RISK FACTORS, CONTRACT MANAGEMENT AND PERFORMANCE OF PUBLIC PRIVATE PARTNERSHIPS RENEWABLE ENERGY PROJECTS: THE CASE OF GEOTHERMAL RENEWABLE ENERGY PROJECTS IN KENYA.

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DECLARATION

This thesis is my original work and has not been submitted for any award in any university.

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DEDICATION

I dedicate this thesis to my loving parents, Mr. Christopher Odhiambo and Mrs. Jane Odhiambo for their immense contribution both morally and financially towards my education.

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
CAPM	Capital Asset Pricing Model
EIA	Environment Impact Assessment
FDI	Foreign Direct Investment
GHGs	Green House Gases
GW	Gigga watts
GDP	Gross Domestic Product
IEA	International Energy Agency
IFC	International Finance Corporation
OECD	Organization for Economic Co-operation and Development
PPPs	Public Private Partnerships
RE	Renewable Energy
REPs	Renewable Energy projects
RET	Renewable Energy Technology
SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
GDC	Geothermal Development Company
BOT	Build Operate Transfer
EPRA	Energy and Petroleum Regulatory Authority

ABSTRACT

Energy infrastructure has a direct effect on growth and development of an economy. When funded and maintained, infrastructure plays a critical role in ensuring a high standard of living. In spite of this the infrastructure deficit is very glaring among most governments, more so in developing nations. This is a result of tight budgetary allocations hence governments are increasingly looking to attract private-sector investment. PPP provide budgetary room without any compromise to sustainability of a government's fiscal position. However, investment risks create a big obstacle to private sector investment. The aim of this study was therefore to establish the extent to which risk factors, contract management influence the performance of public private partnership renewable energy projects in Kenya. The objectives of the study were; to establish how political risks influence performance of public private partnership renewable energy projects in Kenya; to establish the extent to which policy risks influences performance of public private partnership renewable energy projects in Kenya; to assess the extent to which macro-economic risks influences performance of public private partnership renewable energy projects in Kenya; to assess how social acceptance risks influences performance of public private partnership renewable energy projects in Kenya; to assess the extent to which market risks influences performance of public private partnership renewable energy projects in Kenya; to determine how combined risk factors influences performance of public private partnership renewable energy projects in Kenya and to determine the moderating influence of contract management on the relationship between risk factors and performance of public private partnership renewable energy projects in Kenya. Mixed methods approach was employed and a pragmatism research paradigm was adopted to guide the study. The study used correlational and descriptive survey research design. Both quantitative and qualitative data was collected by use of a self-administered questionnaire and an interview guide after piloting and reliability established. A sample size of 263 respondents was drawn from a target population of 769 using the Yamane formula. Data was collected using questionnaires and an interview guide. For descriptive statistics the study used the mean and standard deviation. For inferential statistics the study used Pearson's Product Moment Correlation (r) and Multiple Regression while the F-tests were used in hypothesis testing. The study established a significant influence of political risks $r = 0.572$, $F(1,205) = 99.771$, $R^2 = 0.327$ at $p<.05$ H_0 was consequently rejected. Policy risks, $r=0.627$ $F(1,205) =132.851$, $R^2 = 0.393$ at $p< 0.05$ established a significant influence of policy risks on performance of public private partnership renewable energy projects in Kenya. Macroeconomic risks, $r=0.603$, $F(1,205) = 117.416$, $R^2=0.364$. $P< 0.001$, the study found a significant influence of macroeconomic risks on performance of public private partnership renewable energy projects in Kenya. The study established a significant influence of Social acceptance risks on the performance of public private partnership renewable energy projects in Kenya, $r=0.565$, $F(1,205) =96.135$, $R^2= 0.319$, $p< 0.001$, the H_0 was rejected and alternate hypothesis adopted. With $r=0.582$, $F(1,204) =104.689$, $R^2= 0.339$, $P=0.000< 0.05$, the study found that market risks has a significant influence on performance of public private partnership renewable energy projects in Kenya. With, $r=0.757$, $F(5,200) = 53.777$, $R^2= 0.573$ $p =0.000< 0.05$ the study determined that there was significant influence of combined risk factors on performance of public private partnership renewable energy projects in Kenya. The study also found no moderating influence of contract management in the relationship between risk factors and performance of public private partnerships, $R^{2=}0.847$ $\Delta R^2=0.001$ F Change=1.702 df=1,203 $P > 0.005$.The study concluded that there is significant influence of risk factors on the performance of public private partnerships renewable energy projects. The study recommended the need for a comprehensive risk management strategy to enhance the performance public private partnerships. Further research could investigate effectiveness of PPPs in this way a comprehensive understanding of PPP performance in terms of effectiveness would be arrived at.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Energy is not only the pillar of social and economic aspects of growth and development, but also a vital resource in sustainable development. In fact the sustainable Development Goal seven (SDG7) adopted by the United Nations General Assembly emphasizes clean, modern and sustainable energy (United Nations, 2015). The goal acknowledges that sustainable energy is of fundamental importance for the improvement of health and livelihoods of masses around the globe. Energy is linked to all the Sustainable Development Goals which consequently creates a high demand for energy. Availability of energy and economic development including the stability of a country has been acknowledged to have a positive interdependent link (Kebede,Kagochi and Jolly,2010).In industrialization availability of reliable and sustainable energy encourages creation of economic clusters that lead to localized development of the economy(Currid-Halkett and Stolarick, 2011).

Renewable energy has the potential of solving the problem of availability, reliability and sustainability of energy for development. In essence there is a link between renewable energy and success of Sustainable Development Goals. Lack of energy creates a big obstacle for economic development of many countries, more so in Africa, hence a big hindrance to poverty eradication efforts(Barnes, Samad, and Banerjee,2014).This necessitates financing of reliable and sustainable sources of energy like renewable energy, which in turn has the potential of spurring agricultural production thereby contributing to food security (Mushtaq *et al.*, 2009).Besides this, and the availability of energy is proven to improve quality of education and gender parity in the society (Daka and Ballet, 2011). Renewable energy also has the potential of cushioning countries from fuel imports thereby saving money for other needy sectors of the economy.

Financing of renewable energy projects is not only critical but also resonates with the United Nations call for universal access to energy (United Nations, 2015). Financing could also bridge the gap left by dwindling traditional sources of energy due to population increase (Painuly, 2001). Reliance on non-renewable traditional sources of energy has made the current and future energy demand (Pegels, 2009). This has created urgency for project financing with a focus to renewable sources. Adoption of renewable energy technologies presents a better option for sustainable development as opposed non-renewable carbon based fuels (Pegels, 2009)

Financing of renewable energy projects will consequently ensure sustainable economic development by meeting the demand for commercial energy (Krupa and Burch, 2011; Shen, Chou and Lin, 2011).

In terms of financing needs, the World Bank estimates that Africa needs a yearly investment of USD 43 billion in the power sector. African Development Bank and United Nations Environment Programme put their estimation at USD 41 billion yearly. The Africa Progress Panel recommends an additional investment of USD 55billion will be needed yearly until 2030 so as to achieve adequate availability of electricity in Africa (Africa Progress Panel, 2015). With a specific focus on renewable energy, IRENA estimates that for African to fully exploit her potential, USD 32 billion will needed yearly from 2015-2030.

Financing need for Africa to achieve her growth and sustainable development goals and objective is estimated to worth USD 90 billion of infrastructural investment yearly. According to the Africa Development Bank and UNEP an estimate of USD 41 billion is needed for investment for Africa to achieve sustainable development goals (Duarte *et al,*. 2010). The World Bank gives a similar estimate of USD 40.8 billion as the amount that should be spent yearly in the power sector by African to meet her energy demand. Currently Africa spends about USD 11.6 billion which is much lower the figures projected according to the estimates of World Bank and African Development Bank. It is also projected that Africa could ‘’marshal an additional USD 8.24 billion if utility inefficiencies, underpricing and poor execution of budget is addressed. However, this would still leave a financing gap estimated at USD 20.93 billion annually. A study by the World Bank estimates the funding gap at USD 23 billion that should be invested in the electricity sector yearly (Foster *et al.*, 2010).

However, financing renewable energy faces many obstacles which impede energy availability. These obstacles may include; the cost of capital, unfavorable interest rates and challenges pertaining to access to capital. Investors tend to be overly cautious when financing renewable energy projects due to this risks associated with the investments (Wang and Chen 2010; Delina, 2011). Finance is very crucial in ensuring the availability and access of energy.

Many countries have the challenge of constrained budgets that prevent them from fully meeting their infrastructural needs hence a financing gap. Consequently, many economies opt for the off-balance sheet mode of financing which relies on the private sector for financing (Alinaitwe and Ayesiga, 2013). This results into a contractual initiative involving the public and private

investors seeking to offer an agreed public service. Public private partnership agreements for infrastructure development have the capacity to fill the gap between the costs of investment needed and the available resources in order to ensure that infrastructure is delivered cost effectively (Saussier, 2013). In this respect PPP is regarded as a long term contract between a public authority and a private partner (Araujo and Sutherland, 2010)

Many governments perceive PPPs as both a win win strategy for infrastructural investment needs. This view is supported by a number of rationales; first, public private partnerships are seen to create budgetary space without compromising government's financial position. Again, it is assumed that the fiscal space obtained via public private partnerships is a boost to medium-term growth and thereby generate fiscal revenue in the long run. Thirdly, is the issue of risk transfer, public private partnerships is viewed to enable transferring of risk to the private investor thereby reducing risk exposure. Lastly, the private sector is perceived to be more accountable and transparent hence minimal corruption which facilitate prudence in the management of public funds (Robinson, Garrillo, Anumba and Patel, 2010).

The modern Public Private Partnership model for providing public services and infrastructural service is traced to the United Kingdom 1992. This was however in the context of Private Finance initiative (PFI). This is the preferred model of procuring public infrastructure in the United Kingdom, it accounts for about 10-14% of total annual public service investment (Cheung, Chan and Kajewski, 2012). There are other countries within Europe with longer experience in public private partnerships that date back 19th century. A notable example is the urban development projects in the second half of the 20th century in Germany in the 1980s, The Australian road network that was procured through PPP model precedes the German project (McQuaid, 2008). Currently within the European Union there are over 27 PPP railway projects. The development of Public Private Partnership in Malaysia started with incorporation programmes (Economic Planning Unit, 1981).This was then followed by the privatization programme (Economic Planning Unit, 2006).Through the Economic Planning Unit the Malaysian government aims at augmenting participation in government projects by the private sector. The unveiling of the Private Finance Initiative programme greatly helped the Malaysian government in ensuring partnership between the government and the private sector (Economic Planning Unit, 2006).There has since been a continuous effort in promotion of private sector participation as revealed by the Tenth Malaysia Plan, more development projects are Public Private Partnership projects (Economic Planning Unit, 2010).

