MANAGEMENT STRATEGIES AND SUSTAINABILITY OF GREEN ENERGY HARNESSING PROJECTS IN KENYA: A CASE OF OLKARIA ONE UNIT SIX, NAKURU KENYA

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DECLARATION

This research proposal is my original work and has not been presented for the award of academic purposes in any other institution.

Signed  Date 15th march 2023

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This research proposal has been submitted for examination with my approval as the university approval as the university supervisor

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DEDICATION

This work is dedicated to Esther Kinuthia, who has been a constant source of support and encouragement for me throughout my academic career. I hope that my kids, Ethan and Elias Kinuthia, will find motivation to follow their own aspirations by reading this. I would also want to thank my fellow students and the lecturers in this program for their encouragement and guidance.

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ABBREVIATIONS AND ACRONYMS

KenGen : Kenya Electricity Generating Company Limited

KPLC : Kenya Power and Lighting Company

SDG : Sustainable Development Goals

UN : United Nations

UNDP : United Nations Development Programme

ABSTRACT

As a result of this ever-changing external pressure, businesses are rapidly adopting new management strategies in order to maintain their economic viability. The primary purpose of this research was to analyze how the management practices of one Kenyan power company, Olkaria Kenya, affected the sustainability of green energy harvesting in the country over the long term. The study set out to answer several questions: what impact does strategy planning have on the long-term viability of green energy harnessing in Kenya? how does leadership style affect this? what role does risk management play? what impact does strategy planning have on the long-term viability of green energy harnessing in Kenya? all of these questions and more were intended to be answered by examining the specific case of Olkaria one unit six in Olkaria, Kenya. The resource-based approach and the stakeholder theory provided the framework for this investigation. This study used a descriptive research strategy. In all, 180 workers from the Olkaria branch of the Kenya Electricity Generating Company were included in the analysis. A statistical technique known as simple random sampling was used to establish the size of the sample to be used. To gather information, a questionnaire was sent. Cronbach's alpha was used to determine the degree of reliability. Research relied on both content and facial validity. Descriptive and inferential statistics were used to examine the information. Both descriptive and inferential statistics were utilized to summarize and characterize the research variables. The study found that to a great that there have been no cases for the misuse or misappropriation of the resources available for green energy harnessing. The study found that to a great extent that the managers at Olkaria encourage and motivate the employees to be vocal about their opinions on how to improve green energy harnessing. The study concluded that more green energy projects are to be undertaken by the organization. The study also concluded that strategy planning contributes the most to sustainability of green energy harnessing in Kenya, followed by leadership style. At 5% level of significance and 95% level of confidence, strategy planning, leadership style, risk management, and monitoring and control were all significant on sustainability of green energy harnessing in Kenya. Investment in green energy training for staff members is an excellent strategy to boost the tactics' widespread acceptance and effective implementation.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Sustainability, according to Kanie and Biermann (2017), is a quantitative relationship in the process of communication between the demography and the ecological footprint of its surrounding in which the inhabitants generates to its highest capacity without causing irreversible negative effects on the environment on which it depends. Simply put, sustainability is ensuring the greatest possible outcomes for individuals and the planet today and in the future (Spenceley, 2016). According to Wario (2020), durability may also be characterized by the three pillars of sustainable development, which are: environmental protection, economic benefits, and environment progress; hence, real sustainability is attained when all three components are in proportion.

Although energy is not considered a fundamental requirement, it is an essential component in the effective fulfillment of practically all basic human requirements (Gitone, 2014). The amount and intensity of energy consumption is a key indication of a country's economic development. The primary energy sources are classified into two categories: hybrid energy and convectional energy. Conventional energy sources, such as nonrenewable energy, face various issues, including fossil fuel emissions; as a result, nations have changed policy to encourage the development of cleaner renewable energy technology. Green energy is defined as the deployment of solar and non-polluting power and energy sources that are not harmful to the environment (Kosgey, 2017).

Global economic expansion has been fueled by fossil fuels such as coal, oil, and natural gas, but this feeds the emission of carbon dioxide (CO2) into the atmosphere, which is recognized as the primary cause of global warming and climate change (Gitone, 2014). The rising worry about the impacts of energy usage and global warming suggests that green energy sources such as wind, solar, geothermal, hydro, biogas, wave, and tidal will be used more in the future. In addition, as energy prices rise, greater emphasis is being placed on the discovery of renewable energy sources as a viable alternative to fossil fuels.

As a result, scientists and businesses from all over the world have begun to envisage a future powered by renewable energy in the search of a more sustainable energy system.

The International Institute for Sustainable Development (2010) defines sustainability as "adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining, and enhancing the human and natural resources that will be needed in the future," as defined by the International Institute for Sustainable Development (Winnie, 2018). This concept recognizes that every development initiative, whether supported by a donor or locally, must be profitable in order to continue to care for mankind and the environment in the future.

The resource-based vision theory and the sustainable development theory are the foundations of the research. The idea will help people comprehend why they need to employ special management resources to generate green energy in order to stay competitive in the global market. Sustainable development theory, as defined by Malthus (1766-1834) and David Recardo (1772-1823) (Baariu, 2015), refers to companies' ability to maintain and sustain project or program outcomes using only their own assets or resources while not jeopardizing future generations' requirements. Because they advocate for sustainability through the utilization of available resources, the two theories will be critical in the research.

Kenya hopes to achieve energy independence through using renewable sources. Electricity for KPLC comes mostly from the national grid, which is maintained by the Electricity Generating Company Limited (KenGen) (Kosgey, 2017). The growth of green energy projects like the Olkaria power field show that Kenya has increased its production of renewable energy. In the Olkaria sub-location of the Naivasha Central Division in the Naivasha District in Nakuru County is where the Olkaria Geothermal Project may be found. It is owned by KenGen Ltd, the Kenya Electricity Generating Company. There are now six operational Olkaria geothermal power facilities: Olkaria I, II, III, IV, V, and well heads. As of October 2020 (Takouleu, 2019), Olkaria V was fully operating. Olkaria was chosen for exploratory drilling after a study was completed there in 1970 by the United Nations Development Programme (UNDP) and the Kenya Power and Lighting Company (KPLC).

With the completion of Olkaria, it has become one of the largest single renewable new investments in the world. Geothermal energy has now surpassed hydro as Kenya's primary source of energy, which had previously significantly dictated the country's economic power supply. Only 13% of Kengen's total power mix came from geothermal in 2010. (In light of the World Bank's data from 2015). The European Investment Bank, the Agency for French Development, the German KFW, and the Japanese International Cooperation Agency are all partners in the Olkaria project. Through its diverse Country Partnership Strategy for Kenya, the World Bank Group is helping the government of Kenya improve geothermal power output, expanding energy access for all consumers and opening up new avenues for growth and shared prosperity (Renkens, 2019).

The government's dedication to bettering people's lives and reducing the cost of doing business is shown by its determination to expand renewable energy supplies, offer dependable electricity, and cut costs for residential and industrial consumers (World Bank, 2015). Kenya has made great strides in extending access to dependable and low-cost green energy thanks to cooperation within the World Bank Group and partnerships with other development partners. Both commercial and residential power users have been quite persuasive in encouraging the development. KenGen has diversified away from non-green energy sources and toward green energy since it is more financially viable, reliable, long-lasting, and environmentally beneficial.

When compared to non-green power, consumer devices are safer against power surges. This thesis was driven by these advances, as well as a paucity of research on how management practices might affect green-energy sustainability.

1.2 Statement of the Problem

To stay relevant economically, organizations are fast developing new management practices to respond to this dynamic external pressure. To ensure long-term success in the marketplace, progressive firms are adopting a new management paradigm that places a premium on environmental protection (Opilli, 2019). Power plants throughout the globe have ramped up their green energy operations to meet customer demand for a more sustainable supply. There has been a good change in the acceptability and execution of management plans as a result of the transition to green energy (Kosgey, 2017). Notably, this

change to green energy is attributed to the challenge of climate change that is affecting the world. Therefore, management has a leading role to ensure that green energy generation is effective and adequate.

Geerdink (2016) assessed the factors influencing sustainable strategy implementation in Netherlands. Results showed that many of the companies under study failed in their implementation of strategies as a result of a lack of a clearly defined vision, a role of the management. In Tanzania, Hackee (2015) evaluated how community participation facilitates project sustainability and indicated that there was poor community participation in project implementation negatively influencing the sustainability of the projects. According to the findings, the management play an essential role of bring the community members together during project implementation. Although both studies indicated that the different strategies by management influence sustainability, the studies did not focus on the sustainability of green energy harnessing, the focus of this study.

Kiara (2013) investigated the determinants of renewable energy infrastructure development: a case study of Kenya Electricity Generating Company Limited (KenGen). The research found that KenGen's green energy improvement was helped along by the company's culture, which encouraged the implementation of projects to generate renewable energy. Kosgey (2017), who studied the effects of green energy strategies on Kenya's progress toward clean energy, found that these policies significantly impacted the cost-effectiveness of renewable energy. None of the papers analyzed looked at the part played by management techniques in green energy harvesting, despite attempts to look into the green energy issue in Kenya. It was clear that further investigation was required to answer the following question: How do management techniques affect the sustainability of green energy harvesting in Kenya? A case study of Olkaria Kenya.

1.3 Purpose of the Study

The purpose of the study is to assess the influence of management strategies on sustainability of green energy harnessing in Kenya; a case of Olkaria one unit six, Olkaria Kenya.

1.4 Objectives of the Study

The study will be guided by the following specific objectives:

i. To determine the influence of strategy planning on sustainability of green energy harnessing in Kenya.
ii. To assess the influence of leadership style on sustainability of green energy harnessing in Kenya.
iii. To evaluate the influence of risk management on sustainability of green energy harnessing in Kenya.
iv. To assess the influence of monitoring and control on sustainability of green energy harnessing in Kenya.

1.5 Research Questions

The study will answer the following research questions

i. What is the level of influence of strategy planning on sustainability of green energy harnessing in Kenya?
ii. What is the influence of leadership style on sustainability of green energy harnessing in Kenya?
iii. What is the influence of risk management on sustainability of green energy harnessing in Kenya?
iv. What is the influence of monitoring and control on sustainability of green energy harnessing in Kenya?

