepaid meters to ensure accurate billing from your houses.</td>
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</tr>
<tr>
<td>If Kenya Power educates the members of the locality on the correct equipment, fires caused by electricity will be reduced.</td>
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</tr>
<tr>
<td>Illegal connections will be reduced if Kenya Power surveys the area and comes up with a customized plan to supply electricity.</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Section G: Beneficiaries Questionnaire

The following is a set of questions to assess the services received by tenants

13. How many people live in the house / access the electricity services?

☐ 1
☐ 2-4
☐ 5-7
☐ Over 7
14. Do you get electricity from Kenya Power or from your landlord?
   □ Kenya Power
   □ Landlord

15. If from landlord, does accommodation rent include electricity?
   □ Yes, and electricity is included in rent
   □ No, electricity is paid separately
   □ Others, specify

16. How much do you pay for electricity?
   □ Less than KShs. 100
   □ KShs. 101 – 200
   □ 201 – 300
   □ 401 – 500
   □ 501 – 800
   □ 800 – 1,000
   □ Over 1,000

17. Do you do a business at home that uses electricity, if yes what type?
   □ Yes
   □ No

18. Do you pay extra if you are running a home-based business?
   □ Yes
   □ No

19. What do you use the electricity for?
   □ Lighting
   □ Radio / television
   □ Charging mobile phone
   □ Cooking
   □ Others, specify

20. How is the service provided?
   □ Excellent
   □ Good
   □ Poor
   □ Very poor

21. If not good, what else would you want provided?
    ______________________________________________________
    ______________________________________________________

22. Who fixes the electricity if there is a problem?
   □ Kenya Power
   □ Landlord
   □ Local fundi / technician
   □ Others, specify

23. Would you prefer to get power directly from Kenya Power? Give reason for yes or no answer
    ______________________________________________________
    ______________________________________________________

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