According to AfDB (2017) the distribution of the Banks Public Private Partnership share by sector indicated an increment in public private partnership power projects by both volume and number. During the ten-year period of 2006-2016, the Bank approved 20 public private partnership projects. This was 63% of what the AfDB committed to public private partnership over the period. The number of PPP projects is steadily growing in Africa since 1990(Kaberuka, 2011). More than 20 PPP projects were approved by the bank in the power sector between 2006-2016.In Nigeria, the Federal government created an Infrastructure Concession and Regulatory Commission to promote infrastructure through Public Private Partnerships (Dada and Oladokun, 2008). Nigeria faces an infrastructural financing need of more than US$ 19 trillion to provide the much required infrastructure (Olaniyan, 2013). Joint ventures between the public and private sectors is critical in ensuring the filling of infrastructure financing gap inherent in most developing countries. Public Private Partnership is therefore a crucial model for abridging of the financing gap for infrastructure.

Ghana has undertaken a commitment to upscale the penetration of renewable energy by 10% by the year 2030.This is through wind, solar, small-medium hydro power and distributed generation. It also seeks to increase energy efficiency in power plants by up to 20%.It will need almost 3,500 USD million by the year 2030. This will enable her ensure increased and ensure rural access of electricity besides enabling a significant contribution to realization of energy security. Bigger participation of the private sector in Africa is considered a very important leverage for economic growth hence widely beneficial. Ghana is not an exception, in fact it has made effort to attract private investors. Today a total investment of 3,289 USD million has been spent in Public Private Partnership energy projects, most of which are renewable energy (Alloisio, 2016).

Ethiopia like most African countries face energy crisis, this is largely due to her over reliance on hydrological source of energy which is prone to climate change. There is therefore a need for her to invest in more robust sources of energy that ensures reliability and resilience to climatic condition. As a consequence the government of Ethiopia has planned to enhance her power generation from 4,180 MW in 2014/15 to 17,000 MW from renewable sources; 5200MW is expected to come from Independent Power Production modalities. Ethiopia relies on the wind auction strategy to encourage private sector participation. Renewable energy auctions guarantee payment of specific amounts for energy which is generated. This promotes Public private partnership as model of financing renewable energy initiatives in essence realizing energy security (Toke, 2015).

In Uganda, the initiation and implementation of The Bujagali power Project is a good example PPP renewable energy project. Bujagali is a The 250 MW hydroelectric power project financed through the public private partnership. The first independent power project in Uganda, Bujagali power project realised its financial closing in 2007 and was commissioned in the year 2011.It is the largest and successful mobilization of private sector financing for power project in Africa. This success has been attributed to a clear power structure and competitive tendering programme (The Republic of Uganda Electricity Act, 1999).

1.1.2 Performance of Public Private Partnership Renewable Energy Projects

Establishment of PPP initiatives is inspired by three elements which are; to entice private investors; to ensure efficient and effective exploitation of accessible resources in delivery of public projects and to exploit advanced technological innovation in the attainment of sectorial reforms by reallocating roles, incentives and accountability (Asian Development Bank, 2010).PPP is typically a contract involving a public authority and a private investor over a prolonged period of time. During the contract, the private partners seek to provide a public service while assuming a substantial amount of risks in the project in exchange for a return on investment. Introduction of the Public Private Partnership (PPPs) is regarded a more innovative approach for improved effectiveness in terms of increased value for money; improved service access; reliability; timely delivery; transparency and accountability of public money.

1.1.3 Risk Factors

These factors refer to elements and changes which can affect the value of renewable energy projects thereby discouraging Public Private Partnerships. They may include politics, policy, macroeconomic environment, social acceptance and market forces. More elaborate description of risk factors has been presented in the following subsequent sub-themes:

1.1.3.1 Political Risks

These include; expropriation risk, contract breach, civil disturbances, political conflicts and graft. Political risks have a profound influence on financing of Public Private Partnership projects. Financial institutions and foreign investors seriously consider political risks before opting to finance a project, as the case renewable energy projects. Political risk often obstructs the implementation of very good and promising projects with great potential to alleviate energy poverty (Baldwin, 2006). A country with a higher likelihood of political upheaval tend to be looked down upon by foreign direct investors this is because a volatile political environment may likely result to loss in investment. Political risks like nationalization or expropriation of

foreign assets, breach of contract are the greatest threats to foreign investment (Jensen, 2008). Unpredictable policies and chance regulation in foreign direct investment line policies tends to create a lot of uncertainty and this hurts investment. Political violence, this may include acts of terrorism which can result into damaging of foreign assets discourage investors and productivity in the project hosting country (MIGA, 2010). Political risks therefore complicate the investment environment making it hard to find private partners; it also exacerbates the cost of financing making it difficult even for interested investors to secure financing for their projects. This is an affront to the development of public private partnership renewable energy projects.

1.1.3.2 Policy Risks

These are risks pertaining to how policy pertaining to renewable energy investments are enforced by the government (UN-Energy/Africa, 2011). Policies are very important in reassuring investors on the fate of their investment, a stable policy framework is therefore very crucial in attracting foreign investment. To increase confidence among the private investors government policies must be based on commitment hence stable, reliable and predictable, this would enhance investor confidence, (Ecofys, 2008).Mitigating risk is much better than raising the level of compensation when it comes to investment decision making (Langniss, 1999). Many authors have explicated the positive function of feed-in policy in improving renewable energy investments by lowering the associated risks. The positive effect of feed in tariff has improved financing by minimizing the risk associated with investment decisions (Hvelplund, 2005). Regulatory risks have a strong influence in electricity distribution business (Strausz, 2009).This risk arises from regulatory practices implemented by the host country. Investors and financing institutions are very concerned by the present regulatory practices of the project host country; this may impact on the performance of public private partnerships (Parker, 2003).

1.1.3.3 Macroeconomic Risks

These are exogenous factors capable of creating great influence over organization. These factors are both at national and international level (Nelson, 2015). They include inflation, unemployment, tax rates, level of disposable income and foreign direct investment (Hussain and Kimuli, 2012). Investor's financial performance is affected by macro-economic factors such as rate of inflation, rate of exchange, interest rate (Mokhova and Zinecker, 2014). According to Vijayakumar, Sridharan and Rao (2010) and Hussain and Kimuli (2012), high and growing GDP indicates current and future market potential demonstrating future attractiveness as a market. Thus, investors seek countries with high and growing GDP for

current and potential future markets in the countries. When interest rate is high during the time the loan is borrowed, lending rates becomes high hence increasing cost of projects and may increase the payback period (Nelson (2015).

1.1.3.4 Social Acceptance Risks

These are risks that involve community involvement and ownership in renewable energy projects. Involving the community, ensuring their participation and project ownership are very crucial success of renewable energy projects. Community participation and ownership are critical to success of renewable energy projects. Studies show that community participation and involvement tend to be ignored during implementation of renewable energy projects spearheaded by the government. This often results to controversy because the projects fail to fit together with what community values, circumstances and expectations (Fielmua, 2011; Rambo, 2013).When communities fail to appreciate a renewable energy project there is a likelihood that non-governmental action groups or political leaders may take advantage and whip up resistance against a particular renewable energy project. This can compromise the security of the entire projects, including for the project implementers (Dengerink, 2011).Social acceptance risks exposes both the investors and financing institutions to possibility of loss in their investment, it may result to revenue risk which may result to credit risks when the project fails to realize the envisaged output. Social risks can prompt investors and financial institutions to withhold their financing plans; this can impact negatively on financing of renewable energy projects.

1.1.3.5 Market Risks

This is the possibility that a renewable energy public private partnership investment is going to experience losses (Dinica, 2008). Market risks in power sector can be contributed to by factors such as fossil fuel subsidies, price volatility, monopoly, and demand and revenue risk among other factors. Financing institutions are very keen on potential for exposure to market risks which is often determined by interest rate changes, inflations and foreign exchange fluctuations. For example there is domination by government parastatals in the energy markets in most countries, these monopolies tend to be very inflexible deterring private investors penetration of energy market (UNEP, 2012).Government involvement in the energy market results to a lot of political influence, more so in pricing, resulting to a lot of market uncertainties. Private investors are therefore likely to be exposed to cash flow problems and a very unfriendly environment for privately financing of renewable energy projects.

1.1.4 Contract Management

Contract management entails the actions undertaken in the entire duration of the contract that looks into that all contracting parties meet their contractual obligation(Bailey and Francis, 2008).It entails systematic and efficient contract management during creation, execution and analysis with an aim to maximize operational and financial performance with minimal risks(Elsey,2007). Contract management includes inviting bids, evaluation of bids, awarding contracts, implementation of contracts and dealing with contract related matters which includes change management. All these aim at achieving the contractual objectives and making sure all parties meet their obligation and others expectation (Kakwezi, 2012).

According to the Aberdeen Group (2005) managing a contract involves systematically and efficiently executing, analyzing a contract with the view to offer services that are specified in the output specifications and ensuring value for money.

Contract management therefore ensures that all contractual parties fulfill their respective obligations so as to deliver the set of objectives expected of Public Private Partnership contract. For contract management to succeed there must be a harmonious relationship between the partners in the contract for the entire duration of the contract. Anticipation of the future needs as well as prudent handling of unforeseen circumstance ensures contract success. Public Private Partnership contract management aims at ensuring consistent improvement over the life of the contract. Proper contract management requires proper budgeting which factors in the scope, quality, schedule resources and risks.

1.1.5 Renewable Energy Projects in Kenya

According to international Energy Agency, Kenyan population is approximated at 44.35 million with a GDP of about $ 28.05 billion (IEA, 2015). Kenya energy consumption is estimated at about 17.59 million tons of oil which is comparable to about 7.33 terawatt hours of electricity consumption. The government of Kenya made a pledge to reduce to below 30% the amount of greenhouse gases it produces by year 2030. A target that government plans to meet by investing into renewable energy projects by mainly increasing harnessing of solar energy and geothermal energy (Bounagui, 2015). Kenya has enjoyed a consistent increase in access to electricity by her population, for example in 1990 the estimated number of people accessing electricity was estimated at 11% of population this increased to 15% in 2000 then to 23% in 2010. The electricity generation in Kenya depends to a large extent on hydrological sources, fossil fuel geothermal and of late wind generation. Geothermal sources however

became the largest source from 2015 based on world bank data, geothermal energy accounts for 51% translating to a capacity of 280 megawatts in 2015(World Bank, 2015).