1.6 Significance of the Study

This research will be useful to a variety of stakeholders, including policymakers, Kenyan energy generation firm management, and future researchers. The study will aid policymakers in regulating energy generation in Kenya and other countries, with energy harnessing having a significant impact on national economies. Addressing the link between management strategies and sustainability would assist policymakers in ensuring that the industry climate is favorable for green energy generation. Policymakers must regulate the industrial environment in order to ensure fair competition and the industry's growth.

The study will be valuable to the Kenyan energy producing company's management. The report will be particularly useful to organizations in poor nations who are attempting to transition from non-green to green energy. This is because the research will aid management in making decisions about the adoption of various measures to increase sustainability. Because the business climate is becoming more competitive in the production of energy, this research will give guidance based on empirical data for the application of various management techniques in order to remain sustainable.

Finally, the findings of the research and study will give weight to theoretical debates and current literature on the link between management techniques and long-term sustainability. The research will benefit both the conceptual and empirical aspects of research. The findings will contribute to the current literature on the relevance of green energy throughout the world. The findings will add value to the current literature on management techniques across all industries and organizations, despite the fact that the study will focus on a Kenyan power generating firm.

1.7 Assumptions of the Study

The study assumed that the respondents were motivated to give honest responses to the questions asked. To encourage the respondents to be honest, the respondents were assured of confidentiality. The study also assumed that the respondents would cooperate throughout the study.

1.8 Limitations of the Study

The research is probably going to have a few holes in it. One potential problem is that respondents can be reluctant to provide up the necessary data since it pertains to the management techniques they use inside their own company. The respondents were assured that the research findings were kept private and utilized solely for the objectives of the study. Moreover, the study may face the limitation of having access to unpublished publications on the sustainability of green energy harnessing across the world. The study solved this by using library materials relevant to the study. Also the study may involve relevant stakeholders on the matters of the research.

1.9 Delimitation of the Study

The researcher was able to overcome the problem of low response rates by assuring respondents that their information would be kept strictly confidential and utilized solely for academic study. Moreover, to address the challenge of inaccessibility of a wide range of publications on the research topic, the research conducted desk review and work with the supervisor to direct on the publications that may help in completing the research.

1.10 Definitions of Significant Terms

Conventional energy: Energy from non-renewable resources

Green energy: Use of ecologically acceptable energy and power sources, which must be renewable and pollutant-free.

Leadership Style: When leading, encouraging, guiding, and managing groups of people, a leader's typical characteristics are.

Management strategies: The administration of a company's resources in order to fulfill its goals and objectives.

Risk Management: Threat management is the process of discovering, analyzing, and controlling dangers to a company.

Strategy Planning: Responsibility for establishing priorities, channeling efforts and resources toward those priorities, improving operations, ensuring that all employees and other stakeholders are working toward the same goals, reaching consensus on desired outcomes and results, and reevaluating and revising the organization's aims all fall under this heading.

Sustainability: It is a dynamic equilibrium in the process of interaction between the population and the carrying capacity of its environment such that the population develops to express its full potential without producing irreversible adverse effects on the carrying capacity of the environment upon which it depends.

1.11 Organization of the Study

The research will be divided into five chapters. The first chapter of the research is an introduction that gives background information while situating the study's topic. It includes the problem description, goals, research questions, significance, assumptions, limits, delimitations, essential terminology definitions, and study structure. In Chapter 2, the study's ideas are described. It looks at the research on green energy management strategies and their long-term feasibility. The study's research methodology is discussed in Chapter 3. Study design, target demographic, sample design, data collection, data validity and reliability, data analysis procedures, and ethical considerations are among the subjects covered. Chapter four will cover the data analysis, the presentation of the findings and the interpretation of the findings. The paper will culminate with chapter five which will cover the summary of the findings, the conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, the intended goal is to thoroughly document, critically analyze and reflect on the state of knowledge pertaining to management strategies and sustainability of green energy. To accomplish this objective, the first section provides an overview what sustainability of green energy entails. In the second, third and fourth sections, empirical evidence of the relationships between the variables of interest is presented and critically reviewed. Based on this review, the knowledge gaps in the current body of research serving as avenues of this study are highlighted. The fifth section addresses the mechanisms that underlie the relationships among the variables of interest by reviewing several theories that shed light on the relationships. Finally, the chapter concludes with a conceptual framework for analyzing the interplay between various management strategies and sustainability of green energy.

2.2 Sustainability of Green Energy

Green energy is a renewable and non-polluting form of energy and electricity that is good for the environment (Orsato, 2006). Green energies, as per the United Nations (2015), are aimed at assisting countries in achieving better economic development rates by providing affordable, dependable, and sustainable modern energy to everybody. Wind, sunlight, water, biogas, and geothermal heat are all examples of natural sources of green energy. These environmental renewable technologies are renewable, meaning they can be replenished in the natural world. Green energy is distinct from fossil fuels, which decrease throughout time and really need hundreds of years to produce. Green energy refers to a subset of the wider category of alternative energy sources that helps the environment by reducing pollution caused by other fuels like fossil fuels. Green energy is on the rise because it benefits the environment, helps cut down on carbon emissions, and is reliable for consumers.

Green energy sources produce electric power in a manner that does not deplete the environment. These resources are normally handled in an environmentally responsible manner to guarantee their long-term viability. By using Green energy sources, the producing company is able to deliver energy to its stakeholders at a reasonable cost. Green energy has led to an extension of the client base for power transmission, which now encompasses rural places, thanks to the use of environmentally friendly sources. 2017 (REA).

The Brundtland Commission's (World Commission on Environment and Development, 1987, p. 8) definition of sustainability is "development that fulfills the demands of the present without jeopardizing future generations' ability to satisfy their needs." People, planet, and profit (Carter & Rogers, 2008) are the three components of the triple bottom line (TBL), which means it focuses on the balance of economic, environmental, and social elements of organizational success. In diverse business literature, the term "sustainability" has been described as a company responsibility to the people of various areas, where responsibility refers to the need to prevent bad economic outcomes (Baumgartner, 2014; Carpenter & White, 2004). As a consequence, companies that practice sustainable development owe a responsibility to the environment and society in addition to their own business objectives. When it comes to long-term development, businesses face huge challenges, but also enormous opportunities. Companies that operate sustainably, for example, have a better chance of enhancing their reputation and image, as well as their financial and environmental performance, all of which help them gain a competitive edge (Porter & Kramer, 2006).

2.3 Strategic Planning and Sustainability of Green Energy

Strategic planning is the process of specifying timetables, personnel, milestones, equipment, and budget projections, as well as estimating the time, money, effort, and resources necessary for project execution (Chatzoglou & Macaulay 2009). It is the methodical organization of project resources in the optimal way to achieve the project's goal. It may also be regarded as one of the most important instruments used by stakeholders to ensure project success.

Serrador (2013) conducted a study of the literature on the impact of project planning on project long-term viability in the nation. In terms of the time and resources spent on project planning components, the study explored the effect of project planning on project sustainability. The research analyzed and assessed a total of 280 publications and books using a metadata analysis approach. According to the study, how much planning you do in a highly dynamic environment has an impact on project durability. According to the study, there should be a balance between too much and too little planning. However, the last research was conducted in a developed nation, but this one would be conducted in an underdeveloped one, Kenya.

Karanja (2014) assessed the impact of management methods on the long-term viability of youth income-generating enterprises in Kenya's Kangema District, Murang'a County. This study used a descriptive survey methodology, with participants including the group chairpersons and members of 13 different youth groups selected using a stratified random sampling technique. A group discussion was held amongst two subsets of the population. In addition, a youth officer for the district was questioned. Descriptive statistics were used to examine the data. Tables and percentile ranks were used to display the findings. The findings indicate that the sustainability of youth initiatives is affected by factors such as project design, training, leadership, and appropriate monitoring and evaluation.

Malekpour et al. (2015) conducted research on urban infrastructure strategic planning for environmental sustainability. The data show how, throughout time, academic paradigms for infrastructure design have shifted from efficiency to sustainability. While city planning has frequently adopted the sustainability rhetoric in accordance with scholarship, its practical characteristics may lag behind.

Rizan et al. (2019) conducted research on the impact of strategic planning on technology-based company performance. A total of 120 application firm owners were polled for the study. A variety of factors were employed in conjunction with the purposive sampling approach. Partial Least Square (PLS) modeling was used to examine the survey data. This approach was chosen because it allows for the analysis of data from small samples and may be employed in research with reflective and formative models. The study's

findings show that strategic planning has a favorable and significant influence on business success.

2.4 Leadership Style and Sustainability of Green Energy

Research conducted by Yang, Huang, and Wu (2011) looked at the connection between a project manager's leadership style, teamwork, and project success. The leadership of the project manager, the project's scope, budget, and quality, and the level of satisfaction of the end users were all measured via questionnaires. The results of this study suggest that effective leadership from project managers may improve relations between members of a project team. Cooperative attitudes were also shown to have a statistically significant impact on project outcomes.

Researchers in the UK construction business, Opoku et al. (2015), looked at the leadership styles of sustainability experts. Quantitative information was gathered via a semi-structured interview with 15 executives in the UK construction industry, while qualitative information was gathered through a survey of 200 individuals in management and design roles in the sector. The majority of executives tasked with supporting sustainable development are found to be deliberate in their approach or conduct, which makes sense given that there is no universally applicable management style.

In their 2017 research, Novo, Landis, and Haley examined the role of leadership in successful project management. The study's overarching goal is to identify whether or not sustainable practice advocates inside UK construction firms adhere to a certain leadership style. The study set out to answer the question, "How can leadership skills and project management skills work together to ensure a project's success?" The study's results showed a strong correlation between leadership qualities and project management competence. Similarly, a project manager's leadership skills are crucial to the project's ultimate success.

