

**FACTORS INFLUENCING IMPLEMENTATION OF  
INFRASTRUCTURE DEVELOPMENT PROJECTS IN  
THE RENEWABLE ENERGY SECTOR IN KENYA: A  
CASE OF KENYA POWER AND LIGHTING COMPANY  
LIMITED**

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for the Award of the Degree of Master of Arts in Project Planning and  
Management of the University of Nairobi**

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## DECLARATION

This research project report is my original work and has not been presented for a degree in any other university.

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This research project report has been submitted for examination with my approval as a university supervisor.

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## **DEDICATION**

I dedicate this work to my loving parents Yona and Rose Sadia, my brothers Lawrence, Dancan, Lonex and Elly, my sisters Florence and Irene for their prayers, gallant contributions, moral support and encouragement to the success of my studies.

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## TABLE OF CONTENTS

	<b>Page</b>
<b>DECLARATION.....</b>	<b>ii</b>
<b>DEDICATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGMENT .....</b>	<b>iv</b>
<b>LIST OF TABLES .....</b>	<b>viii</b>
<b>LIST OF FIGURES .....</b>	<b>ix</b>
<b>ABBREVIATIONS AND ACRONYMS.....</b>	<b>x</b>
<b>ABSTRACT.....</b>	<b>xi</b>
<b>CHAPTER ONE: INTRODUCTION.....</b>	<b>1</b>
1.1 Background to the Study.....	1
1.2 Statement of the Problem.....	3
1.3 Purpose of the Study .....	4
1.4 Objectives of the Study.....	4
1.5 Research Questions .....	5
1.6 Significance of the Study .....	5
1.7 Limitations of the Study.....	6
1.8 Delimitations of the Study .....	6
1.9 Assumptions of the Study .....	7
1.10 Definition of Significant Terms used in the Study .....	7
1.11 Organization of the Study .....	7
<b>CHAPTER TWO: LITERATURE REVIEW.....</b>	<b>9</b>
2.1 Introduction .....	9
2.2 The Concept of Infrastructure Development in the Renewable Energy Sector.....	9
2.3 Organizational Strategy and Implementation of Projects .....	11
2.4 Top Management support and Implementation of Projects.....	13
2.5 Stakeholders' Involvement and Implementation of Projects.....	14
2.6 Government Energy Policy and Implementation of Projects .....	16
2.7 Theoretical Framework.....	17
2.8 Conceptual Framework.....	19
2.9 Research Gap .....	21
2.10 Summary of Literature Review.....	21

<b>CHAPTER THREE: RESEARCH METHODOLOGY .....</b>	<b>23</b>
3.1 Introduction.....	23
3.2 Research Design.....	23
3.3 Target Population.....	23
3.4 Sampling and Sample Size.....	23
3.5 Research Instruments .....	24
3.6 Pilot-testing of the Research Instruments .....	24
3.7 Data Collection Procedure .....	26
3.8 Data Analysis Techniques.....	26
3.9 Operational Definition of Variables.....	26
3.10 Ethical Considerations .....	29
<b>CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION .....</b>	<b>30</b>
4.1 Introduction.....	30
4.2 Questionnaire Return Rate.....	30
4.3 Background Information.....	30
4.4 Organizational Strategy and Implementation of Projects .....	32
4.5 Top Management Support and Implementation of Projects .....	34
4.6 Stakeholders' Involvement and Implementation of Projects .....	35
4.7 Government Energy Policy and Implementation of Projects .....	37
4.8 Implementation of Infrastructure Development Projects.....	38
4.9 Correlation Analysis .....	39
4.10 Regression Analysis.....	41
4.11 Summary of the Chapter .....	43
<b>CHAPTER FIVE: SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS.....</b>	<b>44</b>
5.1 Introduction.....	44
5.2 Summary of Findings.....	44
5.3 Discussions .....	45
5.4 Conclusion .....	47
5.5 Recommendations.....	48
5.6 Suggestions for Further Research .....	49

<b>REFERENCES</b> .....	50
<b>APPENDICES</b> .....	<b>58</b>
Appendix I: Introduction Letter .....	58
Appendix II: Questionnaire.....	59
Appendix III: Letter of Data Collection.....	64
Appendix IV: Research Permit .....	65

## LIST OF TABLES

	<b>Page</b>
Table 3.1: Sample Size .....	24
Table 3.2: Operationalization of Variables .....	27
Table 4.1: Distribution of Respondents by Gender .....	30
Table 4.2: Distribution of Respondents by Level of Education.....	31
Table 4.3: Distribution of Respondents by Level of Engagement.....	31
Table 4.4: Distribution of Respondents by Duration of Service.....	32
Table 4.5: Organizational Strategies used .....	33
Table 4.6: Effectiveness of Top Management Support .....	34
Table 4.7: Dimensions of Top Management Support.....	35
Table 4.8: Involvement of Stakeholders in Implementation of Projects .....	35
Table 4.9: Stakeholders' Involvement in Implementation of Projects .....	36
Table 4.10: Stakeholders Involvement in Implementation of Projects.....	37
Table 4.11: Dimensions of Government Energy Policies.....	38
Table 4.12: Dimensions of Effective Implementation of Projects.....	39
Table 4.13: Correlation Analysis .....	40
Table 4.14: Model Summary .....	41
Table 4.15: ANOVA.....	41
Table 4.16: Coefficient of Results .....	42



## LIST OF FIGURES

	<b>Page</b>
Figure 1: Conceptual Framework .....	20

## ABBREVIATIONS AND ACRONYMS

<b>ERB</b>	Electricity Regulatory Board
<b>ERC</b>	Energy Regulatory Commission
<b>GDC</b>	Geothermal Development Company
<b>GHG</b>	Greenhouse Gases
<b>GoK</b>	Government of Kenya
<b>GW</b>	Gigawatts
<b>ICT</b>	Information and Communication Technology
<b>IPPC</b>	Intergovernmental Panel on Climate Change
<b>IPPs</b>	Independent Power Producers
<b>KenGen</b>	Kenya Electricity Generating Company
<b>KETRACO</b>	Kenya Electricity Transmission Company
<b>KPLC</b>	Kenya Power and Lighting Company
<b>KWh</b>	Kilo Watt Hour
<b>MW</b>	Megawatts
<b>NEMA</b>	National Environment Management Authority
<b>NGO</b>	Non-Governmental Organization
<b>NOCK</b>	National Oil Corporation of Kenya
<b>PPAs</b>	Power Purchase Agreements
<b>RE</b>	Renewable Energy
<b>REA</b>	Rural Electrification Authority
<b>REN21</b>	Renewable Energy Policy Network for the 21st Century
<b>UNEP</b>	United Nations Environment Programme

## ABSTRACT

The energy sector is most important for economic and social activities therefore calling for a radical shift in the production of energy from fossil fuel to renewable energy. The environmental threats posed by fossil fuel has resulted into concerted efforts both locally and globally in encouraging the utilization of renewable energy sources as a measure of mitigating the threats (IPCC, 2007). Due to their positive impacts on the environment coupled with the economic and social benefits they bring about, there is fast increasing acceptance of their use globally. Despite the importance of renewable energy, there is dearth empirical evidence on factors influencing the implementation of projects in the renewable energy sector in Kenya. Therefore, this study examined the factors influencing implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC. The main study objectives were to determine the influence of organizational strategy, top management support, stakeholders' involvement and government energy policy on infrastructure development projects implementation in the renewable energy sector in Kenya. A descriptive survey research design was used to obtain data. Stratified random sampling was used to pick 30% of the target population giving a sample size of 90 respondents. The research instrument used in collecting primary data was a structured questionnaire while secondary data was collected from books, scholarly journal articles from libraries, internet sources and other relevant literature for the purposes of comparison so as to get the most accurate data possible. Periodicals and unpublished works such as government documents including sessional papers were also used. Data analysis was done using both descriptive and inferential statistics. The study concludes that KPLC's organizational strategy is the key contributory factor in the implementation of infrastructure development projects being enabled significantly by the organization design. It also concluded that top management support influence implementation of infrastructure development projects in KPLC as top managers effectively communicate the requirements of the project to all the parties concerned and carries out an evaluation of the project progress periodically to check for any deviations. The study additionally concludes that stakeholders mainly influence implementation of infrastructure development projects through capital and resource contribution. The study finally concludes that energy policies and strategies provide an institutional, regulatory and legal framework that guarantees provision of reliable, adequate, safe, cost-effective and affordable supply of energy while ensuring the conservation of the environment. The study recommends the alignment of organization strategy to its infrastructure development project activities thus increasing organizational effectiveness and efficiency. It further recommends the establishment of a formal engagement framework between top management and project team members to ensure effective teamwork and seamless work flow during the life of the project. Also recommended in the study is creation of awareness among stakeholders on the importance of collaboration in project delivery as a measure of addressing the problem of low uptake of participatory approach in stakeholders' involvement through education, information dissemination, and dialogues among stakeholders, sectors and disciplines. Further recommendation is on timely utilization of relevant multi-sectoral energy based information and knowledge to enable the crafting of energy policies and strategies that promote effective and efficient energy supply.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

Crawford and Bryce (2013) observe that a project is only successful when finished within the set timelines, financial projection, it achieves the pre-set deliverables and it is positively received and utilized by the customers for whom it was intended. Clark (2009) argues that different people gauge success of a project in varied ways at varied times. He also found that the satisfaction of project stakeholders, including the end user, was the key measure of project success, with stakeholders being content if set quality requirements are delivered.

An organization acquires an advantage over others, through delivery of projects within set timelines. This is pegged on the acknowledgement that the realization of the pre-set objectives is determined by the ability to achieve the targeted output within schedule (Stephen, 2014). Globally, the investment environment in which construction bodies function continues to experience fast changes. Organizations that do not align themselves nor react to the intricacies of the emerging environment have a tendency of experiencing survival challenges (Wustenhagen, 2007). Project success is considered if it is delivered within schedule and it meets the set quality requirements. In spite of this, the success of a project can hardly be measured conclusively and is subject to debate (Clark, 2009).

Brazil consists of many rivers, approximately above 75% of hydro electric energy, with around 100,000 MW directly from hydro power plants. Compared to other countries, Brazil has a comparative edge (Castro, 2011). Castro (2011) contends that, since 1970s, the process of hydropower plant set up has been in place. As much as Brazil's potential is enormous, its exploration is at a very low threshold. The fact that hydro power implementation is a long term process and any gridlocks in the implementation process means that the process can be protracted. Consequently, there is slow uptake of new projects development in the hydro power field. As a result, the growth of new entrepreneur based energy projects is curtailed (Divakar & Subramanian, 2009).

In China, Zhang (2012) notes that, the concentration of renewable energy resources is in the regions with low elasticity of energy demand, such as Inner Mongolia and Xinjiang. However, with electricity demand sparsely distributed among the population, serious questions emerge about the capability of China's already fringe transmission network to evacuate these big quantities of electricity. Due to inadequacy of transmission networks in some areas, investment in transmission lines becomes a challenge. Legal bottlenecks also exist on the power supplied to the local grid, due to the need to reduce over burdening the transmission networks (Zhang, 2012).

Africa as a continent is confronted with the challenge of meeting the growing needs of its fast growing population. In sub-Saharan Africa, the average annual per capita usage of electricity is 536 kWh in comparison to the worldwide average of 3044 kWh. This thrusts to the forefront the disparities of a continent that is well-bequeathed with energy resources and the scarcities of its inhabitants, manufacturing firms and trades of the minimal energy needs required to surmount the challenges of the contemporary lives and economic development (Leva & Zaninelli, 2007). Following the meager energy use in many African nations and the colossal capital requirements for hydropower energy investments, guaranteeing complete energy security is only probable by boosting regional power production and supply grids (World Energy Council, 2009). According to African Development Bank (2013), the key impediments to power sector growth in Africa are insufficient capacity for generation, limited electrification, low power uptake, service unreliability, high costs, and a deficit in financing of approximately \$23 billion a year. As such, the impediments necessitate for a re-evaluation of the framework of growing the energy sector that aims to utilize the abundant renewable energy resources in Africa.