The electricity sector still encounters a host of challenges which includes low access rate, high frequency of outages and lack of capacity to meet the already high demand, this particularly during drought when volumes of rivers decline and also poor revenue collection resulting to losses (Mutua *et al.,* 2012; Economic Consulting Associates, 2012). The installed capacity as at 2011 was estimated at 40 watts per capita by standards much lower than South Africa's 800 W per capita (Economic Consulting Associates, 2012). For Kenya to satisfy her electricity demand then there is need to improve capacity of production by 5,000 MW by 2016 and by 23,000 MW by 2030(IPCC report, 2012).

The government appreciate that financing is a big hindrance to harnessing of renewable energy sources available in Kenya (Ministry of Energy and Petroleum, 2014). Kenya has a high potential of geothermal energy, estimated at approximately 10,000 MW (Ministry of Energy and Petroleum, 2014). However, Kenya faces several challenges in its exploitation like: financial constraints, risks in resource exploration and development, social conflicts owing to land use, inadequate expertise, and high investment in infrastructure due to long distances from geothermal sites to existing load centers (Ministry of Energy and Petroleum, 2014). The capital intensive nature of these projects necessitates that Kenya has to look beyond her border in sourcing for private partners due to lack of local capacity (UN-Energy/Africa, 2011).This needs policies that encourage resource assessment, development, and capacity building have been considered as part of the government's policy agenda (Republic of Kenya ,2011).

The Kenyan public administration is accordingly striving to achieve a stable business atmosphere that motivates private finance initiative. It additionally looks for an extended transmission and circulation systems to convey energy to the purchasers, keeping up its honesty as a credit commendable off-taker, keeping up cost-intelligent levies and furthermore diminishing wastefulness in the segment to help more moderate end-client duties (Power Africa, 2015).

Despite creation of an enabling environment for the private participation some challenges owing to typical risks of investment are still inherent. Foreign investors are conscious to the risk challenges especially market risk and investments risks. UNEP (2012) recommends that risks must be identified and mitigated as a precursor to project financing. Private individuals or institutions more often than not keenly assess the risk factors and analyze their risk profile

when they request for funding. Kenyan renewable energy sector is anchored on a political initiative, the feed-in tariff; to investors this creates uncertainty due to possibility of legislative change (Pegels, 2009). Failure of renewable energy project leads to reputational risks which worsen the already bad risk profiles, failures may be attributed to poor legal and policy backing (Pegels, 2009).Analysis of a country's risk profile is therefore very important for private entities willing to get into public private partnerships (Pegels, 2009; UNEP, 2012).This acts as an elimination factor during financial decision-making process, it entails a comprehensive assessment of political, legal and economic environment of the project before financing of a project.

1.1.6 Public Private Partnership energy projects in Kenya

Kenyan government accepts the fact that growth and development of a country depends to a large extent on modern infrastructure, particularly power. It also acknowledges a substantive between gap between the resources that are available for public investments and the public infrastructural need. The infrastructure funding gap in Kenya is currently approximated at 2-3 billion USD per year in order to address the infrastructural requirements over the next 10 years. This calls for more innovative approaches in funding of the national development. One of the best way to plug this development gap is to bring in the capital and expertise from the private sector. It is because of this that the Kenyan government considers private sector development as a key feature of her national development plan.

Public private partnerships is an important contributor to infrastructural development in very affordable and sustainable ways. Public Private Partnerships also contribute to relieving budgetary constraints hence allowing the government to diversify balance development agenda. The government seeks achieve a well-organized and effective development through Public Private Partnerships, it is in this regard the government developed the PPP Act No.15 of 2013(Government of Kenya, 2013). The government promotes Public Private Partnership as long term development programme. Due to this, the PPP Act 2013 contemplates meticulous planning and programming in a manner that ensures systematic efficiencies through selection and prioritization. Projects that have been identified are constituted into PPP pipeline of projects which would still be subjected to approval by the Public Private Partnership Committee once the approval has been done the list is then published in both electronic and print media with the view to inform investors about the opportunity for a renewable energy Public Private Partnerships (Ministry of Energy and Petroleum, 2016).

Turkana Wind Power project is a land mark PPP renewable undertaken by a consortium which consisted of Wind Power A.S. (Vestas), Industrial Fund for Developing Countries (IFU), Norwegian Investment Fund for Developing Countries (Norfund), Finnish Fund for Industrial Cooperation Ltd (Finnfund), KP&P Africa B.V. and Aldwych International as co-developers.

Lake Turkana Wind Project is entirely responsible for the financing, construction and operation of the wind farm. Kenya Power and Lighting Company has committed to buy the power produced by the project at a fixed price over a duration of 20 years as per signed power purchase agreement.

Lake Turkana Wind Power project is solely responsible for the financing, construction and operation of the wind farm. The power produced will be bought at a fixed price by Kenya Power (KPLC) over a 20-year period in accordance with the signed Power Purchase Agreement (PPA). This project was mainly funded by foreign investors with the African Development Bank providing the largest amount of senior debt. The dominance by direct foreign investors is mainly attributed to the unwillingness of many banks to invest in the project due to their risk averse. This project brought to the fore the importance of guarantees in securing project financing. This project also highlights the crucial place of foreign direct investment in financing of infrastructural development (The Lake Turkana Wind Power project, 2015).

1.1.7 Kenya Electricity Generation Company (KENGEN)

Kenya Electricity Generating Company is a major player in generation of electricity in Kenya. With an approximated installed capacity of 1,632 megawatts, Kengen accounts for about three quarters of installed capacity in the country. These are from a variety of sources which include wind, thermal hydropower and geothermal. The company acknowledges energy as a key enabler of vision 2030 which seeks to transform Kenya from its current status to middle income economic status come 2030. Main development projects envisaged in the vision 2030 will inevitably lead to an increase in energy demand. Kengen has consequently developed a power output expansion plan to enable a more robust renewable energy sector which can create a reserve margin and cushion against risks from non- renewable sources and hydroelectric and also to guarantee supply to African government initiative with least cost relying on geothermal. Geothermal potential in Kenya is considered significant and reliable in mitigating the present and future power demand. It is approximated at about 10,000 MWe prospectively in the Kenya Rift region. The government consequently is right to have geothermal as the biggest contributor to the grid by year 2031. KenGen for instance has planned to produce 2500MWe by 2025

mostly from geothermal sources, this is guided buy vision 2030. Geothermal energy is considered as reliable, indigenous, clean, green, renewable and base load source of energy (Rotich, 2016).

1.2 Statement of the problem

More willingness and effective policy are needed to ensure more than 50% of the African population get electricity by 2030; this will also ensure lower dependence on traditional fuels that are detrimental to the environment (UN-Energy/Africa, 2011). In Kenya the electricity consumption is forecast to grow at an annual growth rate of 7.3%, this call for addition of about 250MW every year to serve the growing peak load. The Kenyan Vision 2030 seeks to completely change her status to an industrializing middle income economy. Many developing countries lack adequate resource base hence ability to initiate large scale energy infrastructure projects (UN-Energy/Africa, 2011). Renewable energy projects requires huge initial capital outlay that is way beyond the affordability of most developing countries whose budgetary provisions are already constrained. Kenya for instance requires approximately Ksh 236 billion per year to meet her current and future energy need (power Africa, 2017).This necessitates her to look beyond her borders for development agencies as well as foreign investors. Public Private Partnerships have provided an opportunity for countries not only to reduce the burden created by constraint in the public budgets but also to contribute to more development (Ménard, 2012). Developing countries are therefore prime candidates for public private partnerships owing to their limitations in available finances and their huge demand for infrastructure (Akitoby, Hemming and Schwatz, 2007).

Currently Kenya has approximate generation capacity of 2150 MW that serves more than 43 million, this constraints growth of the economy as it does not meet demand. Ironically, Kenya is approximately having geothermal energy potential in excess of 7000MW that is yet to be tapped in the Rift valley region. Kenya also seeks to minimize dependence on costly generation fueled by diesel and other expensive crude resources (power Africa, 2017). Kenya strives to enhance her generation capability to 23000MW by 2030. This calls for a sustained reliable investment environment to enable private participation of the private sector on the energy sector. Geothermal energy is ranked best in terms of generation costs for base load power production (with high capacity factors) in the Development of a Power Generation and Transmission Master Plan for the years 2015-2035(Energy and Petroleum Regulation Authority, 2018).

To bridge this gap in financing of energy projects, inclusion of the private sector in a necessary condition. By tapping private financial resources the government unlocks investment potential of both the public and the private sector. This informs why public private partnership is a key feature of the vision 2030 strategy. This has occasioned enactment of laws on public private partnerships to provide a legal frame work through which a structured and methodological utilization of PPP model can be realized in development. This highlights the desire of the government to innovatively respond to her budgetary constraints in relation to financing of renewable energy sources and to meet the power demands of the economy.

Risks can alter investments, more so risks for investments through public private partnerships. Previous studies have shown that indeed risks is a variable that has influence on leverage decisions and on the implementation of Public Private Partnership projects by investors (Sachs ,Tiong and Wang ,2007).

Another study by Sachs and Tiong (2009) concluded that developing countries globally are more associated with higher levels of investment risks making it necessary for studies on the management of risks. Risk factors therefore presents the biggest impediments to financing of renewable energy projects in several developing countries profiled as high risk. This is even pertinent to capital intensive energy projects .Energy projects are predisposed to risks that affects their performance, profitability and thereby making them difficult to finance (Thillairajan and Behera, 2016). Lenders tend to scale down debt in relation to assessed risk profile while on the other hand investors go for bigger debt so as to minimize capital input in order to achieve a greater return on equity and lower risk on their side. Researchers have studied risk factors in relation to some factors of private finance plan like risk allocation and contract duration in public private partnership(Jin, 2010; Zhang, 2005). There is little effort by researches to explicate the link between risk factors and performance of public private partnerships.

Kenya just like many developing countries is considered a high risk investment destination owing to poor risk profile classification. Risks such as, political risks, policy risks, macroeconomic risks, social acceptance risks and market risks are inherent in developing countries. Investors and financial institutions rely on risk profile analysis to filter financing decisions which involves broadly assessing the political, legal and macroeconomic landscape (UNEP, 2012).It is in relation to this foregoing background that the current study aims at studying the risk factors and performance of PPP renewable energy projects in Kenya.

1.3 Purpose of the Study

The purpose of this study was to establish the extent to which risk factors influence performance of public private partnership renewable energy projects in Kenya. The study also sought to determine how contract management moderates the relationship between the risk factors and performance of PPP renewable energy projects.