Construction project quality was studied by Buba and Tanko (2017), who looked at how strategy implementation affected the outcome. In Nigeria, we sent 43 surveys to Quantity Surveyors, Building Contractors, and Architects, three key groups of responders. It was shown that the ability to provide direction is the most effective leadership style, as it

contributes to the project's maximum creative quality and strengthens inter-functional links.

A study on strategic leadership and small and medium firm sustainability performance was conducted by Kowo and Akinbola (2019). A total of 300 surveys were sent to small businesses. The study discovered that strategic planning has a substantial impact on sustaining small and medium-sized business profit performance, with the results indicating that managers who plan strategically are more likely to maintain profitability. According to the findings, a small and medium enterprise's return on investment is determined by the effectiveness of its leadership methods. In order to fulfill the corporate objectives of indigenous small and medium firms, the research suggests that small businesses be effective in their strategy implementation.

2.5 Risk Management and Sustainability of Green Energy

The practice of risk management is often thought of as a means to an end. It is often used to symbolize the possible complexity of a task. In the interim, it's more likely to be some kind of task or plan of action. Risk management, as defined by McNamara and Stark (2014), is the process of identifying, evaluating, and responding to prospective project hazards and appropriate actions, as well as verifying their plausibility.

For the smallest investment, businesses may protect themselves from potential danger by taking precautions like locking up important data and scaling down on projects before any more damage is done. When properly implemented, project risk management may ensure that projects are completed on schedule, within budget, and to the satisfaction of all stakeholders. The inability to meet predetermined objectives and assure the project's success is one of the main reasons why risk management has always been linked to project management.

Risk management was studied by Gitau (2015) to see how it affected the outcome of Rwandan building projects. The research focused on the construction industry in Rwanda, including architects, engineers, project managers, quantity surveyors, contractors, regulatory authorities, and high-profile clients who spent much on building projects. Both qualitative and quantitative approaches were used to acquire information

for this investigation. The survey found that choosing consultant engineers and architects occurs before the design phase of most projects. Thus, many initiatives lacked proper direction from specialists throughout their first stages of development. The quality and cost based selection technique was the most popular when looking to hire consultants. Poor performance in terms of both time and budget was found in 45.2% and 35.7% of the projects, respectively, that were analyzed. The majority of the investigated projects had site selection and needs assessment occur during the planning stage, typically without the involvement of construction specialists. Nearly half of the projects analyzed had site works contribution modifications that were more than 10% of the original estimate.

A research on the effect of risk management on project success: an empirical evaluation was conducted by Al Mhirat and Irtemeh (2017) for the Jordanian Ministry of Environment. Finding out how the Jordanian Ministry of Environment deals with risk and how it impacts project performance was the driving force behind this study. Sixty-two projects in Northern, Central, and Southern Jordan that are overseen by the Ministry of Environment were included in the analysis. The goals of the research were achieved by using a descriptive analytic strategy. A questionnaire consisting of 42 items was developed, 500 were sent, 430 were returned for a return rate of 86%, and 100% of the responses were valid and reliable for further research. Among the many interesting findings, the correlation between the many aspects of risk management and project performance is particularly strong. These aspects include risk planning and definition, risk analysis, reaction to danger, risk assessment, and review. Given these findings, many suggestions were offered.

Research on the topic of risk management in environmentally responsible building projects was undertaken by Apine and Escobar Valdés (2017). The results highlighted the different methods of corporate risk management and how they relate to the potential dangers of green building construction. The results proved the importance of tools used in managing sustainable construction projects that companies have built and incorporated to their processes to reduce potential hazards. More companies might be added to increase generalizability, and further research could imply that the companies have matured, leading to more reliable results.

Ondara (2017) investigated the relationship between risk management strategies and the success of construction companies in several areas throughout Kenya. An explanatory research strategy was used, and positivism served as the guiding research ideology. This study's sample included all 2,414 construction businesses registered with the Republic of Kenya between July 2011 and June 2012 to do public and private construction in certain counties in Kenya. In the three counties of Nairobi, Nakuru, and Machakos, enterprises were selected at random to participate in the study. Companies in Nairobi County, Nakuru County, and Machakos County (a total of 97) were selected at random to participate in the survey.

A self-administered, semi-structured questionnaire was used to compile the data. Statistics, both descriptive and inferential, were used to examine the data. Data analysis revealed that resource risk, people risk, and project control risk management strategies all significantly influenced company performance. There was no statistically significant correlation between the use of litigation risk management or insurance risk management and improved financial outcomes for the organization. The statistical correlation between risk management strategies and business results in the construction sector was significantly influenced by government policy and regulation.

2.6 Monitoring and Control and Sustainability

Project design, monitoring, and evaluation are three crucial parts of any effective performance measurement system, and Nisa (2015) claimed to investigate their connection to the effectiveness of projects carried out by Pakistani NGOs (NGOs). The results indicated that M&E methods are often used in NGO projects in Pakistan, that project design is given particular attention, and that both aspects have a positive relationship with project success. Project design has a bigger impact on project performance than M&E, according to M&E. As a consequence, in order to increase project execution and success, NGOs should improve project design and monitoring and evaluation procedures. This study employs correlation and regression analysis, but it is different in context since it focuses on non-governmental organizations in Pakistan, while the current study will concentrate on green energy harnessing in Kenya.

The influence of monitoring and evaluation on the long-term viability of projects in Rwanda was studied by Kule and Umugwaneza (2016) using correlation and regression analysis. Accountability, effective communication, collaborative planning, and encouraging supervision were shown to have a significant impact on the longevity of projects in Rwanda. Long-term sustainability in Rwanda is predicted to improve if management commits to overseeing the project's monitoring and assessment process. The data from this study is different from the present one since it was collected in a different country than Kenya. Like many contemporary research, this one makes use of correlation and regression analysis.

Selestin (2018) analyzed the effect of monitoring and assessment on the longevity of road development projects in the Bagamoyo District of the Coast region. One hundred people were surveyed for this report, including district officials from the Bagamoyo Works Department, village members of the government, drivers on the route, and beneficiaries of the construction project. Researchers in Bagamoyo examined the relationship between resource requirements and resources employed in successful road construction projects via the use of correlation and regression analysis. Researchers found that one crucial part of monitoring and assessment is sticking to established protocols and standards. Because the earlier study was conducted in Tanzania, the results in Bagamoyo also demonstrated a positive and substantial relationship between self-discipline and Kenya, as well as a strong positive correlation between resource needs and demands employed in productive construction projects.

Njeri and Omwenga (2019) used the National Aids Control Council as a case study to examine the effect of monitoring and evaluation strategies on long-term initiatives. All 90 participants in this descriptive study gave their responses to standardized questions. Quantitative methods, such as descriptive and inferential statistics, were used to examine the data. There was a strong correlation between project sustainability and each of the independent factors examined: M&E organizational features; M&E human capacity; M&E partnership and communication; and M&E communication. Organizations have not yet reached an acceptable level of Human Capacity in M&E, as shown by the findings. With a R Squared of 0.769 between the four independent variables and Project

Sustainability, the findings of the research were able to account for The entire variance in Project Sustainability explained by changes in the four independent variables accounts for 76.9% of the total variance. The study has flaws due to its exclusive focus on monitoring and evaluation as a single component of management techniques. Besides traditional methods of management, this analysis will also consider new approaches. Methods of reducing danger and leadership styles.

2.7 Theoretical Framework

The study will be guided by the following theories; resource-based view and stakeholder's theory

2.7.1 Resource-based View

Wernerfelt proposed the resource-based perspective (RBV) (1984). It claims that the only way to achieve competitiveness is to provide high value to customers in a novel way. The belief that all companies are a collection of unique skills and resources is referred to as RBV. The core of any organization's strategy and capacity to generate above-average results is the exclusivity of its competencies and resources. The term "resources" refers to the materials used in a company's manufacturing process (Hitt, 2013).

The theory is relevant to the research because it identifies economic resources that are expected to play a role in green energy capture. According to resource-based theory, resources are critical to the Kenyan power producing company's policy implementation success (Pfeffer & Salancik, 2003). By comparing outcomes across several levels of study, it expands on the idea that economic resource impacts will be more important drivers of management techniques than sector effects.

The resource-based view (RBV) is important in this study since it helps define the problem rather than the symptom of a problem. A thorough examination of the problem's condition is carried out, with the goal of identifying people who are impacted by it. This idea is significant because it recognizes intra- and inter-organizational information exchange, protocols, and close working relationships as resources for accelerating the creation of sustainable, low-cost power sources.

2.7.2 Stakeholders Theory

The concept of a stakeholder was first articulated by Edward Freeman in 1963. Stakeholders were first defined as "those people without whom a company could not continue to operate" (Donaldson, 1995). Stakeholder analysis, as defined by Mansell (2013), is a method for learning about the dynamics between project participants. Stakeholder analysis is a technique that helps project participants identify, understand, and value those individuals and groups that have a vested interest in the project's outcome.

Charles (2003), for example, critiqued this approach for assuming that the interests of many stakeholders are balanced. According to Charles (2003), this is due to the reliance on talks as the primary technique for resolving disputes between stakeholder interests. As a result, according to Charles (2003), policy analysts who are critical thinkers who can clearly explain their views and ideas are required (Mansell 2013). He goes on to say that, although being utilitarian and descriptive, stakeholder theory is deeply normative. In this sector, stakeholders are defined by their interests, and it is generally agreed that everyone's stake is equally important. Management theory, such as stakeholder theory, may be used to argue for changes in the Kenyan power company's culture, policies, and procedures. It necessitates giving equal consideration to the concerns of all legally recognized parties.

2.8 Conceptual Framework

A conceptual framework in a study, according to Kim and Kross (2015), depicts how variables in the study flow and the measurements that will be used to analyze the consequences of the variables in the study. Figure 2.1 depicts the conceptual framework used in this investigation.