In Kenya, the infrastructure development in the energy sector is in focus as the state and other key stakeholders such as power distribution companies and the consumers seek mechanisms to promote access, security, availability and affordability. The indispensability of the energy sector cannot be undermined. It is the heart beat of an economic growth (Stern, 2011). The energy sector is one of Kenya's Vision 2030 flagship programs. This sector works as a driver to "a newly- industrializing, middle-income country providing a high quality of life to all its citizens in a clean and secure

environment” (GoK, 2008). Kenya has a national installed capacity of 2.3 GW with the total system generation capacity targeted to reach 6,670 MW in 2020/21 and a peak demand of 1,586 MW as at June, 2016 which too is expected to rise to 2,864 MW in 2021 as envisaged in the Power Sector Medium Term Least Cost Power Development Plan, 2015-2020 (KPLC Annual report, 2016).

The development of electrical power projects involves various activities and hence the need for proper management to ensure that the required resources are availed within schedule (Wamukonya, 2013). Protracted project timelines have a huge impact on financial costs and the parties involved (Ondari & Gakera, 2013). Projects delays are a reoccurring problem and have negative impacts on project success in line with quality, cost, time and occupational safety and health (Knight, Hurst & Farahani, 2009). Therefore, this study identified and sought to investigate how organizational strategy, top management support, stakeholders’ involvement and government energy policy influence infrastructure development projects implementation in the renewable energy sector in Kenya at KPLC. Most of the power transmission and distribution network in the country is owned and operated by KPLC. The organization’s key responsibility is adequate planning of electricity generation and transmission capacity to offset the elasticity of demand; setting up and maintenance of the distribution and transmission network and finally availing electricity for sale to the customers (KPLC annual report, 2016).

## **1.2 Statement of the Problem**

To sustain the achievements of Kenya’s power sector to improve the quality of supply and to reduce system losses which will translate to reduced cost of power, the Kenyan Government and the development partners have teamed up in setting aside vast financial resources. In spite of this, the major objective is hardly realized since project implementation process is never efficiently executed. For example, the construction of the Sondu-Miriu hydropower project was set to start in May 2004 but delays were encountered as some increased costs had been incurred, which were met by the Kenyan government. The 60 MW dam was expected to be completed in 2006 but delayed for over 12 months (KPLC Technical Library, 2010).

Despite the crucial role that the effective implementation of infrastructure development projects play in organizational development, very little research has been undertaken on factors influencing implementation of renewable energy projects in Kenya (Mendonça, 2007). Carolyn (2013) contended that, institutional reforms, millennium development goals achievement, public participation and political support influence implementation of rural electrification programme in Kilifi County. In another study by Omuoso (2013), on the challenges of implementation of rural electrification projects, he perceives rural electrification projects as a corporate strategy by KPLC. He found that corporate social responsibility was key to the successful implementation of rural electrification projects. According to his findings, the implementation of rural electrification is pursued as an element of community social responsibility though it is a government policy.

It is against this background that this study provides more information by investigating the influence of organizational strategy, top management support, stakeholders' involvement and government energy policy on infrastructure development projects implementation in the renewable energy sector in Kenya at KPLC.

### **1.3 Purpose of the Study**

The study sought to investigate factors influencing implementation of infrastructure development projects in the renewable energy sector in Kenya with a case of Kenya Power and Lighting Company Limited.

### **1.4 Objectives of the Study**

The study was guided by the following objectives:

- (i) To determine how organizational strategy influences the implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC.
- (ii) To determine how top management support influences the implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC.

- (iii) To establish how stakeholders' involvement influences the implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC.
- (iv) To establish how government energy policy influences the implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC.

### **1.5 Research Questions**

In addressing these questions, the study aims to achieve its purpose.

- (i) To what extent does organizational strategy influence implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC?
- (ii) To what extent does top management support influence the implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC?
- (iii) How does stakeholders' involvement influence the implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC?
- (iv) How does the government energy policy influence the implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC?

### **1.6 Significance of the Study**

This study is expected to be of significance to many; both in the public and private sectors.

This study may be of interest to the managers of KPLC in their effort to improve the level of management and implementation of projects. Ways and means can be found to bridge the gaps identified in this study, and this can result in improved success rate of projects.

This study may also help project stakeholders, especially those who are involved in the implementation of construction projects to ascertain the roots of non-completion of development projects and their effects. It will, therefore, assist the stakeholders to



take up steps that will mitigate the causes and effects of poor implementation of energy development projects.

The study might benefit the government of Kenya towards effectively implementing and developing projects that are geared towards provision of power in the country as it fosters to attain Vision 2030 goals.

Academically, the study might also be significant to scholars and researchers who plan to carry out their studies in the same line. The study will act to improve their theory of knowledge in analyzing their research findings and filling in the gaps.

This information may be used to inform the investors in the energy sector of the likely constraints and challenges so that they are better positioned to deal with them rather than if they do not know they exist.

### **1.7 Limitations of the Study**

The challenges in this study involved fear of respondents to participate due to fear of victimization on the basis that information provided could be used against them and spending much time in the field collecting data which could hinder effective data collection due to overworking and incurring extra travel costs.

To overcome these challenges, the researcher assured the respondent that the information obtained would be treated with utmost confidentiality. This was to enable them provide true, factual and adequate information. The researcher also engaged two professional research assistants in distribution and collection of the questionnaires which saved on the time spent in the field collecting data. The researcher was then able to minimize costs by ensuring that all data was collected in one trip thus avoiding extra travel costs.

### **1.8 Delimitations of the Study**

The study was at KPLC's head office in Parklands, Nairobi County. The study was limited to factors influencing implementation of infrastructure development projects in the renewable energy sector in Kenya at KPLC. The location of this study was accessible as it was at KPLC head office in Parklands, Nairobi targeting 90 respondents.

### **1.9 Assumptions of the Study**

The study worked under the assumption of the respondents' awareness of factors influencing implementation of infrastructure development projects at KPLC. In sampling, the study assumed that the sample of study had the same characteristics as the population and therefore represented the population. The study also assumed that respondents gave genuine, truthful and honest responses to the questionnaires.

### **1.10 Definition of Significant Terms used in the Study**

Below are the definitions of terms used in the study:

**Organizational strategy** refers to an organization's matching of its internal resources and skills to its external environment's risks and opportunities.

**Top management support** refers to senior executives truly backing a project and the team that is implementing it.

**Stakeholders' involvement** refers to the engagement of partners in a project in decision making process.

**Government energy policy** refers to the framework that the government has deployed in addressing energy utilization matters.

### **1.11 Organization of the Study**

The study has five chapters with chapter one consisting of the study background, problem statement, study purpose, study objectives, questions of research, significance of the study, study limitations, study delimitations, basic study assumptions and definition of significance terms. Chapter two puts the study in context by first examining the concept of infrastructure development projects in the renewable energy sector. It delves into the influence of organizational strategy, top management support, stakeholders' involvement and government energy policy in infrastructure development projects implementation in the renewable energy sector in Kenya at Kenya Power and Lighting Company Limited. Furthermore, this chapter explores the theoretical framework, conceptual framework for the study, research gaps and summary of literature review. Chapter three exhibits the exploration approach which incorporates the research design, population of the study, sampling

procedure and techniques, research instruments employed, procedure of data collection, data analysis techniques, operational definition of variables and ethical considerations. Chapter four provides the presentation, analysis, and interpretation of the data collected in the field. This chapter answers the research questions and form the basis for the research recommendations. Chapter five finally gives the summary of the key findings, discussion, conclusion and recommendations of the study and thus contribute to the body of knowledge and provide an opportunity for further research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents literature review based on the following thematic areas: concept of infrastructure development in the renewable energy sector and factors that influence the implementation of infrastructure development projects. Furthermore, the chapter covers the theoretical framework, conceptual framework for the study, research gaps and summary of the chapter.

#### **2.2 The Concept of Infrastructure Development in the Renewable Energy Sector**

Infrastructure denotes services derived from utilization of electricity, gas, telecommunications, water and transport works such as roads, bridges urban transit systems, seaports and airports vital in promoting economic growth and development in a country (Kaundinya, 2009). A sound infrastructural set up is vital in promotion of effectiveness, efficiency and spurs productivity at all levels of the economy. Poor infrastructure impedes economic growth and can be seriously detrimental to the efficient use of scarce resources (All Africa Energy Week, 2012).

Alazraque-cheni (2008) posits that the scope of a project, the uniqueness and specificity of services offered, and its salient social angle call for the government's role in planning, promoting and ensuring independent regulation that will ensure equity and fairness for the public and private sector players (Anderson, 2012). When projects are operational, the role of the government can be determined by the ownership and the operational structure of the concerned project. For long, infrastructural development was a preserve of the state (Ann, 2013). Private sector participation is imperative, due to the huge budgets called for in economic development, hence, the development of Public-Private Partnerships (Bitsch, 2012).

Private initiative varies in scope and operation. It includes infrastructural maintenance, ownership and contracted operation (Bolinger, 2011). Some of the principal objectives of promoting private investment in the development and operation of infrastructure projects are ensuring greater economic efficiency and better availability of the facility itself. Infrastructure projects are either more or less

suitable for private participation and the level of such participation can be varied to reflect the same (Boyle, 2012). Projects that are designed to provide significant social benefits such as low cost urban transportation systems may be appropriate or tailored towards the custodianship of the government, whereas projects characterized by a commercial pull, such as telecommunication, are more suited for private sector involvement (Bronicki and Lucien, 2010).

Across the globe, states have different energy demands, as such; they derive the satisfaction to their consumers from different sources. Due to the ramifications from fossil fuel, there are several scientific recommendations and proposals from key stakeholders on other alternate means (Commission of the European Communities, 2010; Mallon, 2011). Of all these, one way to mitigate Greenhouse gas effluence and specifically carbon dioxide is the adoption of arguably less or even zero GHGs energy sources. The major renewable energy sources are water (hydro), solar, wind, biomass and geothermal (Boyle, 2014).

However, various gridlocks exist in renewable energy development depending on source of energy, development location and the available technology (Geller, 2011; Mendonça, 2009; McCormick, 2007). The positive impacts derived from renewable energy sources development can be enormous; therefore it is imperative to properly plan for its development to efficiently surmount these bottlenecks. Not only is mitigating GHG emissions important, scaling up the supply of energy and security, promoting local development and job creation is also vital (Kelly, 2007).

The Energy Information Administration predicts that power demand will rise by 29 percent by the year 2030 (EIA, 2009). Fresh capital investments in power generation, transmission, and distribution networks are required to satisfy this demand. Of critical importance is the need for capital investments to improve energy economic growth and reduction of greenhouse gas emissions. No much change is expected over the next two decades in the Per capita consumption of electricity, largely due to projected improvements in economic growth and conservation (EIA, 2009). Vision 2030 of Kenya earmarks energy as a key enabler for its realization of industrializing and development into a middle income economy (GoK, 2008). In developing countries, economic growth is directly proportional to energy consumption (Winkler, 2005).

### **2.3 Organizational Strategy and Implementation of Projects**

According to Mitchel (2011) strategy refers to the pairing of internal resources and skills and external environment's risks and opportunities to achieve congruency. The concept of value chain framework is brought about by competitive advantage and it is based on strategically thinking about the business activities and assessment of their relative cost and role on differentiation. The value chain creates a robust way of understanding the buyer value sources that will command an optimal price, and why one product or service or project will substitute for another (Michael, 1998). A firm ought to have inimitable and superior resources and capabilities from its close competitors.

Organization design has been termed by Biegaa (2007) as important in implementation of development projects. As such, efficient organizations provide outputs that meet defined strategies. The Ansoff Matrix provides strategic path and indicators for meeting the company's objectives using four main categories (Biegaa, 2007). According to REN21 (2009), market penetration is the category where the organization entrenches marketing of its products to its already established customer base meaning that to increase revenue ,brand repositioning and product promotion is required. Market development is when the organization markets its existing product range to new market by either exporting or selling to new region (UNEP, 2011). Product development refers to innovation of new products and in some instances replacement of existing ones and marketing to its already established customer base. The last category is diversification in which new customers become a target group of a firm's new products. Related diversification is where a firm operates in a familiar market while unrelated diversification is where a firm operates in a market it has no prior experience in (Wickham, 2008).