1.4 Objectives of the Study

The study was guided by the following objectives;

i. To establish how political risks influences performance of public private partnership renewable energy projects in Kenya.
ii. To establish the extent to which policy risks influences performance of public private partnership renewable energy projects in Kenya.
iii. To assess the extent to which macro-economic risks influences performance of public private partnership renewable energy projects in Kenya.
iv. To assess how social acceptance risks influences performance of public private partnership renewable energy projects in Kenya.
v. To determine the extent to which market risks influences performance of public private partnership renewable energy projects in Kenya.
vi. To examine how combined risk factors influences performance of public private partnership renewable energy projects in Kenya.
vii. To determine the moderating influence of contract management on the relationship between risk factors and performance of public private partnership renewable energy projects in Kenya.

1.5 Research Questions

The study sought and answered the following research questions;

i. How do political risks influence performance of Public-Private Partnership renewable energy projects in Kenya?
ii. To what extent does the Policy risk influence performance of Public-Private Partnership renewable energy projects in Kenya?
iii. To what extent does macro-economic risk influence performance of Public-Private Partnership renewable energy projects in Kenya?

iv. How do social acceptance risks influence performance of Public-Private Partnership renewable energy projects in Kenya?

v. To what extent do market risks influence performance of Public-Private Partnership renewable energy projects in Kenya?

vi. How do combined risk factors influence performance of Public-Private Partnership renewable energy projects in Kenya?

vii. What is the moderating influence of contract management on the relationship between risk factors and Public-Private Partnership renewable energy projects in Kenya?

1.6 Research Hypotheses

The study tested the following hypothesis:

i. **H0:** There is no significant relationship between political risks and performance of Public-Private Partnership renewable energy projects in Kenya.

H1: There is a significant relationship between political risks and performance of Public-Private Partnership renewable energy projects in Kenya.

ii. **H0:** There is no significant relationship between policy risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

H1: There is significant relationship between policy risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

iii. **H0:** There is no significant relationship between macro-economic risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

H1: There is significant relationship between macro-economic risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

iv. **H0:** There is no significant relationship between social acceptance risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

H1: There is significant relationship between social acceptance risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

v. **H0:** There is no significant relationship between market risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

H1: There is significant relationship between market risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

vi. **H0:** There is no significant relationship between combined risk factors and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

H1: There is significant relationship between combined risk factors and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

vii. **H0:** There is no significant moderating influence of contract management on the relationship between risk factors and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

H1: There is significant moderating influence of contract management on the relationship between risk factors and performance of Public-Private Partnership renewable energy projects in Kenya.

1.7 Significance of the Study

The study hopes to benefit financiers of renewable energy projects. Development of energy addresses the perennial problem of energy access, energy reliability, economic growth and development. By analyzing the risk factors and performance of public private partnerships renewable energy projects, this study provides the private financiers and the government with requisite information needed to engage in Public Private Partnerships for sustainable financing. This study further provides avenue for increased participation.

It is also hoped that this study will contribute more knowledge in the field of project management more so regarding project financing. The findings may provide new insights into the financing of renewable energy projects through public private partnerships. This knowledge may be useful to the government in responding to the private partnerships needs and requirement. This could enable provision of needed development resources like power to the industry sector.

1.8 Delimitations of the Study

The study delimited itself to investigating risk factors and performance of Public Private Partnership renewable energy projects under public private partnership arrangements in Kenya. It further narrowed to; political risks, stakeholder involvement risks, currency risks and policy risks. In spite of the presence of other key players and primary stakeholders in the renewable energy development in the power industry in Kenya, this study drew sample only from the employees of the Kenya Electricity Generation Company (Kengen). The study chose to confine itself to Kengen due to its extensive dealing in renewable energy projects, especially through Public Private Partnerships. Geothermal was of interest in this study since it is the most promising among renewable energy sources and has proven reliability, cleanliness and safety.

Geothermal is touted as the most promising source of renewable energy in Kenya. The country has vast potential of geothermal energy in the rift valley, KENGEN approximates a potential of more than 10GW in the country. Besides, geothermal technology has the lowest unit cost compared to other renewable energy sources.

1.9 Limitations of the Study

The study encountered the following limitations; there was limitation in terms of time which limited the study to strictly renewable energy projects undertaken by Kengen. Appropriate sampling techniques enabled the study to ensure representativeness remedied this limitation. Sampling further enabled the study to overcome limitation from time and financial resources occasioned by limited time and money given the study was self-sponsored. This enabled the researcher to align the study with the recommended time and financial resources. The study also encountered a limited precedence that could be used to compare the moderating influence of contract management on the relationship between risk factors and performance public private partnership renewable energy projects.

1.10 Basic assumptions of the Study

This study assumed that there was influence of risk factors on the performance of public private partnerships, and that these influence could be measured based on empirical evidence. The study further assumed that all the respondents gave their honest views on risk factors and performance of Public Private Partnerships. The current study was based on statistical assumptions of normality, homoscedasticity, interval data, linearity and independence of residuals. These are the assumptions that facilitated parametric analysis of the collected data. The study performed tests such as Shapiro Wilk tests and Levenes test, as well as relied on Q-Q plots to check these statistical assumptions. The study was also guide by the assumption of p-value, that the probability of obtaining an outcome equal to or exceeding that which was actually observed (Goodman, 1999). Based on P-value, the study was only limited to reporting only whether or not the results were statistically significant and acting in line with the verdict. The study therefore assumes that proper inferences have been drawn from the study. The study was assumed to constitute an interval measurement; this is contrary due to the fact that likert-type data is theoretically presumed ordinal. Due to the multiple nature of the research objectives, the likert responses were summed up resulting to interval data. When likert scales comprising of sums across several items are summed up they are usually considered interval (Carifio and Perla, 2008**).**The study also assumed the following; that the questionnaires measured the desired constructs. This research was also based the assumption that risk factors

influence performance of public private partnership renewable energy projects. The study also assumed that KENGEN staffs are participants in public private partnership renewable energy projects.

1.11 Definitions of Significant Terms Used in the Study.

Performance of Public Private Partnership Renewable Energy Projects-This is the achievements of public private partnerships as shown through; number of projects financed by public private partnership , number of projects seeking public private partnership , increment of long-term public private partnership contracts, number of power purchase agreements, number of approved or viable PPP projects, , public private partnership projects completed within time and budget, number public private partnership projects completed with customer satisfaction and number of public private partnership projects completed within quality standards.

Risk Factors- macro economic situation that may influence financing of public private partnership renewable energy projects. This includes factors such as political risks, policy risks, currency risks, social acceptance risks and market risks

Renewable Energy- any form of energy that can be replenished by natural processes. These may include energy sources from, wind, solar, geothermal, tidal waves and hydro sources among others.

Political Risks-political changes or instability that may impact on the performance of Public Private Partnership projects, hence rate of return to investors. This risk factor includes political instability, breach of contract, corruption, political support and expropriation

Policy Risks- risk of change in policies and regulation that might affect the performance of PPP projects. Can be established through sudden policy changes, taxation, removal of feed in tariffs, changes in import tariffs and level of commitment

Macroeconomic Risks – These are exogenous economic factors which influence the volatility over time of PPP projects. They are likely to impact on the performance projects. These are risks pertaining to inflation, interest rate, foreign exchange, and debt and development expenditure.

Social Acceptance Risks-this is risk of project being rejected by the hosing community .Arises from lack of awareness and resistance to renewable energy project in the general public.

Socioeconomic position, level of awareness of project, community participation, environmental pollution and compensation

Market Risks- refer to possibility of losses due to factors that affect market prices. This risk relates to sales of power, the price at which power is sold and the availability of power relative to demand, the power purchased should be able to cover projects costs and ensure reasonable return on investment. This will be determined by; price volatility, off-taker default, and demand, monopoly and government subsidies.

Contract Management-this is the process of ensuring that all the partners to the contract fulfill and achieve the expectations of the public private partnership contract. This is ensured through; contract planning, contract characteristics, contract change management, contract monitoring and Contract administration.

1.12 Organization of the Study

The study was arranged into five chapters: The first chapter comprised of the background of the study, thematically outlining each section into; problem statement, purpose of the study, objectives of the study, research questions and research hypothesis. It describes the significance of the study, delimitations of the study, limitations of the study, and assumptions of the study, significant terms have also been defined in this chapter and the how the study has been organized.

Chapter Two entails review of literature on risk factors and performance of public private partnerships renewable energy projects, the concept of risk factors and how independent variables namely political risks, policy risks, currency risks, social acceptance risks and market risks influence financing of public private partnerships renewable energy projects. It also consist of a review of literature on the moderating variable namely, contract management. Finally it presents the theoretical and conceptual framework and provides literature review in summary and knowledge gaps.

Chapter Three presents the paradigms of the research, design of the study, population that was targeted and sample size and procedure used in sampling. It reviews the research instrument and describes how the research instruments were piloted and validity and reliability determined. It also outlined the data collection procedure that was used, data analysis techniques and ends with the study ethics that were considered in the study and operationalization of variables.

The fourth chapter presents the analysis of research data, interpretation and discussion under the following themes; political risks and performance of public private partnership renewable energy projects, policy risks and performance of public private partnership renewable energy projects, macro-economic risks and performance of public private partnership , social acceptance risk and performance of public private partnership renewable energy projects, market risks and performance public private partnership renewable energy projects and then contract management and performance of Public Private Partnerships renewable energy projects. It also discusses the questionnaire return rate and test for multicollinearity and analysis of Likert type data. It presents a profile of the respondents in terms of their age, position in the company and the duration of service in the company.

Finally, the fifth chapter covered the summary of findings, conclusions of the study, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Chapter two covers review of literature related to the study, it begins by discussing the performance of PPP renewable energy projects, the concept of risk factors, political risks and performance of public private partnership renewable energy projects ,policy risks and performance of public private partnership renewable energy projects, macro-economic risks and performance of public private partnership , social acceptance risk and performance of public private partnership renewable energy projects, market risks and performance public private partnership renewable energy projects and then contract management and performance of Public Private Partnerships renewable energy projects. This was followed by theoretical framework, conceptual framework, summary of literature and knowledge gaps.

2.2 Performance of Public Private Partnership Renewable Energy Projects

The success and performance of project under public private partnership can be measured based on projects achievements such as, getting the projected outcomes, achieving the milestone, recognition, enabling the process to work and individual pride(Hodge and Greve,2011).The evidence pertaining to public private partnership performance is mixed, the assumed success may be hypothetical (Pollitt,2005).Some authors have publicly listed failed projects and shown that the value for money techniques used in appraising of PPP are based on insufficient data(Macdonald, 2002; Pollitt, 2002; Allen Consulting Group, 2007 and Mehra ,2005).