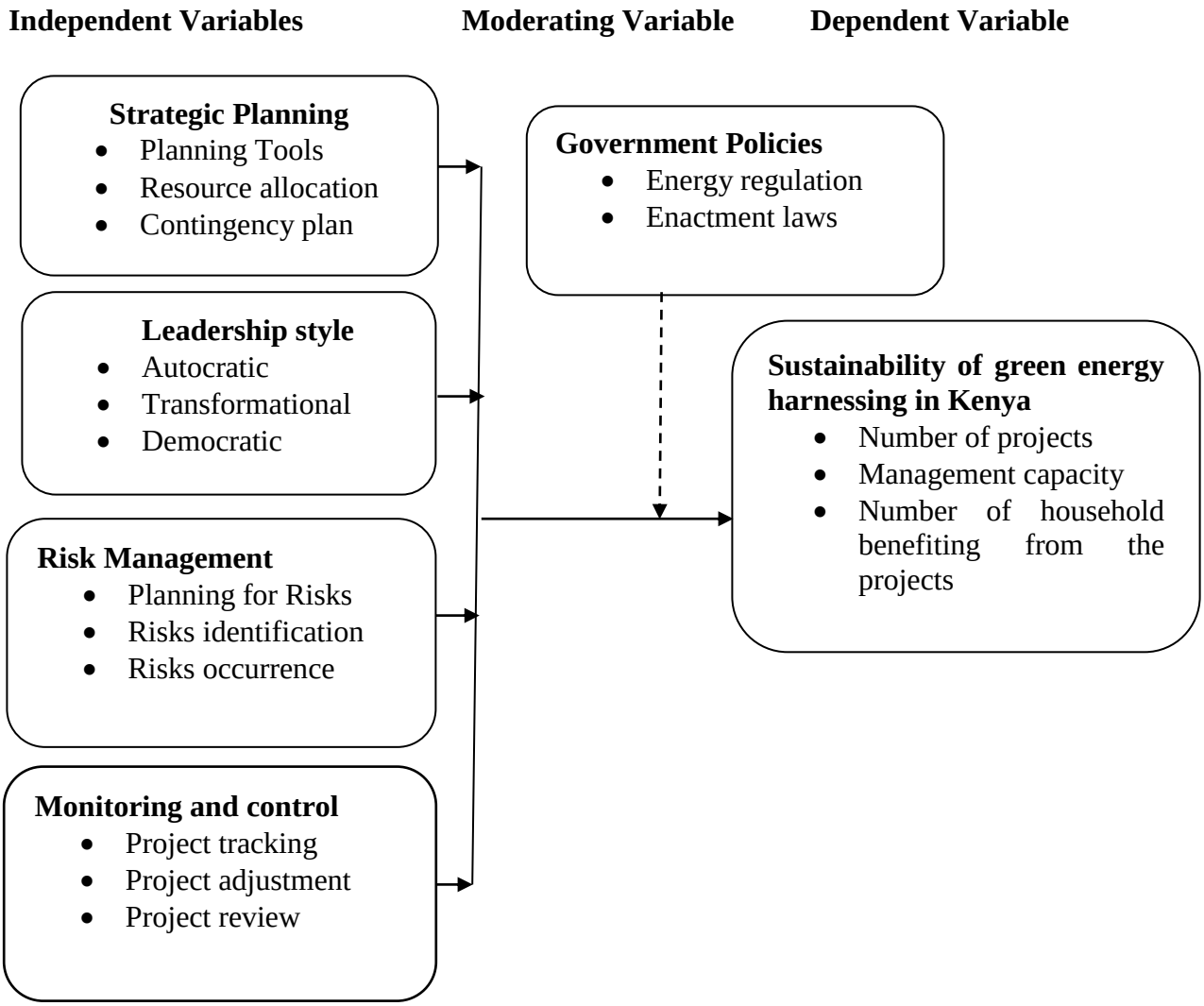

Figure 2.1: Conceptual Framework

The independent variables include; strategic planning, leadership style, risk management and monitoring and control. The study will as well adopt a moderating variable which in this case is the government policy. The dependent variable is the sustainability of green energy harnessing in Kenya. The conceptual framework represents that strategic planning, leadership style, risk management, and monitoring and control have direct influence on the sustainability of green energy harnessing in Kenya.

2.9 Summary of Research Gaps

As shown in the matrix table, the examined research indicated distinct circumstances from the current study, justifying the necessity for it.

Table 2.1: Research Gaps

Variable	Author (Year)	Title of the Study	Findings	Knowledge gap	Focus of the study
Strategic planning	Serrador (2013)	The role of project planning on the project sustainability in the country	The study noted that how much to plan in an extremely dynamic environment have an influence on project sustainability. The study notes that there should be a balance between too much planning and too little planning aspects.	The study was not specific to Kenya Electricity Generating Company, Olkaria Kenya	The study will be based in Kenya
	Malekpour et. al. (2015)	strategic planning of urban infrastructure for environmental sustainability	The findings reveal how the scholarly paradigms for infrastructure planning have transformed over time, from optimization to sustainability. While the planning practice in cities has often taken up the sustainability discourse in line with the scholarship, its actual attributes might lag behind. Knowledge about these attributes is scarce since the contemporary scholarship often contains aspirational proposals for change and little detail on how planning is undertaken in practice	The study was not specific on how strategic planning influences sustainability of Kenya Electricity Generating Company, Olkaria Kenya	The study will assess the influence of strategic planning on sustainability of KenGen
Leadership style	Yang et al. (2011)	Project manager's leadership style, teamwork and project success.	Better project management leadership leads to better project team members relationships.	The study did not address the relationship between leadership style and project sustainability	The study will assess how leadership style influences project sustainability

	Novo et al. (2017)	leadership and its role in the success of project management.	Leadership traits are directly related with the project manager competency	The study did not incorporate other variables hence there was no clear relationship to sustainability	The study will assess how risk management, strategic planning, monitoring and control influence project sustainability
Risk management	Gitau, (2015)	Effects of risk management at project planning phase on performance of construction projects in Rwanda	The research project found out that the consulting engineers and architects were often selected before the design phase of a project. This meant that many projects did not benefit from professional input at planning stage. The most used method of selection used for consultants was the quality and cost based selection method. 45.2% of the projects surveyed had poor time performance while 35.7 % of the projects had poor cost performance	Project sustainability was not examined in this study and thus the relationship could not be effectively established.	The dependent variable of the study will be project sustainability
	Al Mhirat, & Irtemeh, (2017)	Impact of risk management on project success: An empirical investigation in Jordanian ministry of environment	There is a significant positive relationship between risk management components (risk planning and definition, risk analysis, response to danger, evaluation and review of risk) in achieving project success.	The study focused on project success and the issues of sustainability were not addressed	The dependent variable of the study will be project sustainability

Monitoring and Control	Nisa, (2015)	Relationship between project design, monitoring and evaluation and project success in NGOs of Pakistan	M&E practices are being frequently used in NGO projects in Pakistan, particular care has been taken while designing the projects and both variables have a positive relationship with project success.	The study was conducted on Non-Governmental Organization in Pakistan as opposed with the one which will focus on green energy harnessing in Kenya	This study will target KenGen
	Kule and Umugwaneza (2016)	The role of monitoring and evaluation on project sustainability in Rwanda.	Accountability, effective communication, partnership for planning, supportive supervision was significantly correlated with the sustainability of projects in Rwanda.	The study was conducted outside Kenya, hence contextual gap.	The study will be based in Kenya
	Selestin (2018)	The role of Monitoring and Evaluation on the sustainability of road construction projects in Bagamoyo District in Coast region	Compliance to guidelines and laid down procedures as an important aspect in monitoring and evaluation.	The study presented a contextual gap since it was based in Tanzania while the current study will be based in Kenya.	The study will be based in Kenya
	Njeri and Omwenga (2019)	Influence of monitoring and evaluation practices on sustainable projects–a case study of the national aids control council	The results indicated a strong correlation between all of the independent variables; M&E organizational factors, Human Capacity for M&E, Partnerships in M&E and Communication in M&E; and project sustainability.	The study was limited since it only evaluated monitoring and evaluation, one aspect of management strategies.	This study will focus on other management strategies including strategic planning. Leadership styles and risk management.

2.10 Summary of Literature Review

The paper lays out the theoretical foundation on which it is built. The resource-based perspective idea was one of them. This idea stressed the necessity for an organization to be sustainable even if it lacks valuable, rare, or unique resources that would allow it to deliver inexpensive clean energy, as well as how diverse stakeholders impact the company. Several green energy techniques that affect both long-term viability and the availability of cheap, clean power have been addressed. Number of researches on the research question of green energy approaches and their cost and availability, for the study results focused on the following variables that affect the alternative energy strategies, a review of previous global and local studies revealed that the renewable electricity strategy seems to have a considerable influence on the development and cost and availability of electricity production, number of researches on the research study of renewable electricity methodologies and their cost and availability, for the experiments dedicated to specific elements that determine the green energy methodologies, it was clearly apparent from a review of existing regional and international studies that the renewable electricity method has an important.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research approach is explained in this chapter. It covers topics such as study design, population, research processes and data gathering methodology, sample design, and data analysis.

3.2 Research Design

A descriptive research design was used in this study. As a consequence of its usefulness in obtaining data to meet the research objectives, a descriptive design provides a clear explanation of the variable features (Mugenda & Mugenda, 2003). As a result, the design is appropriate and justified for this thesis.

Due to its applicability in data collecting to answer the research questions, descriptive design will allow the researcher to characterize the features of the variables of interest. As a result, the descriptive design is the most appropriate and justifiable choice for this investigation. When summarizing the features of a big population, descriptive design is important. Furthermore, great reliability may be readily accomplished by presenting all individuals with a project procurement, which significantly reduces observer subjectivity.

3.3 Target Population

Population is the number of groups, items and people from whom a researcher seeks to gather data from (Saunders, Lewis, & Thornhill, 2009). The target population of the study was 180 staff of Kenya Electricity Generating Company Olkaria Kenya. The staff are suitable for the study since they provided information on how management strategies on sustainability of green energy harnessing in Kenya.

Managers, plant chief engineer, steam field team, project execution team, regulatory team, operation and maintenance team.

Category	Population
Managers	5
Plant chief engineer	10
Steam field team	36
Project execution team	37
Regulatory team	42
Operation and maintenance team	50
Total	**180**

3.4 Sample Size and Sampling Procedures

This research employed a probability strategy known as simple random sampling. It assisted in the identification of responders for data collection. The sample size was determined, and the method for doing so will be described.