Another framework for organizational development or growth is the four celled Boston Consulting Group (BCG) Matrix. The organizational market share and industry growth rate is presented in a graphical representation. The cells are categorized as: stars, cash cows, question marks and dogs each denoting a particular business (European Commission, 2001). Stars refer to business entities with a broad market share in industry characterized by exponential growth. For sustainability, they call for bigger investments compared to other competitors. Cash Cows denote

business entities with large market percentage in a mature, slow growing industry. They can generate cash for investment in other businesses but require little cash flow for sustainability. These business units are the organization's main source of cash, and are particularly the core business. Basically, the greatest appeal is cash flow. The stability oriented strategies are key (European Union, 2001). Question Marks denote business entities with low market share and situated in a high growth industry. For market sustainability, they require little amount of cash. These are services and goods that attract a commercial value. Market share prescribes an organizations strategy. At initial stages, businesses start as question marks, as they try to gain a niche in a market characterized by high growth (Friedman & Miles. 2006). It should be noted that question marks can slide into dogs, if not attended to. Dogs represent businesses having weak market shares in low-growth markets. They neither generate cash nor require large amount of cash. The number of dogs ought to be regulated in any market, and therefore liquidated if it has no significant market share (Friedman & Miles, 2006).

Organizational behavior is seldom complete without the mention of organization culture. Organization culture is very critical in determining other variables of organization's performance. An organization's culture advertently promotes its social functions (Deal and Kennedy, 2010). Organization culture is a fluid concept, and therefore hard to measure or quantify. Culture can be supportive to organization structure or reinforce it. Interestingly, culture sometimes acts as a functional alternative to curbing variable behaviours in organizations. These roles have formed the subject of noteworthy debate in organizational culture research (Scholl, 2013).

Organizations can change their cultures simply by adopting new values. Profound expectations are subject to change as experience changes, as such, cultural change occurs. Strategic alignment of objectives and culture is a key transformational management tool that spurs outcomes (World Bank, 2012). Organizations examine their business cultural profiles, and design and execute strategies that bench mark and align with the system (Kelly and Geoff, 2012).

According to Reed and Defillippi (2009), organizational change occurs as a result of internal or external factors. These factors include losses, entry of new competitors,

changes in tastes and preferences, new laws and political atmosphere (Wickham, 2008). In uncertain times, organizations need stability for coherence and prosperity, only done through prudence of management. Organizations' need to understand the environment, get new ideas and integrate new vision, and consolidate gains. By doing these things, positively managing change can thus be part of your organizational culture (Boyle, 2004).

#### **2.4 Top Management support and Implementation of Projects**

The role of the top management is inextricably linked to the success of a project (Besner & Hobbs, 2008). Johnson (2009) also contends that among the project management Critical Success Factors (CSFs), top management support is one of the salient factors. However, considering the limitations organizations face, such as time constraints, inadequacy of resources, it calls for the need to explore the most relevant and adequate support processes for different projects.

Zwikael (2008) corroborates the significance of involvement of senior management in project activities and deduces that different support processes from the organization's executives ought to be deployed across different organizational cultural and industrial set up. This statement is in line with the school of thought that management decisions should be specifically tailor made to specific contexts (Dvir, 2006). In support of this approach Pennypacker & Grant (2003) argue that different strands of project management need to be applied differently. As a result, context specificity ensures that each project activity is need based and therefore appropriate.

Kandelousi (2011) noted that support from the higher management cadre can be exhibited in various ways, such as team work, problem solving, dedication and motivation of the lower level employees. Consequently, financial prudence, time saving and human resource management occurs and necessary authority is delegated. Meredith and Mantel (2010) mentioned that if the external conditions remain constant, support from senior leadership aides the successful implementation of the project. In situations where technical and administrative skills do not match as a result of poor coordination between organization leadership and the project leaders, the project may eventually fail (Morgan, 2012).



The most challenging thing in implementation of infrastructure development projects is the dedication of top management. This is a key ingredient for project implementation. At times the organization's executives may show lack of enthusiasm in engagement to the project implementation process. This low degree of engagement may be a negative indicator to other parties (Rapa and Kauffman, 2007). Generally though, project implementation gridlock is blamed on organizational structure and lack of support from top leadership (Aaltonen and Ikåvalko, 2012).

Another hurdle to successful project implementation is the outcome of the management's control in an organization (Langfield-Smith, 2007) and more precisely on financial resource control (Marginson, 2012). Project managers utilize the project life cycle concept as a noble tool for holistic understanding of the project stages and possible resources required for its successful execution. It is one of the instruments that help managers conceptualize the project work and its budgetary needs as they are in command of the project from inception to commissioning (Al Ghamdi, 2009).

Aaltonen and Ikåvalko (2012) observe mid-level managers as the "key actors" "who have a pivotal role in strategic communication." on the other hand, Bartlett and Goshal (2008) perceive the middle managers roles to shift more towards a "coaching role", by building capacities, offering guidance and support to the employees in the lower hierarchy levels. In order to improve the projects success rate, senior management must drop the perception that they share the same notion with lower-level managers of the strategic direction and its execution, of the rationale behind it and how urgent it is required but should instead have a contrary belief and use any available means to rally employees behind their ideas (Rapa and Kauffman, 2007).

## **2.5 Stakeholders' Involvement and Implementation of Projects**

In project management, stakeholders implies various people who are involved and have different interests in the projects being implemented (Davies, 2011). They include the community, decision makers and the execution staff (GNESD, 2007). Heltzberg, (2014) is of the view that apart from those who have a direct role, even the critics complement the process and are part of it. Stakeholders' involvement is

important for the smooth implementation of projects. Despite minor decisions and urgent situations not warranting stakeholders participation, complex situations with a potential of negative consequences warrant their involvement and when done proactively and not in a reactive manner, helps to circumvent challenges (Gebreegziabher, 2011). Stakeholders' participation is key to promote communication and feedback to the public.

Participatory approach in project implementation has received considerable backing from the international aid community due to past lessons (Davies, 2011). It promotes accountability and ensures effective communication and feedback of intended change (Ministry of Finance, 2011). It promotes the sense of ownership of the activities of the project and ultimately increases the chances of the project's impacts being sustainable. However, Herring (2012) argues that the involvement of project stakeholders in implementation of infrastructure development projects varies according to intended purpose and the overall organizational reception of participatory approaches.

According to Hulley and Stephen (2007), stakeholders in the energy sector must have open and honest mechanisms to constructively discuss concerns in dealing with the hurdles of the growing use of renewable energy resources. For example, a platform that enable groups to amicably come to common agreements from which they devise concrete measures for growing use of renewable energy resources. The platform would also have to manage trustworthiness issues among groups that have traditionally had uneasy relationships (Hosie and Dowd, 2010). Any engagement among stakeholders need some framework for providing timely information to all players before final policy decisions are made considering the fact that most decisions are usually made on the basis of hierarchal, top-down approaches (Ishengoma, 2012).

It is an organization's structured approach of engagement of its customers and others within its environment (Beach, 2009). In addition, connecting with stakeholders is beneficial to organizations to achieve various outcomes namely; accountability and transparency, communication and feedback, control of activities, responsibility, brand name and image. Burton, Malone, & Huq (2005) contend that stakeholder

participation approaches vary from passive interactions, through self-mobilization of information. It is believed that as much as the input of the stakeholders is important, the level of participation and decision making varies at various strata or hierarchy and power (Armah, Yawson, & Johanna, 2009). Prior to this era, in the 1950s and 1960s projects failed due to lack of societal buy-in.

## **2.6 Government Energy Policy and Implementation of Projects**

There is increased uptake of clean energy throughout the world, undermining the long-held assumption especially in the developing world that it is only through fossil fuel that a strong economic future can be guaranteed (Meyer, 2007). Most countries in the world have been using different policies and strategies to guarantee security of supply of inexpensive energy and attain efficacy (Renewable Energy Association, 2007). These have been adopted and effected by various states and economic unions in many ways. Denmark has started the transition well. The government has introduced new energy-policy initiatives such as broad and ambitious range of energy policy measures which has resulted in improved efficiency and increased electricity supply as well as growing development of renewable energy in the short term up to 2020, and long term towards 2050 (Richard, 2011). Therefore, growing commitment as well as utilizing relevant information and opportunities to take measures have been pivotal. This has been achieved through initiatives that promote incentives for enterprises and domestication of efficiency, effectiveness and environmental soundness in renewable energy (Righter, 2009). In addition, Salim (2012) observes that there are initiatives to enhance research, development, demonstration and innovation within clean energy technologies to prepare for the next transition phase by developing and improving the technological solutions.

In Kenya, Sessional Papers, enforcement of regulations and adoption of parliamentary acts have shaped the energy policy whose attention in the past has been on power and fossil fuel subsectors (Republic of Kenya, 2007). The Petroleum Act (Cap 116) has guided the activities in the sector for a long duration of time (Meyer, 2007). Its enactment in 1984 paved way for NOCK to run exploration of oil functions in Kenya. The enacting of Electric Power Act No.11 of 1997 resulted into the splitting of KPLC further to create KenGen and ERB (Salim, 2012). It is also through this act that private sector players got facilitation to contribute to the provision of power services.

The development of the Sessional Paper No.4 of 2004 by the Ministry of Energy (Meyer, 2007) which combined with the Energy Act No.12 of 2006 brought significant reforms in the institutional structure of Kenya's power sub-sector to consist of the Ministry of Energy, ERC, KenGen, KPLC, REA, KETRACO, GDC and IPPs.

Therefore, the aim of these policies is to guarantee reliable, safe and cost effective supply of clean energy that is affordable thus promoting development (Steger, 2008). The energy policy helps to avail sustainable energy services for development; make proper use of energy as an instrument of speeding up economic growth for both the urban and rural populations; accelerating access to energy services that are affordable; creating an environment that makes it possible for energy services provision (Steven and Anil, 2009); promote security of energy; enhance development of local sources of energy; and promote efficiency in energy use and utilization of clean energy (Twidell, 2011).

## **2.7 Theoretical Framework**

Theoretical framework brings on board and delves into the theories that attempt to shed more light on the research problem being studied with emphasis being put on the variables under study (William, 2006). The study will be guided by Stakeholders theory and Top management team theory that relates to implementation of infrastructure development projects.

### **2.7.1 Stakeholders Theory**

It is through the means of stakeholders approach that a firm can best be understood in its environment (Phillips, 2009). This approach enables an organization's management to broaden its objective not limiting itself to profit maximization (Mitchel, 2011) and identification of stakeholders in the value chain both the stockholding and non-stockholding groups. Patton (2008) and Karl, (2007) argued that participation is open to all interested parties without special preference.

Overally, the aim of stakeholders' theory is to equip management with a framework of understanding and strategically managing stakeholders (Patton, 2008). Various scholars have extolled the virtues of stakeholder management (Ramabodu & Verster, 2010; Raniga & Simpson, 2009). The long term survival of the organization is related

to the just treatment of stakeholders (McManus, 2004). With its origin being rooted in strategic management, this theory has been applied in multi-faceted ways in various fields of evaluation.

There is growth in the proliferation of perspectives on the concept of stakeholders as the subject increasingly gets acceptance (Oakley, 2011). The relationship between top management and stakeholders is emphasized. Particularly, it should be emphasized that stakeholders' involvement is pertinent to project success. The stakeholders' participation will largely depend on their relationship with the organizations' higher cadre of management and not junior staff acting on management's behalf. Stakeholder concept emphasizes that for the success and sustainability of the business over time, the management must align the interests of all stakeholders going in the same direction with an overall goal of creating as much value as possible for stakeholders in the business (Mitchel, 2011).

Stakeholders' theory is based on the idea that there exists relationships between organizations and various groups and as such support from these groups can be sustained by carefully balancing their varied interests (Kirsi, 2010). Kirsi (2010) goes ahead to say that the benefits drawn from this relationships are intrinsic in nature and both parties derive mutual benefit. Consequently through this theory, firms undertaking stakeholders approach will benefit from improved performance in terms of economics and other criteria (Hasan & Kamil, 2010).