Performance of public private partnerships can also be assessed through other models like value for money (Cheung, Chan and Kayewski, 2009). This entails other dimensions such as quality, cost and time. Success of a project can also depend on the level of commitment among the partners, the nature of the PPP project, communication and level of trust. A study by Chan *et al* (2010) established that there are 18 factors affecting the adoption of Public Private Partnerships in the People's Republic of China, the factors are considered as critical to the success of PPP. They have grouped them into five clusters which include-mutual responsibility, reliable political and social environment, favorable macroeconomic environment, proper government control and transparent and efficient procurement process.

Similarly a study by Ismail and Ajija (2013) established that good governance, mutual commitment, supportive legal framework, favorable economic policies and suitable financial market are some of the most crucial factors in the adoption of PPP in Malaysia. These findings

were based on a questionnaire based analysis of 18 factors that contribute to the adoption of PPPs in Malaysia before finally undertaking a comparative analysis of most important critical success in Malaysia with those of Hong Kong, United Kingdom and Australia.

Analysis Public Private Partnership's success can be founded on changes in gross domestic product (GDP) in comparison to changes in the stock market (Jackson *et al.,* 1995). This can further be based on macro-economic analyses when used to measure improvements in productivity as a result of an infrastructural investment, as an indication of the performance of the economy. Macroeconomic indicators of success are based on factors like level of house hold income, consumption of goods and services, employment opportunities and competition based on the level of input and output in the economy realized over a period of time (OECD, 2001).Despite the robustness of macroeconomic indicators, macro-economic analysis of PPP performance comes with some setbacks in terms of the interpretations of data and establishment of causal links between infrastructure investments and increment in productivity. In retrospect productivity is a subsidiary of economic benefits which is not wholly related to macro-economic analyses and measurement (OECD, 2010).In short the economic effect of the investments may not be entirely realized through macroeconomic analyses, this may necessitate additional analyses to capture broader effects.

There are no major statistical reviews of PPP performance due to the complex nature of evaluating infrastructure arrangements (Hodge and Greve, 2005).The absence of a reliable benchmark by which Public Private Partnership performance can be measured has left the decision to subjective criteria of assessing the performance of PPPs. The most crucial element in the evaluation of Public Private Partnership performance is the stated objectives and government policies being implemented for the betterment of the society. Hodge (2004) observe that the outcome of the perspectives of legal contract, government policy or historical outputs to highlight partnership success are varied and that very weak evidence emerge from policy perspective while the strongest evidence emerge at historical outcome level.

The success of Public Private Partnership depends on private partners effectiveness and innovative skills (Grimsey and Lewis,2004).Several capabilities of both the sectors key to performance of projects under public private partnership include the size of the project and the projected service volumes which ensures adequate revenue streams and the project financial viability (Liu and Wilkinson 2011).The performance could also be dependent on project monitoring and introducing performance indicators with a view to eliminating opportunism.

Financing is critical to the success renewable energy projects procured through the public private partnership model. Dada and Oladokun (2008) undertook a perceptual survey in Nigeria for the factors that were critical in ensuring public private partnership projects success. They found that sound project financing is a critical success factor. A sound financing strategy creates a recourse basis for the lenders since project financiers only look up to the project revenue streams and project assets. A study by (Nikolic *et al.,* 2011), concluded that project financing comes through as a result of the consideration of all possible risks in the entire life cycle of a project. Project sponsors and developers look up to risk management instead of capital constraint when choosing to finance a particular project (Pollio, 1998). Kleimier and Versteeg (2010) in their conclusion questioned the fidelity of lending structures for renewable energy projects. This implies that in order for financing reliability to be achieves through promotion of renewable energy projects then there is need for consideration of more innovative and effective models of financing (James 2012).

Several dimensions have been relied on in assessing the performance of Public Private Partnerships. The most important dimension relied on is by evaluating the value for money(Cheung *et al.,* 2009 and Nisar, 2007).Public Private Partnership performance can also be measured through the dimension of Earned Value Management (EVM) technique. This technique combines the dimensions of time, cost and scope performance (Schwalbe, 2006).By relying on a baseline of cost performance compared against the actual information enables the project team to establish how well the project is doing in terms of scope, time and cost goals (Schwalbe, 2006). Public private partnership projects must achieve gains in terms of efficiency and in the transfer of risk (Nisar, 2007).

A study of construction projects under PPP model in the United Kingdom revealed that that most of the Private Finance Initiative projects were completed without cost and tine overrun. It was not possible to establish whether similar or different results could have been achieved by adopting alternative procurement models. The researchers acknowledged that it was difficult to compare the cost and quality before and after the Private Finance Initiative implementation of these projects (Nisar, 2007). A research on actions that improve the Value For Money for that most of the Private Finance Initiative based on risk allocation, tendering, management skills, out-put based specifications and private sector technical innovativeness observed that the focus should be on risks and integrated management (Ke *et al*.,2011 and Fischer *et al.,* 2010).

Anyika and Gongera (2014) evaluated Public Private Partnership performance strategies based on the Rift valley railway concession. The study used Johnson and Scholes (1993) to evaluate the strategy based on suitability, acceptability and feasibility of the project. Their evaluation factored in on risk allocation, soundness of finance, strength of the consortium and technology. They employed a descriptive research design with a 76% response rate of the purposively sampled population of 17 managers. After ranking the mean of the strategies the study achieved the following order; Strong Consortium Strategy followed by Sound Finance Strategy then Risk Allocation Strategy and finally Technology Strategy. The reliability test score of the research instruments was at Cronbach's Alpha 0.875 implying a high level of consistency thereby deemed reliable. These findings underscore the centrality of financing and managing risks in Public Private Partnership projects. However, the generalizability of these findings is doubtable owing to small sample size of 17.This study also did not test the hypothesis.

A study of the Public Private Partnership based on energy sector employed transactional theory in the examination of contractual structure, comparative costs of buying decisions and asset specificity. This study determined that for energy project to succeed under PPP initiative then there should be a clear definition of the relationship between the public and the private partner. This study was considered important to the current study as it responds to the dependent variable of the study. However the gap created is that the study is not specifically focused on PPP renewable energy projects like the current study, the current study will also seek the correlation and influence of risk factors on performance PPPs.

2.3 The Concept of Risk factors

Conventionally, risk is understood as undesirable event. It is the variance of distribution of outcomes. Irwin *et al.,* (1997) state that risk in project finance implies that the actual project results may be below the envisaged project expectation .Risk has been defined as any factor affecting project performance (Chapman and Ward, 1997). Others perceive risk as the probability that an event occurs that impact positively or negatively on the performance of project (Al-Bahar and Crandall, 1990).

Public Private Partnership's projects are easily influenced by more risks in comparison to other conventional or traditional procurement models. This due to the complex nature of Public Private Partnership model of procurement, it long term duration and potentially complicated relationship among partners (Grimsey and Lewis, 2002). So identification and efficient management of risks in projects procured through PPP is a necessary condition to ensuring

successful projects (Li, Akintoye,Edwards and Hardscale, 2005, Abdel Aziz 2007, Y. Ke *et al.*, 2010).

Influence of risks in PPPs has been of interest to scholars, for instance Akintoye *et al*. (1998) studied various stakeholders in Private Finance Initiatives United Kingdom and acknowledged that risks in project design, volume risk, operating maintenance, construction risk, payment risks and tendering costs risk were important. Similarly Grimsey and Lewis (2002) categorized important risks as financial risk, regulatory/political risks, and technical risks operating risks, force majeure risks, construction risks and revenue risks as the main risks associated with Public Private .Shen, Wu and Ng, (2001) identified 58 risks, they then categorized the risks into six clusters relative to the nature of the risks, for example, financial, legal, management, and market, political and technical risks. Chan *et al.*, (2011) identified and ranked the Public Private Partnership risks in accordance to their importance. They found that among the top three important risks were corruption in government; poor public decision-making processes and government intervention. Wang *et al.*, (1999) singled out major political risks in China's BOT projects as expropriation, approval delays, force majeure, corruption, legislation changes, low reliability and poor creditworthiness of Chinese parties.

Public Private Partnerships involves risk allocation to both the private and public partners in procuring of good and services to the public ; it gives the government opportunity to afford investment programmes beyond immediate budgetary capabilities (European Investment Bank, 2005).It is worthwhile to analyze risk associated with public private partnership renewable energy projects independently. Public Private Partnership's renewable energy projects present unique risks due to the characteristics of renewable energy projects. Approval of Public Private partnerships projects depends on the perceived risks and return on investments for private investors (Jefferies and McGeorge, 2009).

Typically renewable energy technology more costly than conventional energy technologies in the short run. In essence it is perceived as a more risky venture; this makes it more difficult to secure financing for renewable energy projects compared to conventional energy projects. There is minimal or no record on the performance of previous projects given that renewable energy technologies are generally new technological concepts more so in relation developing countries. This implies lack of business infrastructure, experience and knowhow regarding renewable energy initiatives with regard to financing. The overall financing risk is worsened by other business risks associated with developing countries such as political risk, currency

risk, and poor creditworthiness of government companies looked up to in off take agreements deals under power purchase agreements (African Development Bank, 2010).Poor pricing that are not cost reflective but vulnerable to manipulation due political pressure and minimal innovation explains the poor creditworthiness of state parastatals. These cumulative risk factors makes the risk profile worse of renewable energy investments, the expectations of private partners are diminished making their financial backers prohibit financing.

2.4 Political risks and Performance of Public Private Partnership Renewable Energy Projects

Political scenario of a country can either promote or discourage Public Private Partnerships, for this reason enabling political environment is considered a critical for PPP to succeed (Chan *et al.*, 2010). This political climate ought to include supportive legislative, executive and general public. Lack of political commitment presents a critical risk, more so during the phase of project development phase. Political risks can occasion withdrawal of project partners if concerns arise that puts to doubt the certainty of investment terms. This risk is normally manifested through outright cancelation of projects by public partner, unresolved disagreement in the partnership involving the structure of the project and failure to provide funds necessary for the project.

Political risks include civil disturbance, expropriation, breach of contract, corruption and other political scenarios that may impact on public private partnership investment. This risk factor present a major concern for investors more so foreign direct investors and financial institutions. During financing decision making it is relied upon as an early selection filter, which determines whether the proposed project is financially viable or not. When considered in view of broad macro-economic, political issues or legal concerns then it can obstruct good projects from being implemented (Baldwin, 2006). A country with high probability of political risks tends to be looked down upon by Foreign Direct Investors. Political risks destroy the profitability and sustenance of PPP investment, actions like or expropriation of foreign assets or nationalization and breach of contract presents a very big threat to foreign investment. Political risks create uncertainty in the environment of investment which impacts on the profitability of the investment thereby undermining the performance of Public Private Partnership's renewable energy projects. This also apply to a country with a high risk of war or violence relating to politics, including terrorism which can easily results into damaging of foreign assets greatly discourages Public Private Partnerships (Jensen, 2008,; MIGA, 2010).