3.4.1 Sample Size

Therefore, the sample includes both high and low-level executives as well as intermediate managers. If there are more than 10,000 people in the population, the ideal sample size is 384. (Mugenda & Mugenda, 1999). In this survey, we were able to collect data from 180 participants. The following recipe comes highly recommended by both Mugenda brothers:

$$nf = n/ [1 + n/N]$$

Where,

According to the above formula:

nf= desired sample size when the population is less than 10,000

n= desired sample when the population is more than 10,000

N= estimate of the population size.

N=180

Therefore, n will be

nf = 384/ [1 +384/180]

For the purpose of this study, a sample size of 122 respondents was used.

3.5 Research Instruments

Data was gathered using questionnaire. Data from the staff was collected using a questionnaire guide which was made up of structured and unstructured questions. According to Kothari (2004) a questionnaire guide helps in collecting a large sum of data from a large population at the same time. Moreover, Saunders, Lewis, and Thornhill (2009) observed that a questionnaire guide guarantees the confidentiality of respondents. The structured questions were in form of a five-point Likert scale, whereby respondents will be required to show their perspectives on a scale of 1 to 5. For example, where (1= strongly disagree, 2= disagree, 3= moderately agree, 4= Agree and 5= strongly Agree).

3.6 Piloting of the Research Instruments

The research instruments for this study were pilot tested before the actual data gathering began. Through piloting, it was ascertain whether or not respondents grasped the meaning of the terms and concepts used, the nature of the task they were being asked to complete, the range of options they were being given, and most importantly, whether or not their understanding of the question was in line with the researcher's intended outcome. Both the clarity of questions and the reliability of measures were assessed beforehand. The same rationales underpinned the pretest for the present investigation. The primary goals of the pretest were to ascertain the dependability and validity of the research tools.

3.6.1 Validity of Research Instruments

Validity, as defined by Mugenda & Mugenda (2003), is the extent to which a research instrument measures what it claims to measure. Construct validity, content validity, and criterion-related validity are the three categories of validity. Concerned with whether or not the items created to operationalize a construct are a sufficient and appropriate representation of all the things that may be used to measure the construct in question, content validity is a key concept in the field of measurement. Determining the construct validity of a measurement tool requires analyzing data from several studies that use that tool. Evaluating a measure's construct validity entails looking at how it correlates with other variables already known to be connected to (or theoretically posited to be related to) the concept being assessed.

In contrast, criterion validity shows how well the new measure's results connect with existing measures of the same construct or very comparable underlying constructs that theoretically should be linked. Having good criteria measurements is essential. Predictive validity is one sort of criterion-related validity in which the criterion measurement is collected after the delivery of the test and the test's ability to reliably predict the criteria is assessed. The researcher made use of respondents whose information was not included in the final analysis of the study to pre-test the questionnaires and check the validity of the questions. Finally, the results of the pilot testing were accounted for, and any necessary changes were made. The pretest ensured that the questionnaire accurately measured the variables of interest.

3.6.2 Reliability of Research Instruments

Saunders, Lewis, and Thornhill (2009) described reliability as a technique used to assess the internal consistency of questionnaire and interview guide. A Cronbach’s alpha (α) was adopted to test reliability. The Cronbach’s alpha ranges from 0-1. A α closer to 0 indicates less internal consistency while a α closer to 1 indicates a greater internal consistency. The study's cutoff criterion will be 0.7. Cronbach's alpha must be larger than 0.7 to be accepted, while it must be less than 0.7 to be rejected.

Mugenda & Mugenda (2003) state that while doing a pilot research, a sample size of one tenth of the overall sample with similar features is ideal. Testing hypotheses with a small sample size is crucial to a study's success since it shows problems with too broad questions or confusing instructions in the instruments. Ten percent of the population was randomly chosen to participate in the pilot program. From a total of 180 participants across all departments, 18 were chosen to participate in the pilot.

3.7 Data Collection Procedures

The researcher sought permission to gather data from the Kenya electricity generating company; Olkaria Kenya staff were sought from the management, after obtaining the university's approval to conduct the study. A letter of transmittal was attached in each research instrument was attached. The researcher visited the company to seek assistance to conduct the research with respect to the study objectives. The questionnaires were distributed to the staff using the drop-and-pick later technique. Appointments with the staff who were interviewed were made prior to the day of data collection.

3.8 Data analysis Techniques

The gathered data was edited prior to the analysis. The data was assessed to check for errors to ensure only data of good quality was analyzed. SPSS was used to analyze the data gathered.

The data was analyzed using both descriptive and inferential methods. Summaries of the research variables were generated using descriptive statistics, while their connection was analyzed with inferential statistics. The average and the deviation were calculated. Graphs, tables, and charts illustrated the study's results. In addition, multiple linear regression would be utilized as an inferential method to demonstrate the interconnectedness of the variables under investigation. We resorted to the following statistical technique for our regression:

$$Y=\beta_0+\beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$$

Y= Sustainability

β_0 = Constant

X_1= Strategy planning

X_2= Leadership style

X_3= Risk management

X_4= Monitoring and control

β_1- β_4 = The regression co-efficient.

ε= is the random error that accounts for the other variables not captured in this model but do influence sustainability.

One-way ANOVA significance testing was performed to see whether there was a statistically significant difference between the research variables.

3.9 Operationalization of Variables

In this study, the operationalization of the study variables was as per previous studies as recommended. The operation of the variables is as shown below.

Table 3.1: Table of Operationalization of Variables

Objective	**Variable**		**Measurement Scale**	**Data analysis technique**	**Tools of Analysis**
To determine the influence of strategy planning on sustainability of green energy harnessing in Kenya; a case of Kenya Electricity Generating Company, Olkaria Kenya.	**Independent** Strategy Planning	• Planning Tools • Resource allocation • Contingency plan	Ordinal scale Nominal scale	• Descriptive analysis • Inferential analysis	Mean • Standard Deviation • percentage • Anova • Regression

To assess the influence of leadership style on sustainability of green energy harnessing in Kenya; a case of Kenya Electricity Generating Co mpany, Olkaria Kenya.	**Independent** Leadership Style	• Autocratic • Transformati onal • Democratic	Ordinal scale Nominal scale	• Descriptive analysis • Inferential analysis	• Mean Standard Deviation • Percentage • Anova • Regression
To evaluate the influence of risk management on sustainability of green energy harnessing in Kenya; a case of Kenya; a case of Kenya Electricity Generating Co mpany, Olkaria Kenya.	**Independent** Risk Management	• Planning for Risks • Risks identification • Risks occurrence	Ordinal scale Nominal scale	• Descriptive analysis • Inferential analysis	• Mean • Standard Deviation • Percentage • Anova • Regression
To assess the influence of monitoring and control on sustainability of green energy harnessing in Kenya; a case of Kenya; a case of Kenya Electricity Generating Co mpany, Olkaria Kenya.	**Independent** Monitoring and Control	• Project tracking • Project adjustment • Project review	Ordinal scale Nominal scale	• Descriptive analysis • Inferential analysis	• Mean • Standard Deviation • Percentage • Anova • Regression

	Dependent Sustainability of green energy harnessing	• Number of projects • Management capacity • Number of household benefiting from the projects	Ordinal scale Nominal scale	Descriptive analysis • Inferential analysis	• Mean • Standard Deviation • Percentage • Anova • Regression

3.10 Ethical Considerations

The letter for introduction will be obtained from the University. The researcher will also seek authorization to conduct the research from NACOSTI before engaging the sampled respondents. Consent will be sought from individual respondents for their participation. Participants will be assured of their confidentiality of information they provide as it will be exclusively for research purposes. The individual respondents will not be coerced to take part in answering questionnaires. Moreover, the respondents will be guaranteed that there will be no consequences in case they weren't interested in participating in the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Introduction

In accordance with the research objectives, this chapter includes the presentation of findings, interpretations, and discussion. The chapter begins with a summary of the respondents' demographic data; it then delves into the findings and interpretation of the findings. Finally, discussions on the emerging issues are presented.

4.2 Response Rate

The study intended to collect data from 122 respondents. From a total of the 122 respondents targeted for the study, 108 took part in the study, presenting an 88.5% response rate. Nonparticipation in the research was documented at an 11.5% response rate. According to Bryman and Bell (2014), a response rate of 50% is considered sufficient, 60% is excellent, and 70% is remarkable. This led to a high rate of involvement in the study.

4.3 Demographic Characteristics of the Respondents

The study started with a look at the respondent's demographics. Details on participants' sex, highest level of education, and length of service are requested here.

4.3.1. Distribution of Respondents by Gender

Participants' were asked to identify themselves by gender. As a result, the data in Table 4.2 looks like this.

Table 4.2. Distribution of Respondents by Gender

	Frequency	**Percentage (%)**
Male	68	63%
Female	40	37%
Total	**108**	**100.0**%

Source: Primary Data (2022)

Based on the results, men made up the largest percentage of respondents (68), while women made up the smallest percentage (40). This suggests there was a fairly balanced distribution of replies across the sexes, despite the fact that the majority came from men.

4.3.2 Highest Academic Qualification

Research shows that people's ability to read and write has a direct impact on their ability to understand, articulate, and solve problems. Participants were asked to disclose their educational background so that researchers could assess whether or not they have the knowledge necessary to answer the study's questions. The data is shown in Table 4.3. below.

Table 4.3. Academic Qualification

Academic Qualification	Frequency	Percentage
Secondary	5	4.6%
College/Diploma	60	55.5%
Undergraduate	29	26.9%
Masters	14	13%
Total	**108**	**100.0**

Source: Primary Data (2022)

According to Table 4.4, all of the respondents had earned at least an A-level. A strong academic background is important because it equips people to handle the grunt work involved in seeing a project through to completion. According to the results, the respondents had advanced knowledge in the necessary areas.

4.3.4 Period of Service in the Organization

Participants were prompted to share their exact tenures with the company. Table 4.5 displays the results.