### **2.7.2 Top Management Team Theory**

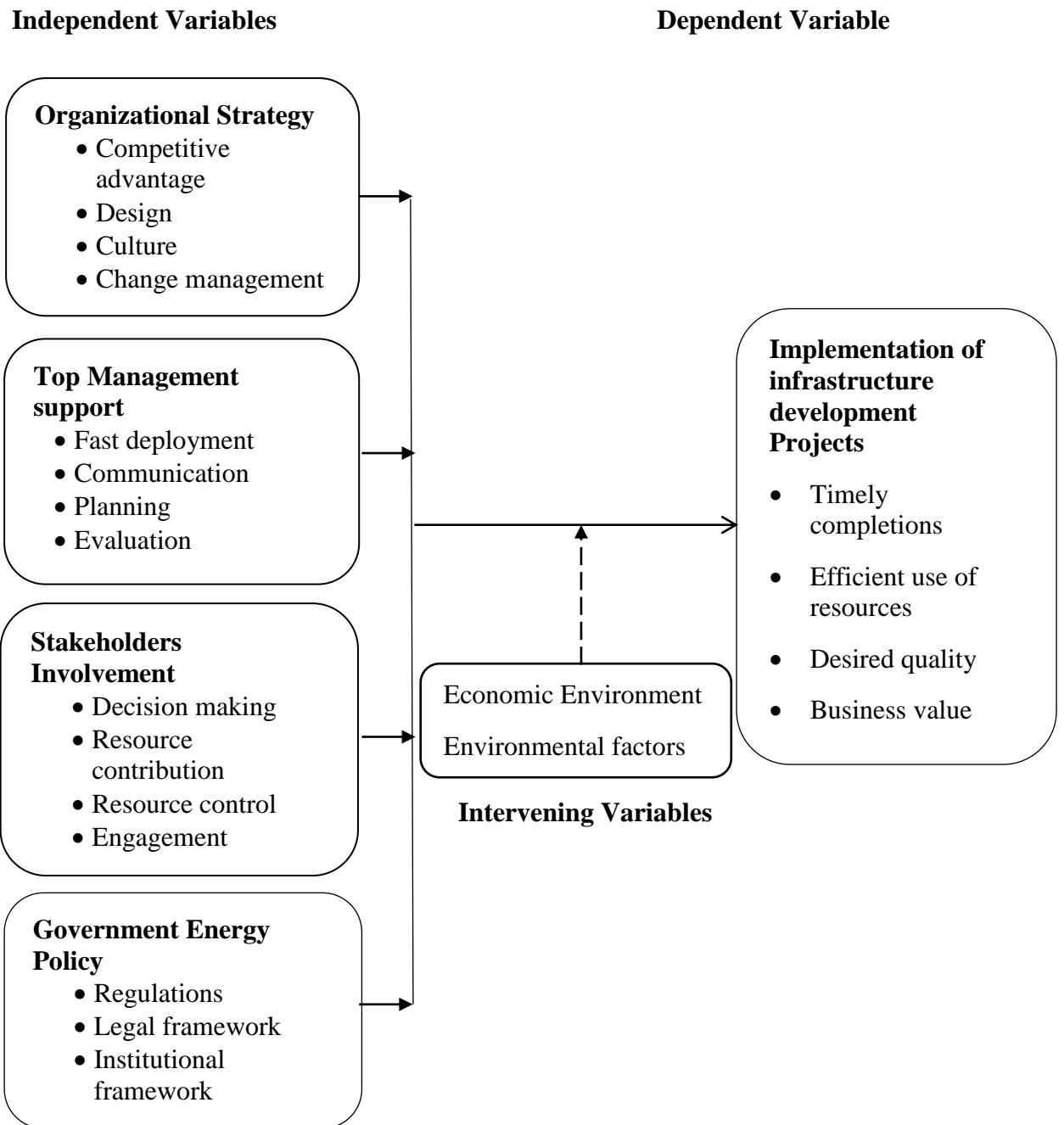
The academic sphere has grappled with questions following the advent of top management team theory (TMTT) that is oriented towards strategic decision making (Hijzen, Görg & Hine, 2005). Contrary to the theory of traditional strategic management which is oriented towards technology, economics and information processes, top management team theory is aligned to the strategic choice analysis and determinants of the performance of the organization that advocates for limited rationality hypothesis (Müller & Jugdev, 2012).

Top management team theory advocates for prior research on demographic attributes thus suggesting that the management's demographic characteristics such as age, background of education, work contribute to the underlying cognition, values and

perception differences which can eventually predict significantly the outcome of the organization such as organization strategic choice and its performance (Dvir, Sadeh & Malach-Pines, 2006). Therefore the skills and support from top management is vital for the success of development projects. It cuts down on project timelines as it enhances the smoothening of the communication process.

## **2.8 Conceptual Framework**

This section portrays a relationship between the independent variables, that is; organizational strategies, top management support, stakeholders involvement and government energy policy with dependent variable of implementation of infrastructure development projects in the renewable energy sector. The conceptual framework is illustrated in Figure 1.



**Figure 1: Conceptual Framework**

The conceptual framework depicts the relationship between the four independent variables which are organizational strategy, top management support, stakeholders’ involvement and government energy policy with the intervening variables which include economic environment and environmental factors so as to arrive at the dependent variable of project product delivery within schedule, within budget and within user specification leading to increased energy supply and socio economic development.

## **2.9 Research Gap**

There is a critical dearth in the study of factors influencing implementation of infrastructure development projects in the renewable energy sector in Kenya. Carolyn (2013) did a study on the factors influencing implementation of rural electrification programme in rural areas. She found that institutional reforms, millennium development goals achievement, public participation and political support influence implementation of rural electrification programme in Kilifi County. The study does not examine the role of organizational commitment in implementation of power projects. In another study by Omuoso (2013), on the challenges of implementation of rural electrification projects, he perceives rural electrification projects as a corporate strategy by the Kenya Electricity Generating Company Limited. He found that corporate social responsibility was vital to the successful implementation of rural electrification projects. According to his findings, the implementation of rural electrification is pursued as an element of community social responsibility though it is a government policy. The study does not provide a critical analysis of power projects expansion as government policy and organization's strategy driven.

This study therefore was carried out to fill this gap by looking at the influence of organizational strategy, top management support, stakeholders' involvement and government energy policy in the implementation of renewable energy infrastructural projects in Kenya with a case of KPLC.

## **2.10 Summary of Literature Review**

This chapter looks at relevant literature in terms of investigating relationships between independent variables which include organizational strategy, top management support, stakeholders' involvement and government energy policy and their influence on implementation of infrastructure development projects in the renewable energy sector. The chapter also discusses the theories underpinning the study. Stakeholders' theory entails that all parties interested in a project do so with their own interests, with pre-set priorities to accrue benefits. Top management team theory (TMTT) that is oriented towards strategic decision making and contrary to the theory of traditional strategic management which is oriented towards technology, economics and information processes, it is aligned to the strategic choice analysis and determinants of the performance of the organization that advocates for limited



rationality hypothesis The conceptual framework helps to illustrate the relationship between the study variables. There is a critical dearth in the study of factors influencing implementation of renewable energy infrastructural projects in Kenya and this study identified research gaps that it sought to address to contribute to current theoretical base and thus the need was felt to have research in this field.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter covers the research design, target population, sampling size and sampling procedure, research instruments, data collection procedure and data analysis techniques. It also presents operationalization of the study variables and ethical considerations.

#### **3.2 Research Design**

Cooper & Schindler (2008) posit that a research design is the general plan of how one goes about answering the research question. A descriptive survey research design was adopted, as it allows a study of phenomenon in an accurate and a cost effective way from a big population. According to Saunders, Lewis and Thornhill (2007), a descriptive research design is suitable for this study as it helps in gathering qualitative and quantitative data.

#### **3.3 Target Population**

According to (Mugenda and Mugenda, 2003), target population refers to the total set of units that survey data is drawn from. This study involved employees in infrastructure development projects at KPLC. These were: 40 top management managers, 80 employees from project management department and 180 members of the field technical team making a total of 300 respondents.

#### **3.4 Sampling and Sample Size**

The study employed Stratified random sampling to pick 30% of the target population. According to Mugenda & Mugenda (2003), a sample size of 30% of the population is desirable, economical and representative of the population. The sample comprised 12 top management managers, 24 project management department employees and 54 members of the field technical team. The sample size for the study included 90 respondents. The advantage of stratified random sampling is that it allows triangulation and promotes efficiency (Cooper & Schindler, 2008). The sample size is shown in Table 3.1.

**Table 3.1**  
**Sample Size**

<b>Category</b>	<b>Target Population</b>	<b>Sample Size</b>	<b>Percentage</b>
Top management managers	40	12	13.3
Project management department employees	80	24	26.7
Field technical team	180	54	60
<b>Total</b>	<b>300</b>	<b>90</b>	<b>100</b>

### **3.5 Research Instruments**

The study used both primary and secondary data. Whereas questionnaires were instrumental in primary data collection, secondary data was gathered from the ministry published reports, brochures, journals and periodicals. The questionnaire consisted of closed and open ended questions for broad perspective on data collection. A questionnaire was adopted due to its flexibility and ability to collect large amount of data, cost effective, cheaper and quicker to administer. The questionnaire was divided into six sections: section one was designed to obtain general demographic data of the respondents while sections two, three, four, five and six consisted of questions focusing on the variables of this study.

### **3.6 Pilot-testing of the Research Instruments**

A pilot study is a necessity for testing the appropriateness and completeness of a questionnaire (Kothari, 2004). A pilot study tested the understanding of respondents of the questions in line with study objectives, and the completeness and accuracy of the questions and the survey techniques. As a result, 11 employees were selected based on Mugenda and Mugenda (2003) 10% pretest sample of the sample size comprising of 2 top management managers, 3 project management department employees and 6 field technical team drawn from employees involved in infrastructure development projects at Kenya Power and Lighting Company Limited.

### 3.6.1 Validity of the Research Instruments

Creswell (2003) observes that the validity of a research instrument is defined by whether inferences derived from the study are representative or useful as per the scores on the instrument. The questionnaires were checked for completeness and accuracy and understanding through a pilot study.

### 3.6.2 Reliability of the Research Instruments

Orodho (2000) argues that reliability is a degree to which particular measuring procedure gives identical results after several repeated trials. Split half method was employed to test internal consistency reliability. Pearson's co-relation coefficient (r) between scores of the two halves of the test was employed. Spearman-Brown prophecy formula is used to measure Split half reliability.

The computation of Pearson's co-relation co-efficient (r) between scores of two halves of a test was employed as shown in the formula.

$$r = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{[N\sum x^2 - (\sum x)^2][N\sum y^2 - (\sum y)^2]}}$$

Where:

- N = number of pairs of scores
- $\sum xy$  = sum of the products of paired scores
- $\sum x$  = sum of x scores
- $\sum y$  = sum of y scores
- $\sum x^2$  = sum of squared x scores
- $\sum y^2$  = sum of squared y scores

Spearman Brown Prophecy formula is then used to compensate for the reduction of the instruments to one half of the full length. This yielded the reliability coefficient (Re) for the full length which is given by the formula:

$$Re = 2r / (1+r)$$

Where;

Re = Reliability coefficient between two halves.

If the value of Reliability coefficient (Re) equals or exceeds 0.75 then the research instrument is reliable to carry out the study (Cronbach, 2008). Otherwise the researcher needs to improve the research instrument before carrying out data collection.

### 3.7 Data Collection Procedure

The researcher coordinated data collection processes including the engagement of two research assistants to provide assistance in data collection. They were trained on all the key aspects of collecting data. The questionnaires were then administered to the respondents through self-administration survey approach who were required to fill them and hand over the completed questionnaires. Assurance was given to the respondents that the information obtained would be treated with utmost confidentiality. This, the researcher hoped would dispel any fear in disseminating pertinent information.

### 3.8 Data Analysis Techniques

The data collected was classified into sub-samples then edited and cleaned to reduce ambiguity. The cleaned data was coded into the computer for analysis using the Statistical Package for the Social Sciences (SPSS 22) for subsequent data analysis through both descriptive and inferential statistics. Descriptive statistics was represented using frequencies, percentages, means and standard deviation while inferential statistics was represented using correlation and regression analysis in determining the relationship between the study variables. The regression equation is as follows;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + X_4 + \varepsilon$$

Where;

Y = Dependent variable (Implementation of infrastructure development projects)

$\alpha$  = the model intercept

$\beta$  = Coefficient of independent variables

$X_1$ - $X_4$  ( $X_1$  – Organizational Strategy,  $X_2$  – Top Management support,  $X_3$  – Stakeholder participation  $X_4$  – Government Energy Policy)

$\varepsilon$  = Error Term

### 3.9 Operational Definition of Variables

The operational definition is drawn to ensure consistent data collection that eliminates ambiguity. To operationalize the questionnaire on factors influencing implementation of infrastructure development projects in the renewable energy sector, each critical variable was expounded as indicated in Table 3.2.