A very extreme case of political risk is normally manifested when private assets are taken by the government without any compensation. However, expropriation of assets belonging to foreigners is nowadays rare though there is still such possibility (Haftel, 2006; Jensen, 2003; Slaughter, 2003). Instead administrative expropriation has become more rampant. The government hosting the project can infringe on the profit of foreign investment by frustrating investment consequently forcing a renegotiation by foreign investors which result to new terms of investment (Ramamurti and Doh, 2004). Risk of expropriation discourages PPP projects hence hinders performance of the same.

A study by Harms and Meulen (2011) on demographics of expropriation risk concluded that when property rights are secured coupled with higher population growth then international development is fostered. However, the risk of expropriation considerably lowers foreign investment. The study also showed that over time expropriation risk become minimal as population increases in the host country. The essence is that developing countries with high population growth, then the youthful working class stands to lose therefore they are more likely to resist expropriation augmenting political price expropriation. Contrastingly the population size is inconsequential in the political process with no political and democratic consciousness like in dictatorships. The study employed the use of an overlapping generations model (OLG) to study the risk expropriation. The theoretical model of this study therefore resulted into testable hypothesis, that when population growth is high then the risk of expropriation is lower. This was however found to apply only in countries whose level of democracy would impact on the political process. The current study however established a correlation between expropriation risk and financing of renewable energy based on primary data.

Research by Jeffrey and Randall (2011) on the risk of expropriation and strategic entry decisions in FDI. Dispute the popular assumption that all expropriation risk is negative for firms that they will seek to avoid it and that the government must minimize it attract investments. They distinguish between hard and soft expropriation where the former involves wholesale expropriation of invested physical capital while the latter simply describes policy changes which change the ex-post attractiveness of investment. The researchers tested empirical hypothesis using a data set of firm-level subsidiary creation by Japanese parent firms. The sample and the sampling procedure are not clearly stated in the study. The variables of this study are not clearly indicated. This study has not brought out the effect of expropriation risk on performance of Public Private Partnerships projects. The current study has clear variables

and their indicators and has drawn correlation between the political risk factor and performance of public private partnership projects.

Another study by Mashur and Mashfique (2013) looked at how foreign direct investment is affected by political risks, the study focused the relationship between National Climate Change Response Strategy (NCCRS) in 94 countries over a duration of 24 years, from 1986-2009 and political risk which was found to be negative and significant. This study concluded that most of indicators used in the study of political risks related negatively with foreign direct investment. Secondary literature examined to determine the impact of political risks factors on foreign direct investment. This study however relied only on secondary quantitative data which failed to show how this data specifically influenced performance of Public Private Partnership projects. The strict positivist approach might not give holistic assessment of the impact which puts a question on the generalizability. The present study employed mixed methods approach to determine how performance of PPPs is influenced by political risks.

The likelihood of breach of contract and expropriation is more pronounced in developing countries. Mali is good example of how political conflicts impacts on renewable energy financing efforts and the severity of political risks, this when the country experienced expropriation of wind farm projects (Government of Mali, 2012). The already poor risk profile is exacerbated by political upheaval further complicating efforts of financing projects. This is particularly given to the high capital in put required of renewable energy projects. The detrimental nature of political instability risks make it an elimination factor by potential investors in renewable energy while making investment decisions (Baldwin, 2006; UNEP and UN-Energy/Africa, 2011). To attract investment to the energy sector with respect to renewable energy, sustainable and accountable democratic structures is a necessary condition (Moreira, 2009).

Ethnic tensions, and internal conflicts affect foreign direct investments which consequently impact on Public Private Partnership initiatives (Kolstad and Tondel, 2004). Bu and Milner (2008) affirmed that Politics affected investment by foreigners in developing and that investments initiated as a result of international trade agreements differs significantly across developing countries due to political reasons. Henisz (2000) points out that political factor affect the flows of funding and that they are well understood. He focused on the relationship between trade and investment. In another study by (Lee and Rajan, 2009) established that countries whose political risk were considered lower seemed to pull more foreign direct

investment, they concluded that political risks impacted more on foreign direct investment than economic and financial risks.

A study by Busse and Hefeker, (2005) on how political risks influence inflows of foreign investments determined that stable political environment, bureaucracy, conflicts and level of democratic accountability were statistically significant determinants of foreign direct investments. This is a clear indicator that political risk factor is very important when investors, more so multinationals are making investment decisions. This study is significant to the current study in the sense that it addresses political risk factor on investment decision. However, the study did not specifically focus on political risks and performance Public Private Partnerships the current study. This study also relied solely on secondary which raises questions on validity and reliability of the findings (Busse and Hefeker, 2005).

Corruption increases the risk and unpredictability of an investment environment; this lowers the prospect of investments, hence affecting the performance of PPP renewable energy projects (Getz and Volkema, 2001). A study by Habib and Zurawicki, (2002) on the correlation between corruption and foreign direct investment determined that they were inversely related .However; a study by (Hines, 1995) established an insignificant relationship between corruption and investment inflows. The two studies never the less lend credence to the fact corruption negates investment inflows. This complicates the government efforts to attract private investors into public projects thereby complicating public private partnerships.

Study by Rambo (2013) studied the financing risks in developing countries and underscored the need for political stability in promotion of private and foreign investment. He also gave recommendations on the need for strong laws and policies that ensure foreign investment need for establishment of currency hedging mechanisms, opening up of renewable energy markets and the promotion of community involvement. This study was significant to the current study since it addressed political risk which is an independent variable in the current study. However this study was entirely based on secondary information sourced from other studies. The current study was based on both primary and secondary sources and sought to determine the correlation between political risk factors and performance of Public Private Partnerships renewable energy projects.

Research by Yi and Feiock (2014) formulated hypothesis on the influence of politics, policies and prices in the development of renewable energy. To test the hypothesis they relied on fixed vector decomposition model. Data from the United States of America beginning 1990-2008.

The researchers concluded that development of renewable energy is determined by an array of factors which included politics and policy instruments and regulatory institutions. The employed methodology of fixed-effect vector decomposition model has however attracted both criticism and praise. Criticisms is based on the novelty of the method that is relatively new and untested (Greene, 2011). This questions the plausibility hence the reliability of this methodology (Breusch, Ward, Nguyen, and Kompas, 2011).Despite this, the study explicates the important role played by politics in renewable energy development.

A study by (Kilaka and Omwega, 2015), looked at factors that affect performance of PPPs in financing of infrastructure. The study was based on a descriptive research design and targeted employees at Kenya Urban Roads Authority. The researchers used stratified sampling to sample 30% of the target population ending up with a sample size of 59. They used the questionnaire to collect primary data which was used to generate both quantitative and qualitative data. Their findings revealed that political risks had a statistically significant inverse relationships with performance of PPPs. This is in line with findings of the current study that also established a statistically significant relationship between political risks and performance of PPP renewable energy projects in Kenya.

Prospective investors into public private partnership renewable energy projects are wary of political situation in project host countries. Politically volatile countries are perceived to carry more risks and are therefore shunned by investors. De Jongh *et al.,* (2014) studied the obstacles to investments in the South African renewable energy sector. These companies had part of their finance portfolio dealing in renewable energy projects. Using a sample of 16 companies covering all segment of the investment community representative of the general population. This study adopted a convenient sampling to enable collection of data quickly and also minimize the cost of the study. Using structured interview the study sought to establish the pull and push factors in renewable energy investment. Some of reasons adduced were technological barriers, socio-economic factors and political. In line with the current study's variable it is explicit that renewable energy projects are influenced by political framework (Martinot and Macdoom 2000; Krupa and Burch 2011).The current study used both primary and secondary data besides a larger sample size of 263, the hypothesis test established a significant influence of political risks impacts on performance of Public Private Partnerships renewable energy projects.

Most developing countries are experiencing a turbulent transition to democratic governance and are therefore characterized by political upheaval. Conflicts within a country poses risks which undermines performance of Public Private Partnership renewable energy projects (European Union, 2009).Nations like Uganda, Ivory Coast, Nigeria, Egypt and Mali among others are examples of countries that have experienced political instability. In Kenya democratic transition is characterized by serious ethnic division which many at times has flared up into violence, a case in point is 07/08 political violence that quickly degenerated into ethnic violence (Asyan and Ersoy, 2007). This serves as a great hindrance to potential private and foreign investment into the renewable energy sector hence impacting on financing of renewable energy projects.

Political conflicts contribute not only to discouragement of potential investors but also to the destruction of existing renewable energy infrastructure which is a great draw back to the financing efforts. Countries such Mali, Somalia, Egypt and Ivory Coast, among other African countries have experienced destruction of already financed renewable energy infrastructure (AfDB, 2010; Environics, 2010).The correlation between political risks and investments by foreign investors in the energy sector is corroborated by several studies (Ramcharran, 1999; Asyan and Ersoy, 2007). Unstable political atmosphere poses the biggest threat to investments in developing countries more so in Africa (UN Energy/Africa Report, 2011).

Investors are therefore worried about the possibility of political risks revealed in the literature review. The present delved on influence political risks and performance of public private partnership.

2.6 Policy risk and Performance of Public Private Partnership Renewable Energy Projects

Policy risk points to credibility and reliability of public policies, laws and regulation and how they are enforced (Helm and Hepburn, 2003). Success of renewable energy project relies upon how barriers that impedes renewable energy adoptions are addressed. Stapleton (2009) proposes creation of policies that promotes development of the economy and building of capacity by involving the local industries.

There is the risk of policy challenges for investors targeting renewable energy markets. For example a renewable energy venture could be subjected to new import tariffs or discriminatory charges. For long term investments like renewable energy investments there is a high likelihood of being exposed to changes in policies over their lifetimes. It is therefore imperative for

renewable energy policies to be created with consideration to impact on financing. Nevertheless, projects that derive their revenues based on policies are vulnerable to policy risks since they can be easily changed. This implies that projects policies designed for renewable energy uptake is very much exposed to being reversed or modified. Lack of commitment by the host government is a major contributing factor Changes in policy ((Helm and Hepburn, 2003). Unpredictable policy changes lead to loss of investor confidence (Renewable Energy Focus, 2010).