Table 4.4. Length of Service in Organization

Number of Years	Frequency	Percentage
Below 2 years	6	5.6
3 to 5 years	25	23.1
6 to 8 years	60	55.6
9 years and above	17	15.7
Total	**108**	**100.0**

Source: Primary Data (2022)

Most responders (as shown in Table 4.4) have been at their current employer for more than three years. This means that the respondents provided sufficient and accurate data to answer the study questions on the impact of management techniques on the long-term viability of harvesting green energy in Kenya.

4.4 Strategic Planning

It was asked of the respondents what degree of consensus there was on the topic of strategic planning. Summary results are shown in table 4.5.

Table 4.5. Strategic Planning

Strategic Planning	N	VSE	SE	M	LE	VLE	Mean	Std. Dev
All workload required for green energy harnessing is distributed to different stakeholders in the organization	108	3 (2.8%)	5 (4.7%)	10 (9.0%)	12 (11.0%)	78 (72.5%)	3.52	0.938
The organization has a schedule of acquiring all resources required for the implementation of green energy harnessing	108	3 (2.8%)	5 (4.2%)	31 (28.6%)	35 (32.5%)	34 (31.9%)	3.76	1.103
The organization has a schedule that ensures that the production of green energy is consistent throughout the year	108	0 (0%)	5 (4.2%)	25 (23.0%)	20 (18.3%)	58 (54.5%)	3.66	1.094
The budget for green energy harnessing is adequate	108	6 (5.6%)	17 (15.8%)	24 (22.5%)	27 (24.7%)	34 (31.4%)	3.72	1.332
The budget available guides the implementation of green energy harnessing	108	0 (0%)	6 (5.1%)	18 (16.7%)	29 (27.2%)	55 (51%)	3.50	0.876
The budget for green energy harnessing is allocated efficiently	108	5 (4.2%)	10 (8.9%)	19 (17.8%)	31 (28.8%)	44 (40.3%)	3.62	1.005
Resources used in green energy harnessing are adequate	108	2 (1.8%)	5 (4.7%)	14 (13.1%)	40 (37.4%)	47 (43.0%)	3.60	0.925
The resources available for green energy harnessing are allocated	108	2 (1.8%)	5	10	40	51	3.54	0.871

efficiently			(4.7%)	(8.9%)	(37.4%)	(47.2%)		
There have been no cases for the misuse or misappropriation of the resources available for green energy harnessing	108	1 (1.3%)	7 (6.7%)	14 (12.9%)	35 (32.5%)	51 (46.6%)	3.89	1.253

Source: Primary Data (2022)

From the findings the respondents agreed to a great that there have been no cases for the misuse or misappropriation of the resources available for green energy harnessing (mean=3.89, SD=1.253), the organization has a schedule of acquiring all resources required for the implementation of green energy harnessing (mean=3.76, SD=1.103), the budget for green energy harnessing is adequate (mean=3.72, SD=1.332), the organization has a schedule that ensures that the production of green energy is consistent throughout the year (mean=3.66, SD=1.094), the budget for green energy harnessing is allocated efficiently (mean=3.62, SD=1.005), resources used in green energy harnessing are adequate (mean=3.6, SD=0.925), the resources available for green energy harnessing are allocated efficiently (mean=3.54, SD=0.871), all workload required for green energy harnessing is distributed to different stakeholders in the organization (mean=3.52, SD=0.938), and that the budget available guides the implementation of green energy harnessing (mean=3.5, SD=0.876). This depicts that to a great that there have been no cases for the misuse or misappropriation of the resources available for green energy harnessing.

4.5 Leadership Style

After reading assertions describing the leader's style, participants were asked to rate how much they agreed with each. You may see the outcomes in table 4.6.

Table 4.6. Leadership Style

Leadership Style	N	VSE	SE	M	LE	VLE	Mean	Std. Dev
Only the management of the organization can make decisions	108	3 (2.8%)	0 (0%)	12 (11.2%)	44 (40.4%)	49 (45.6%)	3.57	0.835

pertaining green energy harnessing								
Employees are not allowed to offer their opinions with regards to green energy harnessing	108	2 (1.9%)	1 (1.3%)	6 (5.8%)	54 (48.9%)	45 (42.1%)	3.57	0.878
The management of the organization fosters an ethical work environment with clear values, priorities and standards	108	0 (0%)	12 (10.7%)	33 (30.6%)	42 38.5%)	22 (20.2%)	3.70	1.037
The management exemplifies moral standards within the organization and encourages the same of others	108	2 (1.8%)	4 (3.5%)	12 (10.9%)	41 (38.5%)	49 (45.3%)	3.86	1.280
The managers at Olkaria encourage and motivate the employees to be vocal about their opinions on how to improve green energy harnessing	108	5 (4.9%)	11 (9.8%)	20 (18.6%)	43 (40.2%)	29 (26.5%)	3.93	0.897
The supervisors of the green energy harnessing project involve all stakeholders in decision making	108	0 (0%)	7 (6.7%)	28 (25.6%)	52 48.5%)	21 (19.2%)	3.87	0.753

Source: Primary Data (2022)

The results showed that respondents mostly agreed that management at Olkaria encourage and inspire staff to speak out about ways to better utilize green energy (mean=3.93, SD=0.897), followed by the supervisors of the green energy harnessing project involve all stakeholders in decision making (mean=3.87, SD=0.753), In addition to setting a good example themselves, management also actively encourages employees

to do the right thing (mean=3.86; standard deviation = 1.28). The company promotes a culture of ethics by setting and enforcing high standards for all employees (mean=3.7, SD=1.037), only the management of the organization can make decisions pertaining green energy harnessing (mean=3.57, SD=0.835), and that employees are not allowed to offer their opinions with regards to green energy harnessing (mean=3.57, SD=0.878). This depicts that to a great extent that the managers at Olkaria encourage and motivate the employees to be vocal about their opinions on how to improve green energy harnessing.

4.6 Risk Management

It was asked of the respondents what percentage of risk management they agreed with. Table 4.7 displays the results.

Table 4.7. Risk Management

Risk Management		VSE	SE	M	LE	VLE	Mean	Std. Dev
A risk management system is put in place to identify any risks that may occur with regards to the production of green energy	108	0 (0%)	4 (3.7%)	10 (9.3%)	48 (44.4%)	46 (42.6%)	3.52	1.283
The risks identified in relation to green energy harnessing are communicated to the management of the organization	108	0 (0%)	6 (5.6%)	22 (20.4%)	56 (51.9%)	24 (22.2%)	3.55	1.140
A checklist of the risks identified in relation to the green energy harnessing is normally prepared in line with the	108	2 (1.8%)	0 (0%)	6 (5.5%)	61 (56.4%)	39 (36.4%)	3.70	0.755

organization's priorities								
Assessments of the green energy harnessing risks identified is normally conducted before settling on a solution	108	1 (1.3%)	1 (1.2%)	2 (1.6%)	48 (43.9%)	56 (52.0%)	3.61	1.206
Action to address a risk identified in relation to the green energy harnessing is taken following its assessment	108	0 (0%)	7 (6.7%)	28 (25.6%)	52 48.5%)	21 (19.2%)	3.65	1.356
Mitigation plans have been put in place by the organization in case of the occurrence of any problems during production of green energy	108	2 (1.8%)	3 (2.5%)	6 (5.9%)	55 (50.5%)	42 (39.3%)	3.75	1.304
There is a channel for communication in case of any green energy harnessing emergencies	108	2 (1.9%)	2 (1.8%)	20 (18.6%)	43 (40.2%)	41 (37.5%)	3.86	1.426

Source: Primary Data (2022)

From the findings the respondents agreed to a great extent that there is a channel for communication in case of any green energy harnessing emergencies (mean=3.86, SD=1.426), followed by mitigation plans have been put in place by the organization in case of the occurrence of any problems during production of green energy (mean=3.75, SD=1.304), a checklist of the risks identified in relation to the green energy harnessing is

normally prepared in line with the organization's priorities (mean=3.7, SD=0.755), action to address a risk identified in relation to the green energy harnessing is taken following its assessment (mean=3.65, SD=1.356), assessments of the green energy harnessing risks identified is normally conducted before settling on a solution (mean=3.61, SD=1.206), the risks identified in relation to green energy harnessing are communicated to the management of the organization (mean=3.55, SD=1.14), and that risk management system is put in place to identify any risks that may occur with regards to the production of green energy (mean=3.52, SD=1.283). This depicts that to a great extent that there is a channel for communication in case of any green energy harnessing emergencies.

4.7 Monitoring and Control

It was asked of the respondents what percentage of monitoring and control they agreed with. The data is shown in table 4.8.