**Table 3.2: Operationalization of Variables**

<b>Objective</b>	<b>Variable(s)</b>	<b>Indicator(s)</b>	<b>Measurement</b>	<b>Data Collection Instrument</b>	<b>Level of scale</b>	<b>Tools of analysis</b>
To establish how organizational strategy influences infrastructure development projects implementation in the renewable energy sector in Kenya.	Organizational strategy	- Competitive advantage -Design -Culture - Change management	-Academic qualification of project members -Established standards and procedures -Attendance of project meetings -Progress reports	Questionnaire	Ordinal	Frequencies, Percentages Means and Standard deviation
To determine how support from top management influences infrastructure development projects implementation in the renewable energy sector in Kenya.	Top management support	-Rate of deployment -Rate of communication -Planning - Evaluation feedback	-Strategic plan -Resources allocation -Audits and transparency -Reporting on risks -Rate of feedbacks -Number of projects entrenched	Questionnaire	Ordinal	Frequencies, Percentages Means and Standard deviation
To assess how stakeholders' involvement influences infrastructure development projects implementation in the renewable energy sector in Kenya.	Stakeholders' involvement	-Decision making - Resource contribution -Resource control -Engagement	-Stakeholder identification and analysis -Grievance mechanism -Attending transparency Meetings -Information disclosure - Decisions making concerning the project	Questionnaire	Ordinal	Frequencies, Percentages Means and Standard deviation

<b>Objective</b>	<b>Variable(s)</b>	<b>Indicator(s)</b>	<b>Measurement</b>	<b>Data Collection Instrument</b>	<b>Level of scale</b>	<b>Tools of analysis</b>
To determine how government energy policy influences infrastructure development projects implementation in the renewable energy sector in Kenya.	Government energy policy	-Regulations -Legal framework - Institutional framework	-Setting up of Energy Regulatory Commission (ERC) - Tax exemptions for imports that are to be used for renewable energy equipment -Tenders, contracts and licensing - Procurement and hiring - Tariffs	Questionnaire	Ordinal	Frequencies, Percentages Means and Standard deviation
The purpose of the study is to investigate the factors influencing infrastructure development projects implementation in the renewable energy sector in Kenya.	Infrastructure development projects implementation in the renewable energy sector	-Timely completions - Efficient use of resources -Desired quality -Business value	-Project monitoring and evaluation reports	Questionnaire	Ordinal	Frequencies, Percentages Means and Standard deviation -Correlation -Regression

### **3.10 Ethical Considerations**

Research authorization was sought from the University of Nairobi and subsequently a research permit and approval secured from the National Commission for Science, Technology & Innovation (NACOSTI) and Kenya Power and Lighting Company Limited respectively. The researcher first identified himself to the study respondents and also assured them that the information collected would be treated with utmost confidentiality and that participation in the research was voluntary.



## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND INTERPRETATION

#### 4.1 Introduction

This chapter provides the analysis, presentation and interpretation of data. The study sought to establish how organizational strategy, top management support, stakeholders' involvement and government energy policy influence implementation of infrastructure development projects. Both descriptive and inferential statistics were employed in data analysis and presentation of results and findings.

#### 4.2 Questionnaire Return Rate

Out of 90 questionnaires distributed to employees involved in infrastructure development projects at Kenya Power and Lighting Company Limited (KPLC), only 85 were returned making a 94.44 percent return rate. This was found satisfactory for the study to draw valued conclusion as according to Mugenda & Mugenda (2003), a sample of 50 percent respondents and above is adequate for application of statistical tools proposed for a study.

#### 4.3 Background Information

The study sought to capture the general information of the respondents as it provides insightful and actionable data that contribute to the knowledge base and understanding of universals and variations that exist among populations. The results below were reached as per the respondents' gender, education level, level of engagement in the organization and duration in the organization.

##### 4.3.1 Gender of the Respondents

The gender of the respondents is demonstrated in Table 4.1.

**Table 4.1**

**Distribution of Respondents by Gender**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Male	65	76.5
Female	20	23.5
<b>Total</b>	<b>85</b>	<b>100</b>

From the results, most of the respondents were male as shown by a frequency of 65 (76.5percent) followed by females as shown by a frequency of 20 (23.5 percent). This implies that majority of those involved in implementation of infrastructure development projects are men making up 76.5 percent of the respondents.

#### 4.3.2 Level of Education

The level of education attained by the respondents is presented in Table 4.2.

**Table 4.2**

**Distribution of Respondents by Level of Education**

<b>Level of Education</b>	<b>Frequency</b>	<b>Percentage</b>
College (Diploma)	6	7.1
University (Under graduate)	30	35.3
University (Post-graduate)	49	57.6
<b>Total</b>	<b>85</b>	<b>100</b>

As reflected in the Table 4.2, 49 (57.6 percent) of the respondents were university post-graduates. The study also established that 30 (35.3 percent) of the respondents were university graduates, whereas 6 (7.1 percent) of the respondents had college (diploma) education. This shows that a majority of those involved in implementation of infrastructure development projects are highly skilled, experienced and knowledgeable in project delivery.

#### 4.3.3 Level of Engagement at the Organization

The presentation of the respondents' level of engagement in the organization is shown in Table 4.3.

**Table 4.3**

**Distribution of Respondents by Level of Engagement**

<b>Level of Engagement</b>	<b>Frequency</b>	<b>Percentage</b>
Top management	11	12.9
Project management department	22	25.9
Field technical team	52	61.2
<b>Total</b>	<b>85</b>	<b>100</b>

According to the study results in Table 4.3, most of the respondents were in the field technical team having a percentage of 61.2 percent followed by project management department which had 25.9 percent and lastly the top management which comprised of 12.9 percent. As such, the results insinuate that most of employees involved in infrastructure development projects implementation are members of the field technical team resulting to timely and professional implementation of projects.

#### **4.3.4 Duration in the Organization**

The working experience of the respondents in the organization is demonstrated in Table 4.4.

**Table 4.4**

#### **Distribution of Respondents by Duration of Service**

<b>Duration</b>	<b>Frequency</b>	<b>Percentage</b>
< 5 Years	6	7.1
6-10 Years	17	20
11–15 Years	29	34.1
> 15 Years	33	38.8
<b>Total</b>	<b>85</b>	<b>100</b>

With 33 (38.8 percent) of the respondents having above 15 years work experience in the organization, it can be said that majority of those involved in implementation of infrastructure development projects have worked for longer periods of time and are for that reason deemed to be well experienced in implementation of infrastructure development projects.

#### **4.4 Organizational Strategy and Implementation of Projects**

The study sought to establish the utilization of organizational strategies in Kenya Power and Lighting Company Limited in driving its growth.

#### 4.4.1 Presence of Strategies

According to the study, all respondents 85 (100 percent) indicated that KPLC utilized strategies in pursuing its goals. Use of strategies put the organization back on a growth track by enhancing multiple objectives and projects, resulting in an efficient situation that is simple for participants to follow. From the study, the respondents indicated the following as the overall business strategies:-Growing the customer base of the company by a minimum of 6 million customers by 2021; with a target of connecting a total of 1.2 million customers annually both through grid extension and off-grid solutions; the expansion of infrastructure at all levels and increasing capacity in line with the planned additional 5,000 MW; the modernization and automation of the existing network to ensure efficient system management and speedy identification and resolution of faults within the network; reduction of system losses from the current level of 19.4 percent to below 10 percent and aligning of resources to ensure optimal usage and productivity.

#### 4.4.2 Organizational Strategies used

The respondents rated the four selected strategies used by KPLC in its implementation of infrastructure development projects and results depicted in Table 4.5.

**Table 4.5**

#### **Organizational Strategies used**

<b>Organizational Strategies</b>	<b>Mean</b>	<b>Std. Deviation</b>
Competitive Advantage	3.68	.468
Organization Design	4.84	1.004
Culture Development	3.33	.508
Change Management	3.40	.876

From the Table 4.5, organizational design was the most used strategy (M = 4.84; SD = 1.004). This implies that organizational design is the key driver of growth in implementation of infrastructure development projects as it enhances smooth and timely communication between parties. It improves productivity and promotes innovation.

## **4.5 Top Management Support and Implementation of Projects**

The study aimed at establishing the relevance of top management support in implementation of infrastructure development projects in KPLC.

### **4.5.1 Involvement of Top Management**

A majority of the respondents 77 (90.6 percent) agreed that KPLC involved top management in implementation of infrastructure development projects thus influencing the effectiveness of infrastructure development projects towards achieving expected results. It then follows that strategic decision making, conquering obstacles from the lower levels that occasionally may show up in the execution systems and demonstrable commitment from top managers are the key drivers in the involvement of top management in projects implementation.

### **4.5.2 Effectiveness of Top Management Support**

The study sought to find out the respondents' response on the effectiveness of top management support in implementation of infrastructure development projects. The results of the study are as presented in Table 4.6.

**Table 4.6**  
**Effectiveness of Top Management Support**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Very good	30	35.3
Good	47	55.3
Moderate	8	9.4
<b>Total</b>	<b>85</b>	<b>100</b>

Based on the results of the study, most respondents 47 (55.3 percent) rated the effectiveness of top management support in implementation of infrastructure development projects as good. This is a clear indication that top management was effective in the implementation of infrastructure development projects. The results concur with Raps (2005) who found that the success of the implementation is inextricably linked to management's commitment.

### 4.5.3 Top Management Support

The respondents rated the four ways that KPLC top management provided support in the implementation of infrastructure development projects. This is demonstrated in Table 4.7.

**Table 4.7**

#### **Dimensions of Top Management Support**

<b>Dimensions of Top Management Support</b>	<b>Mean</b>	<b>Std. Deviation</b>
Fast deployment	3.41	.603
Communication	4.14	.819
Planning	3.11	.860
Evaluation	4.16	.857

As shown in Table 4.7, evaluation was the most noted support from top management (M = 4.16; SD = 0.857). The results therefore show that evaluation is significant in implementation of infrastructure development projects since when carried out in regular basis provides a framework for timely adjustments to be made thus improving the overall effectiveness and efficiency of the organization.

### 4.6 Stakeholders' Involvement and Implementation of Projects

The study further sought the respondents' take on KPLC's involvement of stakeholders in implementation of infrastructure development projects. Table 4.8 shows the results.

**Table 4.8**

#### **Involvement of Stakeholders in Implementation of Projects**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	82	96.5
No	3	3.5
<b>Total</b>	<b>85</b>	<b>100</b>

From the findings, most of the respondents 82 (96.5 percent) agree that KPLC involve partners in infrastructure development projects and this influences the effectiveness of infrastructure development projects towards achieving expected results. Stakeholders

are involved through its annual general meeting where financial/investment resolutions are passed. By hosting communities through corporate social responsibility programs where local communities are involved throughout project stages. The local communities are sensitized about the benefits of the project in media coverage through documentation. Through financiers who work closely with them to fulfill all their conditions. Stakeholders are also involved through environmental impact assessment studies and stakeholder project committees where environment and social impact issues are addressed. The government secures credit for projects while NEMA limits environmental impact of the project thus enhancing clean development mechanism.

#### **4.6.1 Influence of Stakeholders’ Involvement on Implementation of Infrastructure Development Projects**

The study sought the respondents’ views on selected ways in which stakeholders are involved in implementation of infrastructure development projects in KPLC. Table 4.9 illustrates the results.

**Table 4.9**  
**Stakeholders’ Involvement in Implementation of Projects**

<b>Stakeholders Involvement</b>	<b>Frequency</b>	<b>Percentage</b>
Capital contribution	46	54.1
Policy formulation	22	25.9
Community resource sharing	17	20
<b>Total</b>	<b>85</b>	<b>100</b>

Table 4.9 shows that the stakeholders who were involved in KPLC’s energy implementation projects through capital contribution were 46 (54.1 percent) followed by policy formulation with 22 (25.9 percent) and finally community resource sharing with 17 (20 percent). This showed that stakeholders were mainly involved in energy implementation through capital contribution.

#### **4.6.2 Stakeholders Involvement**

The respondents rated the selected four ways in which KPLC involved stakeholders in implementation of infrastructure development projects. The results are demonstrated in table 4.10.