Support from the government is critical in facilitation of the renewable energy investments similarly lack of it can easily impact in renewable energy investment, more so Public Private Partnership renewable energy projects(IEA, 2007).Several studies concede to the fact that policy risk impacts on private investment consequently negating the performance of PPP (IWÖ-HSG, 2010), Europe (Breukers and Wolsink, 2007; Lüthi and Prässler, 2011; Lüthi and Wüstenhagen, 2012) the U.S. (Barradale, 2010; Lüthi and Prässler, 2011; Mormann, 2012). Good energy policies facilitate economic development which in turn supports sustainable development. It is therefore imperative for the government show commitment to the enforcement of policies that supports performance of PPP. These policies should be able to attract the private sector so as to achieve improved PPP renewable energy performance (Mallon, 2006; Mendonca, 2007).

Appropriate legislations are needed to create incentives and remove barriers that hinder investments in renewable energy project by the private partners (UN-Energy, 2011).Policy risk conjures the possibility that policies that support renewable energy investments may be rescinded. Energy investments in Africa faces the risk that a supporting policy may be changed especially when a new government takes over, the newcomer is very likely to fail to keep the promise of a previous regime. Policy risks have been recorded in Senegal, Argentina and South Africa (Pegels, 2009). Argentina adjusted the feed in tariffs because of the perception that it was too generous that it allowed investors in renewable energy sector to earn *big* profits (Girardin, 2003; Konttinen, 2010). Similarly, in Egypt a 28% tax was imposed revenue from solar electricity in 2010 and consequential loss of private investor confidence (Environics, 2010).

Political instability is a major contributing factor to policy risk; this is coupled with inadequate and non-supportive renewable energy policies and poor enforcement of related regulations (UNEP, 2012). This underscores the need for attractive policies and regulations to renewable

energy investment. Independence of regulatory agencies and restriction of political interference will attract private investment (Mohee, Surroop and Jeetah, 2012). To achieve energy sufficiency and sustainability using renewable energy sources requires a lot of investments in sustainable energy technologies. This requires a lot of capital investment which is difficult to attract from private investors to the renewable energy sector as most investors are risk averse. Policies are therefore integral in creating a favorable environment which is attractive to private investors, by minimizing the risk associated with renewable investment. In renewable energy investment policies affect cash flow which gives the business a lifeline (Hamilton, 2009).

Global Ministerial Environment Forum held in Monaco in 2008 concluded that lack of adequate capital was not the main barrier to renewable energy investment, the forum identifies policy as the main barrier(Usher, 2008).A better grasp of knowledge of the correlation between policy and private investment is required if the investments in the sector is to be scaled up. A renewable energy investment apart from being vulnerable to political, legal and macroeconomic risks is also exposed to more regulatory risks. In the event that attractive policies are reversed then the viability of a renewable energy projects becomes heavily compromised, this may render investors with massive loses.

Ensuring the continuity of favorable policies ensures private initiative and investment into renewable energy sector. Continuity can be ensuring by legislations that protect policies even if there changes in public administration like the election of a new government. Establishment of independent regulatory agencies detached from the central government thereby minimizing political influence can contribute to regulatory stability and continuity (Kirkpatrick and Parker, 2005).In order for renewable energy investments to achieve to be consequential there is need for cooperation between the public and private partners. Policy makers should therefore ensure that policies facilitate the necessary investments (IEA, 2007). Consequently, the private partners should take advantage of good policies to ensure successful Public Private Partnerships renewable energy projects that supports changes to low carbon economy.

Research by Xuedong *et al.*, (2013) concentrated on the market entry barriers for foreign direct investors; this study was based on lessons learnt from china's electricity market. This study established among other factors that fragmented regulatory system contributed to poor participation by the private sector besides irregular pricing. The review of the market established that there is a great disconnect in the outcomes and the projected outcomes. The study used a case study based on secondary information and not empirical data, the

methodology of this study was implicit rather than explicit, and the study did not employ any sampling techniques as it had no target population. The current study used both qualitative and quantitative approaches with a descriptive–corellational research approach.

Similarly, a study by Byrnes *et al.,* (2013) on Australian renewable energy policy focused on barriers and challenges. This study highlighted the major policy frameworks, attraction and the regulatory environment. This study seems to also justify the paramount role played by effective policy and regulation framework in encouraging renewable energy deployment. The research also noted the existence of a lot of policy related barrier hindering efforts to achieve adequate renewable energy deployment. This study however does not specifically study how policy risks affects the performance of Public Private Partnership renewable energy projects. This is a gap that was filled by the current study which was undertaken based on empirical data entailing both quantitative and qualitative analysis and a corellational analysis to determine significance between policy risk and performance of renewable energy projects under Public Private Partnerships.

Research by Komendantova *et al.,* (2009) studied how stakeholders perceive risks in the renewable energy markets. Their observation was that most investors were far much more concerned about risks related to regulation, politics and regulatory and force majeure as compared to other classes of risks. That stable regulations both at national and regional levels is crucial in promoting private investments in renewable energy. This Moroccan case study concludes that lack of technical capacity and ambition among policy makers could be a contributing factor to regulatory risks. This study used both semi structured and unstructured interviews to collect data where 41 respondents were interviewed in Morocco. They were however silent on the sampling techniques and sampling procedure hence the sample size is not explicitly stated. This study however, did not draw correlations between risks and financing of renewable energy, the current study used mixed methods approach and drew correlations to determine the influence of regulatory risks on financing of projects in renewable energy.

Okwaro,Chepkwony and Boit (2017) researched on factors affecting adoption of public-private-partnership .The study specifically sought to determine how government policies impacted on adoption of Public Private Partnerships. The study was done within county government of Uasin Gishu, Kenya. Structured and unstructured questionnaires which were self-administered 233 respondents after a stratified random sampling and reliability test. The collected data was analyzed with the aid SPSS version 22. The study found that lack of policies

and procedures for adoption of PPP was a big hindrance. The study is significant to the current study because it addresses Policy as a factor that influences the performance of public private partnership. It also addresses objective two of the study. The study presents a research gap as it did not specifically delve on public private partnership renewable energy projects. The current study sought to study existing policies and performance of public private partnership renewable energy projects. The current study was pragmatic hence allowed for adoption of both positivist and intrepretevist paradigms, this enhance credibility of the study findings.

A study by Pedo,Kabare and Makori (2017) sought to examine how existing regulatory frameworks influenced the performance of road projects in Kenya procured through Public Private Partnership. Their research used both exploratory and descriptive research designs to examine the research problem. Their study targeted organizations that are involved in the road sector PPPs either as regulators, project implementers and financiers or as interest groups involved in PPP project process. The instrument of data collection was a self-administered semi-structured questionnaire. They analyzed the data and presented descriptively from where they drew inferences, conclusions and recommendation. From the regression model it was established that regulatory framework influenced performance of public private partnership in roads project in Kenya. They also established that government policy moderated the relationship between regulatory framework and performance of PPP in road projects in Kenya. The present study focused on policy and public private partnership renewable energy projects.

Policy clarity on terms and conditions of concessions is very important in ensuring performance of public private partnership negotiations, particularly the tariff and concession period is of great interest and importance to the investors(Liou and Huang, 2008).Investors tend to look forward to a prolonged concession period which is normally avoided by governments. If the concession is too short, most investors will turn the partnership down or increase the operation fee to recoup the lost benefit of a prolonged concession, to the public partner this would make the partnership more expensive. This also enables the private investor to shift the financial risk burden to the public (Shen *et al.*, 2002).Business wise, the investor's revenue should not be less than the minimum expected investment return of the investor.

The literature review underscores the importance of policy in risk mitigation, it is evident that reliable policy minimizes market uncertainty and investor doubt. This serves to attract private capital into renewable energy projects consequently contributing a solution to the national energy requirements.

2.7 Macro-economic risk Factors and Performance of Public Private Partnership Renewable Energy Projects

Private investors are worried about the macro economic situation in the project hosting country. Macro-economic factors such as the rate of inflation, rate of exchange and interest rate indicate a country or region's current and future economic outlook; affect investor's financial performance, future growth and sustainable development (Mokhova and Zinecker, 2014). According to Vijayakumar, Sridharan and Rao (2010) and Hussain and Kimuli (2012), high and growing GDP indicates current and future market potential demonstrating future attractiveness as a market. Thus, investors seek countries with high and growing GDP for current and potential future markets in the countries. These are conditions that are attractive to Foreign Direct Investment into infrastructural development in partnership with government. The government therefore has a very crucial role in Public Private Partnership implementation by maintaining a favorable environment for macro-economic stability; this is because financing institutions are keen on the indicators of macroeconomic situation.

Stable inflation rates indicate stability of the macro-economic environment and monetary discipline in a country while high inflation rates signify internal economic tension resulting from failure to manage the monetary policy as revealed in country's budget deficits (Muhammad, 2010). High inflation rates signals augmented cost of doing business in the country and region. Consequently, according to Kubicova (2013) and, Murthy and Bhasin (2013), high inflation rates make doing business in a host country expensive and unattractive to international investors. This is likely to inhibit public private partnership investments into the renewable energy sector.

High inflation rates increase the cost of investing in a country and region. Consequently, according to Kubicova (2013) and, Murthy and Bhasin (2013), high inflation rates make doing business in a host country expensive and unattractive to international investors. This influences the financing of Public Private Partnership renewable energy projects. High inflation rates signify internal economic tension resulting from failure to manage the monetary policy as revealed in country's budget deficits (Muhammad, 2010). Stable inflation rates on the other hand indicate stability of the macro-economic environment and monetary discipline in a country. Stable inflation is attractive to private investors hence making a Public Private Partnership arrangement more feasible.

Macro-economic instability is signified by high inflation rate, this impacts on the return on investment(Azam, 2010).High rate of inflation in a country reduces the return on investment and signifies macro-economic instability (Azam, 2010).This discourages Public Private Partnerships as private partners shy away from partnering with the public. On the other hand a lower rate of inflation signifies macroeconomic stability in the host country hence attractive to private investors, (Asiedu, 2002). The relationship between the rate of inflation and private investment in country is revealed as negative. A statistically significant relationship was also found in a study by Demirhan and Masca (2008).Their study was based on factors determining foreign investment inflow in 38 developing nations. Their findings corroborated the fact that countries with lower rate of inflation attracted investments.

An analysis of Foreign Direct Investment inflows into Vietnam using descriptive statistical method and empirical data from 1999 to 2011 by Cung and Hua (2013) found that inflation is significant. The independent variables of this study included cheap labour costs, economic growth rates, science and technology investments, inflation index and other factors. This study was relevant to current study since inflation is one of the variables under study. Kenya being a developing country is heavily dependent on Foreign Direct investment as a major driver of PPPs. To fill the research gap, the current study will be undertaken in Kenya descriptively using empirical data specifically focused on performance of renewable energy public private partnership projects. Similarly Kubicova (2013) using a time series panel data for the period 2003 to 2011 found that labor costs, inflation and infrastructure were significant but had adverse effects on FDI inflows. This research was relevant to this study because it addressed inflation and FDI inflows into Africa. The research was conducted European region and did not focus on PPPs. The research gap is to conduct a study in Africa specifically in Kenya with a view to establishing how Inflation influence performance of public private partnership.