Table 4.8. Monitoring and Control

Monitoring and Control		VSE	SE	M	LE	VLE	Mean	Std. Dev
Formal monthly inspections on green energy harnessing are carried out by the organization as planned	108	2 (1.8%)	0 (0%)	4 (3.6%)	49 (45.5%)	53 (49.1%)	3.62	0.954
Supervisors on the green energy harnessing project carry out the necessary inspections	108	2 (1.8%)	2 (1.8%)	4 (3.6%)	49 (45.5%)	51 (47.3%)	3.66	1.363
Project managers carry out the necessary green energy harnessing inspection to meet the required standards	108	2 (1.8%)	4 (3.6%)	29 (27.3%)	65 (60.0%)	8 (7.3%)	3.72	1.021

There is a well-maintained records book to follow the complaints of employees with regards to the green energy harnessing project	108	14 (12.7%)	0 (0%)	37 (34.5%)	43 (40.0%)	14 (12.7%)	3.82	1.109
A time frame is usually adhered to in terms of production of green energy	108	6 (5.5%)	0 (0%)	6 (5.5%)	82 (76.4%)	14 (12.7%)	3.79	1.081
There is enough documentation by Olkaria in regards to green energy harnessing	108	4 (3.6%)	0 (0%)	10 (9.1%)	49 (45.5%)	45 (41.8%)	3.55	1.012
Information is provided to enhance the quality of the green harnessing project	108	2 (1.9%)	0 (0%)	10 (9.0%)	63 (58.2%)	33 (30.9%)	3.61	1.272
Olkaria has put in place operational and maintenance of the green harnessing project	108	2 (1.9%)	6 (5.6%)	26 (24.1%)	46 (42.6%)	28 (25.9%)	3.52	1.145
Timely decisions about the future of the green energy harnessing project are taken	108	4 (3.7%)	8 (7.4%)	14 (13.0%)	60 (55.6%)	22 (20.4%)	3.83	0.938
The information gathered during monitoring and control is used to forecast future projects	108	0 (0%)	10 (9.3%)	16 (14.8%)	52 (48.1%)	30 (27.8%)	3.63	1.242

Source: Primary Data (2022)

Those who participated in the survey generally agreed with the results, which showed that timely decisions about the future of the green energy harnessing project are taken (mean=3.83, SD=0.938), followed by there is a well-maintained records book to follow the complaints of employees with regards to the green energy harnessing project (mean=3.82, SD=1.109), time frame is usually adhered to in terms of production of green energy (mean=3.79, SD=1.081), project managers carry out the necessary green energy harnessing inspection to meet the required standards (mean=3.72, SD=1.021), supervisors on the green energy harnessing project carry out the necessary inspections (mean=3.66, SD=1.363), the information gathered during monitoring and control is used to forecast future projects (mean=3.63, SD=1.242), formal monthly inspections on green energy harnessing are carried out by the organization as planned (mean=3.62, SD=0.954), information is provided to enhance the quality of the green harnessing project (mean=3.61, SD=1.272), there is enough documentation by Olkaria in regards to green energy harnessing (mean=3.55, SD=1.012), and that Olkaria has put in place operational and maintenance of the green harnessing project (mean=3.52, SD=1.145). This depicts that to a great extent that timely decisions about the future of the green energy harnessing project are taken

4.8 Sustainability

To gauge respondents' level of sustainability agreement, we asked them to rate their agreement on a scale from 0 to 10. Table 4.9 displays the results.

Table 4.9. Sustainability

Sustainability	N	VSE	SE	M	LE	VLE	Mean	Std. Dev
Many people benefit from the green energy harnessing project	108	2 (1.6%)	2 (1.8%)	6 (5.5%)	55 (50.5%)	43 (40.6%)	3.78	0.835
Green energy is affordable to customers	108	2 (1.8%)	0 (0%)	6 (5.5%)	61 (56.4%)	39 (36.4%)	3.96	0.888
The management of Olkaria have the necessary competencies to lead in attaining the long-term	108	0 (0%)	4 (3.6%)	10 (9.1%)	47 (43.6%)	47 (43.6%)	3.87	0.973

objectives of the organization								
There are plans of continuity of green energy harnessing	108	0 (0%)	28 (25.5)	37 (34.5)	37 (34.5%)	6 (5.5%)	4.06	1.027
More green energy projects are to be undertaken by the organization	108	2 (1.5%)	0 (0%)	6 (5.8%)	71 (65.5%)	29 (27.3%)	4.2	0.769
Olkaria intends to increase its production of green energy in the years to come	108	2 (1.6%)	0 (0%)	2 (1.6%)	47 (43.9%)	57 (52.9%)	4.04	0.972

Source: Primary Data (2022)

From the findings the respondents agreed to a great extent that more green energy projects are to be undertaken by the organization (mean=4.2, SD=0.769), there are plans of continuity of green energy harnessing (mean=4.06, SD=1.027), Olkaria intends to increase its production of green energy in the years to come (mean=4.04, SD=0.972), green energy is affordable to customers (mean=3.96, SD=0.888), the management of Olkaria have the necessary competencies to lead in attaining the long-term objectives of the organization (mean=3.87, SD=0.973, and that many people benefit from the green energy harnessing project (mean=3.78, SD=0.835). This depicts that more green energy projects are to be undertaken by the organization.

4.9 Regression Analysis

In order to investigate the nature of the connection that exists between the predictor factors and the long-term viability of green energy harvesting in Kenya, the research applied multiple regression analysis. Following the cleaning and coding of data collected in the field, the research made use of the version 24 of SPSS to construct the output of the regression statistics. The coefficient of determination was used in order to demonstrate how the shift in the value of the dependent variable can be rationalized via consideration of the shift in the values of the independent variables. In this particular piece of research, the viability of green energy harvesting in Kenya served as the investigation's dependent

variable, while strategy planning, leadership style, risk management, and monitoring and control served as the investigation's independent factors.

4.9.1 Model Summary

The table below summarizes the model's findings about the connection between the various predictor factors and the long-term viability of capturing green energy in Kenya. Table 4.11 displays the results.

Table 4.10. Model Summary

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	F	P-value
1	0.89	.792	.742	.312	31.341	.001

a. Predictors: (Constant), strategy planning, leadership style, risk management, and monitoring and control.

b. Dependent Variable: Sustainability of green energy harnessing in Kenya

Source: Primary Data (2022)

R2=0.792, which indicates that the independent variable accounts for 79.2% of the variance in the sustainability of green energy harnessing in Kenya. But the other unaccounted-for predictors in the regression model account for the remaining 20.8% of the variance in the sustainability of green energy harnessing in Kenya. The results shown in the preceding table support the conclusion that the model is reliable and may be used for forecasting. Results from the table reveal that there is a substantial association between the independent variables and the long-term viability of green energy harnessing in Kenya, with an R2 value of 0.792 (or 79.2%).

4.9.2 ANOVA Results

The effects of the various predictor factors on the long-term viability of green energy harnessing in Kenya are listed in the table below, as calculated using an analysis of variance. A summary of the results is provided in table 4.12.

Table 4.11. ANOVA of the Regression

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.015	4	5.754	8.781	.000[b]
	Residual	67.465	103	.655		
	Total	**90.48**	**107**			

a. Predictors: (Constant), strategy planning, leadership style, risk management, and monitoring and control.

b. Dependent Variable: Sustainability of green energy harnessing in Kenya

Source: Primary Data (2022)

With a significance level of 0.000, which is less than 0.05, the model is statistically significant in predicting how the components (strategy planning, leadership style, risk management, and monitoring and control) affect the sustainability of green energy harvesting in Kenya. At a significance level of 5%, the F-value threshold was 3.123. The entire model was noteworthy as the computed F is larger than the F critical (value = 8.781).

4.9.3 Coefficient of Determination

The coefficient of determination for the association between the predictor factors and the viability of green energy harnessing in Kenya is shown in the following table. The results are detailed in table 4.12, which may be found here.

Table 4.12. Coefficient of Determination

	Unstandardized Coefficients		**Standardized Coefficients**		
	B	Std. Error	Beta	T	Sig.
Model 1(Constant)	0.289	0.116		2.491	0.005
Strategy Planning	0.319	0.122	0.514	2.61	0.001

Leadership Style	0.287	0.117	0.452	2.45	0.002
Risk Management	0.245	0.106	0.413	2.31	0.001
Monitoring and Control	0.229	0.098	0.398	2.34	0.001

a. **Dependent Variable:** Sustainability of green energy harnessing in Kenya

Source: Primary Data (2022)

To ascertain whether or not the use of renewable energy sources can be maintained in Kenya, a simple regression analysis was performed. The following table presents the regression equation as obtained by SPSS.

$$(\mathbf{Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon})$$

Becomes:

$$(Y = 0.289 + 0.319 + 0.287 + 0.245 + 0.229 + \varepsilon)$$

By holding all other factors (strategic planning, leadership style, risk management, and monitoring and control) constant, the regression revealed that the sustainability of green energy harvesting in Kenya was 0.289. Taking all other independent variables to be at their lowest possible values, the data also showed that an increase of one unit in strategy planning would result in a 0.319 increase in the sustainability of green energy harnessing in Kenya, an increase of one unit in leadership style would result in an increase of one unit in sustainability, an increase of one unit in risk management would result in an increase of one unit in sustainability, and so on. This suggests that strategic planning contributes the most to the long-term viability of capturing green energy in Kenya, followed by the quality of the leadership. Strategy planning, leadership style, risk management, and monitoring and control were all relevant at the 5% level of significance and the 95% level of confidence on the long-term viability of green energy harnessing in Kenya.

4.10. Discussion of Findings

4.10.1 Strategic Planning

The study found that to a great that there have been no cases for the misuse or misappropriation of the resources available for green energy harnessing. The findings are in agreement with a study by Serrador (2013) who stated that planning help avoid embezzlement of funds meant for projects which has an impact on project durability. According to the study, there should be a balance between too much and too little planning. Karanja (2014) project design, training, leadership, and good monitoring and evaluation all impact the long-term viability of youth initiatives and help do away with corrupt deals.

4.10.2 Leadership Style

The study found that to a great extent that the managers at Olkaria encourage and motivate the employees to be vocal about their opinions on how to improve green energy harnessing. The findings are in tandem with a study by Yang, Huang, and Wu (2011) who stated that better project management leadership leads to better project team member relationships which improves project performance. Novo, Landis, and Haley (2017) stated that project manager competency is directly connected to leadership attributes. Similarly, project success is highly linked to the project manager's leadership abilities.

4.10.3 Risk Management

The study found that to a great extent that there is a channel for communication in case of any green energy harnessing emergencies. The findings agree with a study by Caglianoet al. (2015) who stated that risk avoidance measures such as securing sensitive information, appropriate communication channels help in improving project success. The goal of project risk management is to guarantee that projects are finished on time, on budget, and according to specifications.

4.10.4 Monitoring and Control

The study found that to a great extent that timely decisions about the future of the green energy harnessing project are taken. The findings agree with a study by Kule and Umugwaneza (2016) who stated that timely decisions, accountability, good communication, planning collaboration, and supportive supervision were all significant in

facilitating project success. Management commitments to administering the project's monitoring and evaluation exercise will increase the project's long-term sustainability.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of the research's important findings and conclusions. The implications of the study are also conversed herein. Lastly, suggestions for additional research areas are also enumerated.