**Table 4.10**

**Stakeholders Involvement in Implementation of Projects**

<b>Stakeholders Involvement</b>	<b>Mean</b>	<b>Std. Deviation</b>
Resource contribution	4.26	.742
Decision making	3.32	.561
Resource control	2.86	.620
Engagement	2.62	.689

Majority of the respondents agreed that resource contribution ( $M = 4.26$ ;  $SD = 0.742$ ) was the main influence stakeholders wielded in implementation of infrastructure development projects. This creates a strong sense of ownership from the stakeholders which provides a high probability of sustained support and achievement of success.

**4.7 Government Energy Policy and Implementation of Projects**

Utilization of government energy policies in implementation of infrastructure development projects was the focus of this part.

**4.7.1 Involvement of Government Energy Policies in Implementation of Infrastructure Development Projects**

The study sought the respondents' response on KPLC's involvement of government energy policies in implementation of infrastructure development projects. This is important as they promote efficiency. From the study, 71 (83.5 percent) of the respondents agreed that KPLC involve government energy policies in implementation of infrastructure development projects. It is clear from the findings that the utilization of government energy policies in implementation of infrastructure development projects is vital as according to Renewable Energy Association (2007), the use of policies and strategies guarantee security of supply thus enhancing inexpensive energy and attainment of efficacy.

**4.7.2 Government Energy Policies**

The study sought to establish the respondents' rating of the following selected dimensions of government energy policies. The results are captured in Table 4.11.



**Table 4.11**

**Dimensions of Government Energy Policies**

<b>Dimensions of Government Energy Policies</b>	<b>Mean</b>	<b>Std. Deviation</b>
Regulations	4.45	.500
Legal framework	4.08	.759
Institutional framework	4.78	.419

From the Table 4.11, institutional framework was the most effective dimension of government energy policy (M = 4.78; SD = 0.419) influencing implementation of infrastructure development projects. It provides clear boundaries to players in the energy industry thus streamlining operations which ensure effective and efficient supply of energy.

**4.8 Implementation of Infrastructure Development Projects**

This study sought to establish whether the implementation of infrastructure development projects in KPLC usually meets the organizations' needs.

**4.8.1 Effective Implementation of Infrastructure Development Projects**

From the study, 81 (95.3 percent) of the respondents agreed that the implementation of infrastructure development projects in KPLC meet the stated needs of the organization. It is thus clear from the findings that implementation of infrastructure development projects in KPLC is effective hence provides value for money. It was established that organizational strategy, top management support, stakeholders' involvement and government energy policies as the key promoters of effective implementation of infrastructure projects.

**4.8.2 Dimensions of Effective Implementation of Infrastructure Development Projects**

The study sought the respondents' rating of the provided dimensions of effective implementation of infrastructure development projects. Table 4.12 shows the results.

**Table 4.12**

**Dimensions of Effective Implementation of Projects**

<b>Dimensions</b>	<b>Mean</b>	<b>Std. Deviation</b>
Timely completions	3.34	.477
Efficient use of resources	4.61	.490
Desired quality	3.31	.708
Business value	3.15	.526

From the Table 4.12, efficient use of resources ( $M = 4.61$ ;  $SD = 0.490$ ) was the most dominant indicator of effective implementation of infrastructure development projects. This showed that effective use of resources promotes efficiency leading to optimal realization of organization goals.

**4.9 Correlation Analysis**

The study applied Pearson correlation to examine the factors influencing the implementation of infrastructure development projects. Table 4.13 illustrates the results.

**Table 4.13**  
**Correlation Analysis**

		Implementation of Infrastructure development projects	Organizational strategy	Top management support	Stakeholders Participation	Government energy policy
Implementation of Infrastructure development projects	Pearson Correlation Sig.(2 tailed) N	1	.360**	.307**	.245*	.059
Organizational strategy	Pearson Correlation Sig.(2 tailed) N	.360**	1	.180	.054	.095
Top management support	Pearson Correlation Sig.(2 tailed) N	.307**	.180	1	.003	.057
Stakeholders Involvement	Pearson Correlation Sig.(2 tailed) N	.245*	.054	.003	1	.015
Government energy policy	Pearson Correlation Sig.(2 tailed) N	.059	.095	.057	.015	1

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

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

From Table 4.13, the results suggest a positive correlation between the independent variables and the dependent variable. Organizational strategy and implementation of infrastructure development projects as shown have a correlation coefficient of 0.360. This is an indication that effective organizational strategies will lead to improvement in the implementation of infrastructure development projects. Top management and implementation of infrastructure development projects had a correlation coefficient of 0.307. This pinpoints that skilled top management support positively contribute to infrastructure development projects' success. Similarly, stakeholders' involvement and implementation of infrastructure development projects posted a correlation coefficient of 0.245 thus depicting that involvement of stakeholders in all stages of project development is vital for its success. On the same note, government energy policy and implementation of infrastructure development projects correlated at 0.059

meaning that government energy policies are critical in enhancing optimal implementation of infrastructure development projects effectively and efficiently.

#### 4.10 Regression Analysis

To establish the relationship between organizational strategy, top management support, stakeholders' involvement, government energy policy and the implementation of infrastructure development projects a linear regression was conducted. Table 4.14 shows the results.

**Table 4.14**

##### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.886 <sup>a</sup>	.785	.598	.39355

a) Predictors: (Constant), organizational strategy, top management support, stakeholders' involvement, government energy policy

b) Dependent Variable: Implementation of infrastructure development projects

From the Table 4.14, the coefficient of determination ( $R^2$ ) equals 0.785. This is an indication that the four independent variables (organizational strategy, top management support, stakeholders' involvement and government energy policy) that were studied explain 78.5 percent of the factors that led to successful implementation of infrastructure development projects. As such, other factors not factored here contributed 21.5 percent of the factors influencing implementation of infrastructure development projects in KPLC.

**Table 4.15**

##### ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.822	5	.956	6.169	.000 <sup>a</sup>
	Residual	12.390	80	.155		
	Total	16.212	85			

a) Predictors: (Constant), organizational strategy, top management support, stakeholders' involvement, government energy policy

b) Dependent Variable: Implementation of infrastructure development projects

Analysis of Variance (ANOVA) was used to establish the significance of the regression model from which an f-significance value of p less than 0.05 was established. The model is statistically significant in predicting how organizational strategy, top management support, stakeholders' involvement and government energy policy influence the implementation of infrastructure development projects in KPLC. This subsequently implies that the regression model had a confidence level of above 95percent hence high reliability of the results and less than 0.05 probability of a wrong result.

**Table 4.16**

**Coefficient of Results**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.090	.587		1.857	.007
1 Organizational strategy	.249	.085	.176	1.765	.048
Top management support	.230	.077	.301	3.009	.046
Stakeholders' involvement	.150	.084	.038	.392	.004
Government energy policy	.033	.091	.268	2.726	.001

a) Predictors: (Constant), organizational strategy, top management support, stakeholders' involvement, government energy policy

b) Dependent Variable: Implementation of infrastructure development projects

From the regression model  $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + X_4 + \epsilon$ , the established regression equation was;  $Y = 1.090 + 0.249X_1 + 0.230X_2 + 0.150X_3 + 0.033X_4$ . The regression equation also indicates that holding all factors (organizational strategy, top management support, stakeholders' involvement and government energy policy) constant, factors influencing implementation of infrastructure development projects at KPLC was 1.090.

The results presented also shows that taking all other independent variables at zero, a unit increase in organizational strategy led to a 0.249 increase in the scores of implementation of infrastructure development projects at KPLC; a unit increase in top management support led to a 0.230 increase in implementation of infrastructure

development projects; conversely, a unit increase in stakeholders' involvement led to a 0.150 increase in the scores of implementation of infrastructure development projects at KPLC and finally a unit increase in government energy policy led to a 0.033 increase in implementation of infrastructure development projects. Organizational strategy influences the implementation of infrastructure development projects most followed by top management support, stakeholder's involvement and government energy policy respectively.

#### **4.11 Summary of the Chapter**

The study in this chapter has demonstrated the findings of analysis of data obtained from respondents and provided an interpretation in line with objectives of the study. From the study variables, it can be deduced that organizational strategy is the main contributor to successful implementation of infrastructure development projects followed by top management support, stakeholders' involvement and government energy policy respectively.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the summary of research findings and discussions. The chapter further gives conclusion, recommendations and suggestions of areas for further research.

#### **5.2 Summary of Findings**

The results of the study determined the following:

##### **5.2.1 Organizational Strategy**

The results indicate that KPLC utilized strategies in implementation of infrastructure development projects and further pinpointing organizational design as the most preferred strategy employed by KPLC in implementation of infrastructure development projects.

##### **5.2.2 Top Management Support**

The study found that KPLC involved top management in implementation of infrastructure development projects which was rated as good. The study found evaluation and communication as the main pillars of support from top management respectively. Majority of the respondents agreed that managers periodically carry out evaluation of the projects progress to check for any deviation and make necessary adjustments on the work plan. It was also agreed that managers effectively communicate the requirements of the project to all the parties concerned.

##### **5.2.3 Stakeholders' Involvement**

The study found that KPLC involved stakeholders in the implementation of infrastructure development projects where they influenced implementation of infrastructure development projects mainly through capital and resource contribution.

##### **5.2.4 Government Energy Policy**

The study findings showed that KPLC utilized government energy policies in implementation of infrastructure development projects. The study also revealed that

government energy policies such as Kenya's energy policy of 2004 and Energy Act of 2006 influenced implementation of infrastructure development projects mainly through adequate institutional framework followed by robust regulation of the energy sector and a supportive legal framework which generally guarantee security of supply thus enhancing inexpensive energy and attainment of efficacy.

### **5.3 Discussions**

The results of the study are elaborated as follows:

#### **5.3.1 Organizational strategy**

The study findings depict positive relationship between organizational strategy and implementation of infrastructure development projects. Taking all other independent variables at zero, a unit increases in organizational strategy amount to an increase in implementation of infrastructure development projects by a factor of 0.249. Michael E. Porter (1998) opined that for a significant change to be realized, about 75 percent of a company's decision making organ needs to "buy into" its strategic direction. The strategies employed by an organization will be dependent on the nature of its business, the corporate vision it has and the niche it strives to achieve in the market. To create value for its customers, the organization will restructure the way it does business by venturing into new market segments (expansion strategy), introducing new products (differentiation), improving on existing ones (new innovation or product development) and completely phasing out outmoded products (retrenchment strategy). The strategic approach basically puts the organization on a growth track. By aligning the strategies to overall business objectives, the organization is able to evaluate the progress achieved in as far as cost optimization is concerned, innovation and increase in production say for this case electricity supply expansion to meet the Country's Vision 2030 towards economic transformation.

#### **5.3.2 Top Management Support**

The investigation likewise established a positive relationship between organization's top management support and implementation of infrastructure development projects. The findings showed that taking all other independent variables at zero, a unit increase in top management support led to an increase in implementation of infrastructure development projects by a factor of 0.230. These findings corroborate



Johnson (2009) that success of projects is animatedly linked to top management support. Zwikael (2008) is in support of involvement of high cadre of management in project processes and calls for varied integration of the senior management support processes in different industries and culture. This statement corroborates the widely held view that there is “no single” approach in project management (Dvir, 2006). Koffi-Tessio (2002), states that the poor acquisition of the appropriate implementation by NGOs could be attributed to their lack of emphasis on methodological and conceptual management. Jaszcolt (2010), recommends that organizations need to have appropriate leaders in order to develop technical skills among the implementation specialists.

### **5.3.3 Stakeholders’ Involvement**

The study also found a positive relationship between the stakeholders’ participation and implementation of infrastructure development projects. The findings showed that taking all other independent variables at zero, a unit increase in stakeholders’ involvement led to an increase in implementation of infrastructure development projects by a factor of 0.150. This concurs with Patton (2008) who states that stakeholders’ involvement is paramount for implementation of infrastructure development projects to be effective. He further argues that participation of stakeholders reflects the community needs and stimulates people's interest in the implementation of projects. This view is supported by IFAD (2002) on the role of stakeholder in implementation process that stakeholders provide valuable bits of knowledge on needs and fitting procedures amid the plan stage, and attempt a portion of the execution of the venture and/or usage.

Stakeholders are engaged to address emerging and prevailing concerns of the projects that would affect them. The engagement mechanisms are negotiations meetings, annual general meetings, corporate social responsibility programs, resettlement action plans and stakeholder committees as seen in the research study. The project teams communicate the project vision and mission to the stakeholders to facilitate the implementation and execution of the same. The stakeholders consequently weigh in the socio-economic, environmental benefits versus concerns they may have such as possibilities of displacement from settlement areas, environmental degradation, and conflict of cultural practices amongst others. Objection to implementation of

infrastructure development projects by stakeholders' may delay timelines and strain set resources for the same. The research study portrayed capital and resource contribution as the main involvement that stakeholders have in regards to renewable energy projects.

#### **5.3.4 Government Energy Policy**

Ultimately, the investigation found a positive relationship between government energy policy and implementation of infrastructure development projects. The study established that taking all other independent variables at zero, a unit increase in government energy policy amounts to a higher implementation of infrastructure development projects by a factor of 0.033. Kenya's energy policy of 2004 and Energy Act of 2006 provide a framework that guarantee effective and efficient supply of clean energy. According to Renewable Energy Association (2007), the use of policies and strategies guarantee security of supply thus enhancing inexpensive energy and attainment of efficacy. This is in concurrence with Richard (2011) who shows that energy policy measures have brought about expanded efficiency and a more sustainable power source for the time being up to 2020, and further ahead towards 2050.

#### **5.4 Conclusion**

The study concludes that organizational strategy greatly supports implementation of infrastructure development projects. Through adequate organization design; robust utilization of its competitive advantage; change management and positive culture development, an organization is able to successfully implement infrastructure development projects effectively and efficiently. Organization strategy generally helps a firm in developing framework for creating, monitoring and measuring its success and ensures it is within its intended path of growth.

The study concluded that top management support significantly influence implementation of infrastructure development projects. It also concluded that top managers effectively communicate the requirements of the project to all the parties concerned and carries out an evaluation of the project progress periodically to check for any deviations. They are also involved in defining the requirements of the project,

establishing the extent of the work and allocating the resources to the project activities. This eventually promotes projects effectiveness and efficiency.

The study additionally concludes that stakeholder's involvement influence implementation of infrastructure development projects as it allows for the utilization of vast information and knowledge and development of a broad consensus on planned activities. This creates a sense of ownership of the projects being implemented and thus increases the probability of sustaining their impacts upon completion. The study reveals that there exists constant engagement of stakeholders through an organization's annual general meeting; by hosting communities through corporate social responsibility programs where local communities are involved throughout project stages; sensitization of local communities about the benefits of the project in media coverage through documentation and also through financiers who worked closely with them to fulfill all their conditions. Stakeholders are also involved through environmental impact assessment studies and stakeholder project committees where environment and social impact issues are addressed.

The study established that the use of policies and strategies guarantee security of supply thus enhancing inexpensive energy and attainment of efficacy. It reasoned that Kenya's energy policy of 2004 and Energy Act of 2006 provide an institutional, regulatory and legal framework that guarantees environmental soundness, effectiveness and efficiency in the supply of energy.

## **5.5 Recommendations**

Based on the findings, the study arrived at the following recommendations:

- (i) Organization strategy should be aligned to organizations' infrastructure development project activities and offer timely support and guidance to projects' staff and ensure implementation activities are well executed and results and findings communicated and used in decision making and planning thus increasing organizational effectiveness and efficiency.
- (ii) The establishment of a formal engagement framework between top management and project team members' in the project management process to ensure effective teamwork and seamless work flow during the life of the project.

- (iii) Creation of awareness among stakeholders through education, information dissemination, and dialogues among stakeholders, sectors and disciplines on the importance of collaboration in project delivery as a measure of addressing the problem of low uptake of participatory approach in stakeholders involvement .
- (iv) Reliable, timely and detailed data on energy end uses, markets, technologies and efficiency opportunities in all sectors to contribute to the development of effective energy efficiency strategies and policies.

### **5.6 Suggestions for Further Research**

The study recommends the following as suggestions for further study.

- (i) A similar study should be done to identify other factors influencing implementation of infrastructure development projects in the renewable energy sector in Kenya.
- (ii) That a similar study should be undertaken by future researchers in different infrastructure development projects in different sectors so as to compare and contrast results.

## REFERENCES

- Aaltonen, J. & Ikävalko, H. (2012). Implementing strategies successfully. *Integrated management systems*, 13(6), 123-212.
- Al Ghamdi, S. M. (2009). Obstacles to successful implementation of strategic decisions: the British experience. *European Business Review*, 98(6), 7-322.
- All Africa Energy Week (2012). Renewable energy and electricity prices in Africa. Economics for energy. *Working paper WP01*, 2012.
- Anderson J., Danish K., Agnew R. & Chupka M., (2012). Designing a climate friendly energy policy: Options for the near term.
- Ann, C. (2013). The effects of renewable energy on employment: The case of Asturias (Spain). *Renewable and sustainable energy reviews*, 12 (3), 51-732.
- Atkinson, A. A., Waterhouse, J. H., & Wells, R. B. (2007). A stakeholder approach to strategic performance measurement. *Sloan management review; Cambridge*, 38(3), 25-37.
- Bamberger, M., Rugh, J. & Mabry, L. (2008). *Real world evaluation: Working under budget, time and data constraints*. Sage Publications, California.
- Barnes, D. F., & Floor, W. M. (2006). Rural energy in developing countries: A challenge for economic development. *Annual Review of energy and the environment*, 21(1), 497-530.
- Besner, C. & Hobbs, B. (2008). Project management practice, generic or contextual: A reality check. *Project management journal*, 39(1), 16-33.
- Bitsch, R. (2012). Intelligent decentralized energy supply, increasing the benefits of distributed generation and renewables, cogeneration and on-site power production. *International journal of innovative research and advanced studies*, 3, (3), 31-37.
- Blattberg, C. (2004). *Welfare: Towards the patriotic corporation, from pluralist to patriotic politics: Putting practice first*. New York: Oxford University Press.
- Bolinger, M., Wiser, R., Milford, L., Stoddard, M. & Porter, K. (2011). *Clean energy funds: An overview of state support for renewable energy*, 2001 US DOE.

- Bongani, N. (2013). Stakeholder perception of socio-economic benefits of rural electrification program in Zimbabwe: A case of Umzingwane district. *American journal of rural development*, 1(3) 33-39.
- Boonstra, A. (2013). How do top managers support strategic information system projects and why do they sometimes withhold this support? *International Journal Project Management*, 31(4), 498-512.
- Boyle, G. (2014). *Renewable Energy*. Oxford University Press.
- Boyle, G. (ed) (2012). *Renewable energy: Power for a sustainable future*, 2nd edition. London.
- Bronicki, D. & Lucien Y. (2010). Financing private power geothermal energy projects, hurdles and opportunities.
- Bronicki, Y. (2012). *Geothermal power stations, encyclopedia of physical science and technology*, Third Edition. 709-718
- Carolyn, M. (2013). The factors influencing the implementation of rural electrification programme in rural areas. *Unpublished project*. University of Nairobi
- Charlier, R. & Finkl, C. (2009). *Ocean energy: Tide and tidal power*. Berlin: Springer.
- Commission of the European Communities (2010). Risks, revenues and investment in electricity generation: Why policy needs to look beyond costs. *Energy Economics*, 32 (4), 796-804.
- Cooper, D. R., & Schindler, P. S. (2008). *Business research methods*. London: McGraw Hill
- Davies, K. (2011). *Real world evaluation: working under budget, time and data constraints*. Sage Publications. California.
- Davis, J. & Vicky, M. V. (2009). *Theory of constraints*. New Zealand: Victoria University of Wellington.
- Dent, F. J. (2010). Strategy organization and control. *Accounting and organizational cultures*, 705-732.

- Ellabban, O., Abu-Rub, H. & Blaabjerg, F. (2014). Renewable energy resources: Current status, future prospects and their enabling technology. *Renewable and sustainable energy reviews*.
- Gebreegiabher, Z., Mekonnen, A., Kassie, M. & Köhlin G. (2011). Urban energy transition and technology Adoption: The case of Tigray, Northern Ethiopia, in: *Energy economics*, 34, 410–418.
- Geller, F. (2011). Interactions between the power and green certificate markets. *Energy Policy*, 30, 425-435.
- Gleason, C. (2008). *Geothermal energy: Using earth's furnace*. St. Catharines, ON: Crabtree Pub. Co.
- GNESD, (2007). Reaching the millennium development goals and beyond: Access to modern forms of energy is prerequisites. *Global network on energy for sustainable development*, ISBN 978-87-550-3600-0.
- Heltzberg, R. (2012). Fuel switching: Evidence from eight developing countries, in: *Energy Economics*, 26, 869–887.
- Hemami, A. (2012). *Wind turbine technology*. Clifton Park, NY: Delmar, Cengage learning.
- Herring, H. (2012). Energy efficiency – a critical view. *Energy* 31, 10-20.
- Herring, H., Caird, S. & Roy, R. (2009). Can consumers save energy? *Proceedings European council for an energy efficient economy summer study 2009*.
- Holburn, Y., Del Río, P. & Burguillos, M. (2010). Assessing the impact of renewable energy deployment on local sustainability: Towards a theoretical framework. *Renewable and sustainable energy reviews*, 12(5), 25–44.
- Hosie, R. & Dowd, J. (2010). How use hold fuel choice in Zimbabwe – An empirical test of the energy ladder hypothesis, in: *Resources and energy*, 9, 347-361.
- Hulley, & Stephen, B. (2007). *Designing clinical research*. Lippincott Williams & Wilkins, 168-169.
- Ishengoma, F. M. (2012). “Modelling, simulation and digital control of photovoltaic power supply” Norwegian University of science and technology, Faculty of

electrical engineering and telecommunications, Department of electrical power engineering in 2001.

- Karekezi, S. & Ranja B. (2010). *Renewable energy*. London: Academic Press Tech-wise AS, Barriers and Success Factors for Wind Power.
- Kaundinya, B., Buttermann H., Behringer, J., & Bleuel, M. (2009). The expansion of renewable energies and employment effects in Germany. *Energy Policy* 2006; 34(18), 84–94.
- Kelly, A. & Geoff, R. (2012). Wind power policy: Stagnating implementation of renewables. *Energy policy*, 24 (12), 1079 - 1088.
- Kelly, G. (2007). Renewable energy strategies in England, Australia and New Zealand. *Science*, 37, 326-338.
- Kenya Power & Lighting Company (KPLC), (2016). *Annual report 2015-2016*. Nairobi, Kenya: KPLC.
- Kiogora, M. N. (2013). Influence of local community involvement in project planning on the sustainability of projects in Embu County, Kenya. *Doctoral dissertation*. University of Nairobi.
- Kothari, C. (2009). *Research methodology: Methods and techniques*. Second edition.
- Leach, G. (2012). The energy transition, in: *Energy policy*, 20(2), 116–123.
- Leva, E. & Zaninelli, P. (2006). Occurrence of negative prices on the German spot market for electricity and their influence on balancing power markets. *Proceeding paper EEM2010 - 7th international conference on the European energy market*.
- Mallon, G. (2011). An empirical comparison of alternative regime-switching models for electricity spot prices. *Energy Economics*, 32(10), 59-1073.
- McCormick, K. (2007). Advancing Bioenergy in Europe, Exploring Bioenergy Systems and Socio-Political Issues (*Doctoral Dissertation*) IIIIEE, Lunds University, Sweden.
- Mendonça, H. (2009). On the market impact of wind energy forecasts. *Energy Economics*, 32, 313-320.