5.2 Summary of Findings

5.2.1 Strategic Planning

The study found that to a great that there have been no cases for the misuse or misappropriation of the resources available for green energy harnessing. The study also found that the organization has a schedule of acquiring all resources required for the implementation of green energy harnessing, the budget for green energy harnessing is adequate, the organization has a schedule that ensures that the production of green energy is consistent throughout the year, the budget for green energy harnessing is allocated efficiently, resources used in green energy harnessing are adequate, the resources available for green energy harnessing are allocated efficiently, all workload required for green energy harnessing is distributed to different stakeholders in the organization, and that the budget available guides the implementation of green energy harnessing.

5.2.2 Leadership Style

The study found that to a great extent that the managers at Olkaria encourage and motivate the employees to be vocal about their opinions on how to improve green energy harnessing. The study also discovered that the green energy harnessing project's management team actively includes all relevant parties in decision making, sets a good example for employees by adhering to high moral and ethical standards themselves, and promotes a culture within the company where these values are upheld, only the management of the organization can make decisions pertaining green energy harnessing, and that employees are not allowed to offer their opinions with regards to green energy harnessing.

5.2.3 Risk Management

The study found that to a great extent that there is a channel for communication in case of any green energy harnessing emergencies. The study also found that mitigation plans have been put in place by the organization in case of the occurrence of any problems during production of green energy, a checklist of the risks identified in relation to the green energy harnessing is normally prepared in line with the organization's priorities, action to address a risk identified in relation to the green energy harnessing is taken following its assessment, assessments of the green energy harnessing risks identified is normally conducted before settling on a solution, the risks identified in relation to green energy harnessing are communicated to the management of the organization, and that risk management system is put in place to identify any risks that may occur with regards to the production of green energy.

5.2.4 Monitoring and Control

Conclusions about the further development of the green energy harnessing project were determined to be made in a timely manner for the most part. The research also discovered that a complaint log is kept to track employee concerns about the green energy harnessing project, green energy production deadlines are generally met, and project managers do the necessary green energy harnessing inspection to fulfill regulatory requirements, supervisors on the green energy harnessing project carry out the necessary inspections, the information gathered during monitoring and control is used to forecast future projects, formal monthly inspections on green energy harnessing are carried out by the organization as planned, information is provided to enhance the quality of the green harnessing project, there is enough documentation by Olkaria in regards to green energy harnessing, and that Olkaria has put in place operational and maintenance of the green harnessing project.

5.2.5 Sustainability

The study found that more green energy projects are to be undertaken by the organization. The study also found that strategy planning contributes the most to sustainability of green energy harnessing in Kenya, followed by leadership style. At 5% level of significance and 95% level of confidence, strategy planning, leadership style, risk

management, and monitoring and control were all significant on sustainability of green energy harnessing in Kenya.

5.3. Conclusion of the Study

The research found that no instances of theft or waste of green energy resources had occurred. The study concluded that to a great extent that the managers at Olkaria encourage and motivate the employees to be vocal about their opinions on how to improve green energy harnessing. The study concluded that to a great extent that there is a channel for communication in case of any green energy harnessing emergencies.

The study concluded that to a great extent that timely decisions about the future of the green energy harnessing project are taken. The study concluded that more green energy projects are to be undertaken by the organization. The research also found that leadership style was the second most important factor in ensuring the long-term viability of Kenya's green energy harvesting initiatives. Strategy planning, leadership style, risk management, and monitoring and control were all important at the 5% level of significance and the 95% level of confidence on the sustainability of green energy harnessing in Kenya.

5.4. Recommendations

The research concluded with the following suggestions based on the data.

1. The organization should increase the investment in training employees on the green energy strategies for it is a good way to enhance the adoption of the green energy strategies and operationalization of these strategies.
2. In an era of more concern in the environment and increase demand on the green energy, it is essential for the organization to put all the stakeholders into consideration in their implementation of the green energy strategies.
3. Socio-economic consideration is paramount for does not remain constant and that adapting to these strategies will enable the organization to meet their objectives, mission and vision in the organization and society in general.
4. The strategic planning should also be incorporated in these strategies for it will ensure that the strategies are achieved and also will allow the innovation and of clean green energy.

5.5. Areas of Further Study

This study should be replicated but there should be additional control variables that capture the idiosyncrasies of green energy strategy at Olkaria one unit six. The control variables would be helpful in figuring the applicability of strategy models for in the organizations, and such insight would help in the strategic planning process in electricity generating companies. Olkaria one unit six has to implement efficient strategic planning procedures; thus, it must make use of appropriate models.

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Appendix I: Letter of Transmittal

Dear Respondent,

RE: REQUEST TO PARTICIPATE IN THE STUDY

As a Master of Arts in Project Planning and Management student at University of Nairobi (UoN), my name is Gitau Samuel.

I am currently carrying out research on the above referenced topic: *Management Strategies and Sustainability Of Green Energy Harnessing Project In Kenya: A Case Of Olkaria One Unit Six, Olkaria Kenya*

It will examine Olkaria Kenya as the subject of this study. To collect the data, a questionnaire will be utilized. Hence, I'm asking for a few minutes of your time to complete the survey.

All information obtained during this study will be handled with utmost confidentiality and utilized solely for academic purposes, according to the study's author. I would be grateful for any cooperation you could provide.

Yours Faithfully,

Gitau Samuel

Appendix II: Research Questionnaire for Staff

This questionnaire is categorized into two. The demographic questions about the respondents will be covered in section A. Section B will collect data on the study variables. NB: Confidentiality and privacy will be maintained in handling the responses provided.

Section: A: Demographic Information

1. Gender
   i. Male [ ]
   ii. Female [ ]
2. Please indicate the highest level of education attained. (Tick as applicable)
   i. Secondary [ ]
   ii. College Diploma [ ]
   iii. Undergraduate [ ]
   iv. Master [ ]
   v. Others (specify)……..
3. Indicate your period of service in this organization
   i. Below 2 years [ ]
   ii. 3 to 5 years [ ]
   iii. 6 to 8 years [ ]
   iv. 9 years and above [ ]

Section: B. Management Strategies

4. To what extent do you agree or disagree with the following statements in relation to strategic planning. Using a scale of 1 - 5, tick the appropriate answer from the alternatives provided. 1 = Very small extent 2 = Small extent 3 = Moderate 4 = Large extent and 5 = Very large extent

Strategic Planning	**1**	**2**	**3**	**4**	**5**
All workload required for green energy harnessing is distributed to different stakeholders in the organization					
The organization has a schedule of acquiring all resources required for the implementation of green energy harnessing					
The organization has a schedule that ensures that the					

production of green energy is consistent throughout the year					
The budget for green energy harnessing is adequate					
The budget available guides the implementation of green energy harnessing					
The budget for green energy harnessing is allocated efficiently					
Resources used in green energy harnessing are adequate					
The resources available for green energy harnessing are allocated efficiently					
There have been no cases for the misuse or misappropriation of the resources available for green energy harnessing					

5. To what extent do you agree or disagree with the following statements in relation to leadership style. Using a scale of 1 - 5, tick the appropriate answer from the alternatives provided. 1 = Very small extent 2 = Small extent 3 = Moderate 4 = Large extent and 5 = Very large extent

Leadership Style	**1**	**2**	**3**	**4**	**5**
Only the management of the organization can make decisions pertaining green energy harnessing					
Employees are not allowed to offer their opinions with regards to green energy harnessing					
The management of the organization fosters an ethical work environment with clear values, priorities and standards					
The management exemplifies moral standards within the organization and encourages the same of others					
The managers at Olkaria encourage and motivate the employees to be vocal about their opinions on how to improve green energy harnessing					

The supervisors of the green energy harnessing project involve all stakeholders in decision making					

6. To what extent do you agree or disagree with the following statements in relation to risk management. Using a scale of 1 - 5, tick the appropriate answer from the alternatives provided. 1 = Very small extent 2 = Small extent 3 = Moderate 4 = Large extent and 5 = Very large extent

Risk Management	**1**	**2**	**3**	**4**	**5**
A risk management system is put in place to identify any risks that may occur with regards to the production of green energy					
The risks identified in relation to green energy harnessing are communicated to the management of the organization					
A checklist of the risks identified in relation to the green energy harnessing is normally prepared in line with the organization's priorities					
Assessments of the green energy harnessing risks identified is normally conducted before settling on a solution					
Action to address a risk identified in relation to the green energy harnessing is taken following its assessment					
Mitigation plans have been put in place by the organization in case of the occurrence of any problems during production of green energy					
There is a channel for communication in case of any green energy harnessing emergencies					

7. To what extent do you agree or disagree with the following statements in relation to monitoring and control. Using a scale of 1 - 5, tick the appropriate answer from the alternatives provided. 1 = Very small extent 2 = Small extent 3 = Moderate 4 = Large extent and 5 = Very large extent

Monitoring and Control	**1**	**2**	**3**	**4**	**5**
Formal monthly inspections on green energy harnessing are carried out by the organization as planned					
Supervisors on the green energy harnessing project carry out the necessary inspections					
Project managers carry out the necessary green energy harnessing inspection to meet the required standards					
There is a well-maintained records book to follow the complaints of employees with regards to the green energy harnessing project					
A time frame is usually adhered to in terms of production of green energy					
There is enough documentation by Olkaria in regards to green energy harnessing					
Information is provided to enhance the quality of the green harnessing project					
Olkaria has put in place operational and maintenance of the green harnessing project					
Timely decisions about the future of the green energy harnessing project are taken					
The information gathered during monitoring and control is used to forecast future projects					

8. To what extent do you agree or disagree with the following statements in relation to sustainability of green energy harnessing. Using a scale of 1 - 5, tick the appropriate answer from the alternatives provided. 1 = Very small extent 2 = Small extent 3 = Moderate 4 = Large extent and 5 = Very large extent

Sustainability	**1**	**2**	**3**	**4**	**5**

Many people benefit from the green energy harnessing project					
Green energy is affordable to customers					
The management of Olkaria have the necessary competencies to lead in attaining the long-term objectives of the organization					
There are plans of continuity of green energy harnessing					
More green energy projects are to be undertaken by the organization					
Olkaria intends to increase its production of green energy in the years to come					