- Meyer, N. (2007). Learning from Wind Energy Policy in the EU: Lessons from Denmark, Sweden and Spain. *European*.
- Michael, S. (2014). Wind power in the Danish liberalised power market- policy measures, price impact and investor incentives. *Energy policy*, 36 (10), 3940-3947.
- Michalena, E. & Hills, J. (2013). *Renewable energy governance (1st ed.)*. London: Springer.
- Miles, S. (2011). Stakeholder definitions: Profusion and confusion. EIASM 1<sup>st</sup> interdisciplinary conference on stakeholder, resources and value creation, IESE Business School, University of Navarra, Barcelona.
- Miles, S. (2012). "Stakeholders: essentially contested or just confused?" *Journal of business ethics*, 108 (3), 285–298
- Ministry of Energy (2008). *Strategy for the development of the biodiesel industry in Kenya 2008-2012, final draft*. Nairobi: Government Printer.
- Ministry of Finance (2011a). *Budget Strategy Paper, 2011*. Nairobi: Government Printer.
- Ministry of Finance (2011b). *Physical infrastructure sector medium term expenditure framework (MTEF) Report, 2011/12 – 2013/14*. Nairobi: Government Printer.
- Mitchel, K., Agle, R. & Wood, J. (2011). Towards a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of management review*, 22(4)853-886.
- MOE. (2008). *Sector plan for energy, 2008-2012 (1st ed.)*. Nairobi: Ministry of Energy.
- Monroy, C. & Hernandez, A. (2007). Strengthening financial innovation in energy supply projects for rural exploitations in developing countries, *Renewable and sustainable energy reviews*, doi: 10.1016
- Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative & qualitative approaches*. Nairobi: Acts Press.

- Mwakubo, S., Mutua, J. Ikiara, M. & Aligula, E. (2007). *Strategies for securing energy supply in Kenya, DP/74/200*. Nairobi: Kenya Institute for Public Research and Analysis KIPPRA).
- Njong, A., & Johannes T. (2011). An analysis of domestic cooking energy choices in Cameroon, in: *European journal of social sciences*, 20, 336–348.
- Oladosu, F., Wiser, K. & Pickle, G. (2014). Nigeria's household energy sector: Issues and supply/demand frontiers. *Energy Policy*, 22(6), 38-49.
- Omuoso, K., (2013). Challenges affecting implementation of corporate strategies in the electricity sector in Kenya. *Published Thesis*. Kenyatta University.
- Oxford, (2014). *The Report: Kenya 2014 (1st ed.)*. Oxford Business Group.
- Palys, T. & Atchison, C. (2008). *Research decisions: Quantitative and qualitative Perspectives, (4th ed.)*. Toronto: Thomson Nelson.
- Patton, M. (2008). State of the art in measuring development assistance. *Address to the World Bank Independent Evaluation Group, 10 April*. Washington, DC
- Phillips, J. (2009). *Performance monitoring. Handbook of practical program evaluation*. San Francisco: Jossey-Bass.
- Rand, J. & Dell, R. (2008). *Royal society of chemistry (Great Britain). Hydrogen energy: challenges and prospects*. Cambridge, UK: Royal society of chemistry.
- Rapa, A. & Kauffman, D (2007). *Strategy implementation – an insurmountable obstacle? Handbook of Business Strategy*, 6(1), 141-146
- Rebane, K., & Barham B. (2011). Knowledge and adoption of solar home systems in rural Nicaragua, in: *Energy policy*, 39, 3064–3075.
- Reddy, F. (2008). Diffusion of renewable energy technologies – barriers and stakeholders' perspectives, *Renewable energy*, 29 (9), 1431-47.
- Reed, R., & Defillippi, R. J. (2009). Causal ambiguity, barriers to imitation, and sustainable competitive advantage. *Academy of management review*, 15(1), 88-102.

- REN21 (2009).Renewable global status report 2009 update. *Renewable energy policy network for the 21st century*. Paris: REN21 Secretariat.
- Renewable Energy Association (2007).Infrastructure Pricing and Finance, in HM Treasury. *Microeconomics lecture series, May 2004-June 2007*, 22-39.
- Republic of Kenya (2007).*Energy act*, Nairobi: Government printer
- Richard, S. (2011). The merit-order effect: A detailed analysis of the price effect of renewable electricity generation on spot market prices in Germany. *Energy policy*, 36, 3076-3084.
- Righter, J. (2009).*Evaluating major infrastructure projects: How robust are our processes?* Productivity commission round table.
- Salim, F. (2012).*Facility siting and public opposition*. New York: Van Nostrand Reinhold.
- Saunders, M., Lewis, P. & Thornhill, A. (2007).*Research methods for business students*. Edinburgh: Prentice hall.
- Silverman, D. (2010). *Qualitative research*. Sage publishers.
- Simelane, T. & Abdel-Rahman, M. (2012).*Energy transition in Africa (1st ed.)*. Oxford: Africa Institute of South Africa.
- Sissine, Y. (2008). Past present and future concepts in large river ecology. *Bio Science*,45(3),134-141.
- Steger, T. (2008).*Renewable and sustainable energy reviews 2008*, 10, 225–47.
- Steven, R. & Anil, K. (2009).*Renewable energy and jobs: Employment impacts of developing markets for renewables in California*. Sacramento (CA): Environmental California Research and Policy Center.
- Timilsina, R., Lefevre T. & Shrestha, S. (2010). Financing solar thermal technologies under DSM programs; an innovative approach to promote renewable energy. *International Journal of Energy Research*, 24, 503-510.
- Tomer, R. (2011).Financing of small power projects, proceedings WEC/MIEC symposium on distributed power, Ramat Gan.

- Twidell, G., Minns, K., Kelso, J. & Randall, R. (2011). *Renewable energy resources*. London: Spon.
- UNEP (2011). *Global trends in renewable energy: Analysis of trends and issues in the financing renewable energy, Investment report 2011*, Nairobi: UNEP.
- Wang, Y., Esfahania, H. & Ramírez, M. (2012). Institutions, infrastructure, and economic growth. *Journal of Development Economics*, 70 (2003) 443– 477.
- Wickham, S. (2008). Infrastructure and growth in developing countries: recent advances and research challenges. *Policy research working paper 4460*. The World Bank, Washington, D.C.
- Wiser, K. & Pickle, E. (1998). Electrifying rural Guatemala: central policy and rural reality. *Environment and planning C: Government and Policy*, 23, 173-189.
- World Bank, (2012). *The true cost of kerosene in rural Africa, lighting Africa*. International finance corporation/World Bank, Washington, DC, 2012.
- World Energy Council (WEC), (2009). *Survey of energy resources 2009*. London.

## APPENDICES

### APPENDIX I: INTRODUCTION LETTER

Dorington Omondi Sadia  
C/O University of Nairobi,  
P.O Box, 19247-00100  
Nairobi, Kenya

Dear Sir/Madam

#### **RE: REQUEST FOR PARTICIPATION IN A RESEARCH STUDY**

I'm a student at the University of Nairobi currently undertaking Master of Arts in Project Planning and Management. I have successfully completed my course work and as part of the university requirements, I am supposed to undertake a research study.

My research will focus on the “**Factors influencing implementation of infrastructure development projects in the renewable energy sector in Kenya: A case of Kenya Power and Lighting Company Limited**”.

I would like to request for your participation in this questionnaire. The information obtained will be treated with utmost confidentiality.

Your co-operation will be appreciated.

**Yours faithfully,**

**Dorington Omondi Sadia**

## APPENDIX II: QUESTIONNAIRE

**Instructions:** The questionnaire has six sections. For each section, kindly respond to all items using a tick [√] or filling in the blanks where appropriate.

### Section One: Background Information

1. What is your gender?

Male [ ]                      Female [ ]

2. What is your highest level of education?

Primary level [ ]                      College (Diploma) [ ]                      University (Graduate) [ ]

University (Post-graduate) [ ]                      Other (specify) [ ]

3. What is your engagement level in the organization

Top management [ ]

Project management department [ ]

Field technical team [ ]

4. The duration you have been in the organization?

< 5 Years [ ]                      6-10 Years [ ]                      11–15 Years [ ]                      > 15 Years [ ]

### Section Two: Organizational Strategy

5. Does KPLC have strategies on implementation of infrastructure development projects?

Yes [ ]                      No [ ]

6. If Yes in Question 5, explain?

.....  
.....

7. State the extent to which the following dimensions of organization strategy influence implementation of infrastructure development projects in Kenya Power and Lighting Company.

Key: 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree

<b>Dimensions of Organizational Strategy</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Competitive Advantage					
Organization Design					
Culture Development					
Change Management					

**Section Three: Top Management Support**

8. Does KPLC involve top management in implementation of infrastructure development projects?

Yes [ ]                      No [ ]

9. If yes in question 8, explain

.....  
 .....

10. To what extent do you rate the effectiveness of top management in implementation of infrastructure development projects?

Very good [ ]      Good [ ]      Moderate [ ]      Bad [ ]      Very bad [ ]

**11.** State the extent to which the following dimensions of top management support influence the implementation of infrastructure development projects in Kenya Power and Lighting Company Key: 1=strongly disagree, 2=disagree, = undecided, 4=agree, 5=strongly agree

<b>Dimensions of Top Management Support</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Fast deployment					
Communication					
Planning					
Evaluation					

**Section Four: Stakeholders’ Involvement**

**12.** Does KPLC involve stakeholders’ in implementation of infrastructure development projects?

Yes [ ]                      No [ ]

**13.** If yes in question 12, explain

.....  
 .....

**14.** How does the stakeholders’ involvement influence the implementation of infrastructure development projects in KPLC?

Capital contribution                      [ ]

Policy formulation                      [ ]

Community resource sharing                      [ ]



15. State the extent to which the following dimensions of Stakeholders' Involvement influence implementation of infrastructure development projects in Kenya Power and Lighting Company

Key: 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree

<b>Dimensions of Stakeholders' Involvement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Decision making					
Resource contribution					
Resource control					
Engagement					

**Section Five: Government Energy Policy**

16. Does KPLC involve government energy policies in implementation of infrastructure development projects?

Yes [ ]      No [ ]

17. If yes in question 16, explain how

.....  
 .....

18. State the extent to which the following dimensions of government energy policy influence the implementation of infrastructure development projects Kenya Power and Lighting Company. Key: 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree

<b>Dimensions of Government Energy Policy</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Regulations					
Legal framework					
Institutional framework					

**Section Six: Implementation of Infrastructure Development Projects**

**19.** Does the implementation of infrastructure development projects in KPLC meet the stated needs of the organization?

Yes [ ] No [ ]

**20.** If yes in question 19, explain

.....

.....

**21.** State the extent to which you agree with the following dimensions on the effectiveness of implementation of infrastructure development projects in Kenya Power and Lighting Company

Key: 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree

<b>Dimensions of Implementation of Infrastructure Development Projects</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Timely completions					
Efficient use of resources					
Desired quality					
Business value					

*Thank you*

## APPENDIX III: LETTER OF DATA COLLECTION



**UNIVERSITY OF NAIROBI**  
OPEN DISTANCE AND e- LEARNING CAMPUS  
SCHOOL OF OPEN AND DISTANCE LEARNING  
DEPARTMENT OF OPEN LEARNING  
NAIROBI LEARNING CENTRE

Your Ref:

Our Ref:

Telephone: 318262 Ext. 120

Main Campus  
Gandhi Wing, Ground Floor  
P.O. Box 30197  
NAIROBI

3<sup>rd</sup> November, 2017



REF: UON/ODeL/NLC/27/467

RE: DORINGTON OMONDI SADIA- REG NO.L50/84828/2016

The above named is a student at the University of Nairobi Open, Distance and e-Learning Campus, School of Open and Distance Learning, Department of Open Learning pursuing Master of Arts in Project Planning and Management.

He is proceeding for research entitled "Factors Influencing implementation of infrastructure development projects in the renewable energy sector in Kenya: A case of Kenya power and Lighting company Limited."

Any assistance given to him will be appreciated.

CAREN AWILLY  
CENTRE ORGANIZER  
NAIROBI EXTRA-MURAL CENTRE

## APPENDIX IV: RESEARCH PERMIT

### CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.



REPUBLIC OF KENYA



National Commission for Science,  
Technology and Innovation

RESEARCH CLEARANCE  
PERMIT

Serial No.A 16533

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:  
**MR. DORINGTON OMONDI SADIA**  
of UNIVERSITY OF NAIROBI, 0-100  
NAIROBI, has been permitted to conduct  
research in *Nairobi County*

on the topic: **FACTORS INFLUENCING  
IMPLEMENTATION OF INFRASTRUCTURE  
DEVELOPMENT PROJECTS IN THE  
RENEWABLE ENERGY SECTOR IN KENYA:  
A CASE OF KENYA POWER AND  
LIGHTING COMPANY LIMITED**

for the period ending:  
**14th November, 2018**

.....  
Applicant's  
Signature

Permit No : NACOSTI/P/17/82376/20065  
Date Of Issue : 15th November, 2017  
Fee Received : Ksh 1000



.....  
Director General  
National Commission for Science,  
Technology & Innovation