According to Khurshid (2015), interest rates and investments have long-run relationship. Hence, interest rates affect the investments environment in a country in several ways. High interest rates discourage investments since they result in high cost of borrowing in the domestic market. On the other hand low interest rates attract investments since they encourage continued investments because the cost of borrowing is low hence; the interest rates render the country economically competitive. This makes the likelihood of a public private partnership renewable energy project higher since the investors will be attracted. In as much as investors seek attractive macro-economic factors, these factors are affected by internal and external influences such as market forces of demand and supply, international economic factors such as the global

financial crisis and Bretton wood institutions. Therefore, host governments are not in full control of macro-economic factors in their countries. These factors are affected by extraneous factors beyond the host government's controls. Hence, a host country with stable macro-economic factors has potential to achieve better performance in Public Private Partnerships.

A research by Srinivasan (2011) sought to discover the factors that determine foreign direct investment in countries selected from South Asian Association for Regional Cooperation (SAARC) countries for the duration of 1970-2007. A similar study was undertaken in Nigeria by Nurudeen, Wafure, and Auta (2011), they sought to discover determinants of foreign direct investment in Nigeria by analyzing the yearly data over the period 1970 – 2008.The two studies after regression analysis revealed that inflation rate is not significant but has a positive influence on the flow of foreign direct investment in a country. The two studies corroborate the fact that the level of inflation can either attract or discourage direct foreign investment with a consequence on the financing of public private partnership renewable energy projects.

Interest rate is very crucial to the economy as it largely determines investment activities which include Public Private Partnerships. Wei and Liu (2001) found that, when the amount of borrowing in the investors country is below that of the country of investment, then the investors enjoy a cost advantage when borrowing over competitors in the host country, this implies that foreign investors who enjoys lower cost of borrowing in their home country enjoys a comparative advantage over native investors. This makes them to easily access capital funding thereby increasing in inflows in Foreign Direct Investment of the receiving country. This is based on the assumptions that the when the interest is low in the home country then investor are likely to prospect (Wei.Y and Liu. X., 2001).A study by Majeed and Ahmad(2008) corroborates these findings after finding out that that when the cost of borrowing money is higher in the country of investment then foreign entities are likely to take advantage of the cost advantage over domestic firms. Therefore foreign investors enjoy the advantage of investing in the host country by taking advantage of cheaper lending rates from their home countries. In contrast if foreign direct investors were to source for funds in the host country then their cost advantage would equally diminish.

Research done by Oladipo (2013), in Nigeria, corroborates the above explicated fact that when the rate of lending is high then Nigerian local investors found difficulty in investing because of the decline in their ability to borrow in order to secure funding for their investment. This scenario presents an opportunity to foreign investor who enjoys easier terms of borrowing

to move capital in so as to maximize returns. Despite the fact that this scenario has a negative effect on the economy it lends credence to the fact that lending rates determines investments hence performance of Public Private Partnership renewable energy projects.

Exchange rates indicate local currency value for conversion purposes to a foreign currency. Okpara (2012) and Nelson (2015) explains that local currency strength presents income concerns where local currency profits are transformed into higher foreign currency proceeds while local currency weakness presents expense concerns where immovable components of production become expensive and exports become cheaper. Thus exchange rate negatively affects profits realized in a host country. Therefore, foreign investors are concerned about the value of local currency as indicated by the exchange rates in the country in comparison to the home currency. This serves as a potential hindrance to public private partnership projects that are mainly undertaken through Foreign Direct Investment.

A study by Hayakawa, Kimura and Lee (2011) on influence of socio-economic conditions and government stability on Foreign Direct Investment (FDI) inflows. This study was based on data from 90 countries for the duration 1985-2007, this research used dynamic Generalized Method of Moments (GMM) estimator of all aspects of financial risks, when estimation was performed for only developing countries only the rate of exchange yielded coefficients that were statistically significant. These findings had the implication exchange rate stability contributed to more foreign direct investment into the host countries. The study conclude that that the socio economic conditions and government stability are linked and positively related to Foreign Direct Investment (FDI) inflows. The research gap is that this study did not consider PPP specifically as a form of Foreign Direct Investment but looked at FDI in general. The present study however sought to establish the influence of macroeconomic risks on the financing of Public Private Partnership renewable energy projects and relied majorly on primary data.

An examination of the impact of exchange rate volatility on Foreign Direct Investment (FDI) in Pakistan from 1980 to 2011 by Yousaf et al., (2013) demonstrated that inflation and volatile rate of exchange obstructs the flow of foreign direct investment. A study by Ellahi (2011) in the same country seems to corroborate the findings by Yousaf et al., (2013), his findings too conclude that exchange rate volatility has negative impact on Foreign Direct Investment (FDI) inflow, though in the short run and surprisingly a positive impact in the long run. The use of Ordinary Least Square (OLS) regression model could have performed badly due to possibility of outliers due to variability in some measurement. This may have led to invalid conclusions.

Since this methodology heavily relies on linearity, this study is silent on non-linearity which lends further casting doubt as to whether the conclusions were valid or reliable. The proposed study will rely on regression analysis which is more robust to draw the relationship between the variables. Again this study was not specifically on renewable energy projects which the proposed study seeks to undertake.

Similarly, Ogunleye (2008) studied the volatility of exchange rate and foreign investment for countries in the sub-Sahara Africa where they evaluated nine countries. This study established that sudden changes of exchange rate to a large extent constrained the foreign investment inflow to Sub-Sahara Africa .A contradictory finding is however attributed to a research by Alaba (2003) who tried to bridge the gap on the exchange rate volatility-Foreign Direct Investment nexus for Sub Sahara African countries too. Alaba (2003) concluded that there was no significant influence sudden changes in the rate of exchange foreign investment inflows. The two studies used the error correction methodology and GARCH measure of volatility.

A study on the unpredictability of rate of exchange concluded that the effect on the inflow of FDI was weak (Omorokunwa and Ikponmwosa 2014).This study was undertaken in Nigeria and did an investigation on the dynamic relationship between sudden changes of the exchange rate and private investment in Nigeria for the duration 1980-2011.This study was inspired by the fact of the moment a reliable and viable rate of exchange regime presents a rich opportunity for the pull of foreign direct investment. They relied on Error Correction Model (ECM) after undertaking preliminary investigations which included the Augmented Dickey Fuller (ADF) test for stationarity and the Engle and Granger two-step co integration procedure. On the basis of the findings the researchers recommended for policy makers to come up with proper and robust exchange rate management system among other things. This study presented a research gap for a study that would consider macro-economic factors and their influence on Public Private Partnership financing. The current study collected primary data through interviews and drew the relationship between macro-economic risks and performance of PPP renewable energy projects, using corellational analysis and hypothesis test.

A study by Musila and Sigue (2006) established a dependent relationship between investment and infrastructural development of country. This was supported by Anyanwu and Erhijakpor (2004), who observed investment in modern communication infrastructure has the potential of significantly increase investment flows. Gholami *et al* (2006) relying on data from 23 developing countries established that existing information and communication technology

infrastructure attracts foreign direct investment flows. This was further corroborated by Wei et al (2000) who equally observed that good infrastructure is the most attractive determinant by private investors. Government expenditure is therefore a factor used by multinational companies as an investment decision support for investment in host or target nations. This implies that private investors finds in easier to partners with countries with good infrastructure indicated by spending or public investment. A study by Izuchukwu *et al.,* (2014) corroborates this, they concluded that in order for a country to attract investors more so foreign direct investors then standard of infrastructure is a big factor.

A study by Rambo and Lucas (2016) examined how macro-economic factors influencing the financing of Build-Operate-Transfer Projects through a study of the Kenya railways concession project. They sourced data from 348 respondents. The study used Relative Importance Index so as rank the factors on the basis of their importance; a part from this, they used Kendall's Coefficient of Concordance (W) to establish the extent of agreement among participants. They established that the rate of inflation was ranking highest, followed by interest rates then debt ratio and lastly the taxation burden. They also obtained a strong agreement in the respondent's perception on influence of macroeconomic factors on financing of the project. The study revealed that all the four macroeconomic factors were significant predictors of financing of BOT projects.

In conclusion, the reviewed studies are corroborative; a common stance suggests an influence of macro-economic factors on Public Private Partnership Investment.

2.8 Social acceptance risks and Performance of Public Private Partnership Renewable Energy Projects

Renewable energy projects has a big influence on the lives of the hosting communities. This result to a lot of stakeholder issues which can result to local interest groups fighting the project. Conflict may consequently lead to delayed implementation, cost overrun or complete compromise on the viability of the project. Social acceptance risk is normally high on lenders due diligence and has a profound influence on whether a project will be financed or not. When there is lack of social acceptability of renewable energy investments, risks are created for instance through delays or in extreme cancellation of project. The mentality of Not-In-Backyard (NIMBY) aptly captures the phenomenon that local communities are in favor of renewable energies, yet they oppose projects when in their direct vicinity. These risks are very predominant during the planning/project development phase, where permits need to be

acquired. Mitigation should be aimed at the root causes of the opposition, for example through communication programmes, stakeholder management and participation process and being in compliance with legal and regulatory process (Wustenhagen,Wolsink and Burer, 2007).

Location of renewable energy projects tend to be very contentious and normally result to social acceptance issues or slow approval of the projects. For instance, wind power projects are often criticized due to concerns regarding pollution due to noise, aesthetics and threats to the ecosystem (Schilling and Esmundo, 2009). Large hydropower projects have been resisted due to flooding of large territories and changes in volume and water quality hence affecting the bio-diversity of a region, and even much smaller ones have often faced resistance because of their interference of rivers (Schilling and Esmundo, 2009). Geothermal power for instance is perceived interfere with land stability, which may trigger earth quakes (Rybach, 2003).

Connection between a high level of social acceptance of renewable energy projects and participatory planning was established in a study by (Loring 2007). Genuine engagement of the stakeholders can result to social acceptance required for the development of renewable energy project (Rod, 2011).When public acceptance of a project is achieved then the project enjoys good will of the stakeholders resulting to effective and efficient implementation (Agterbosch, Meertens, and Vermulen, 2009).On the other hand when the society opposes a renewable energy project then the implementation may fail. This calls for participatory planning which should enjoin the most influential factor for social acceptance (Evans, Parks, and Theobald, 2011). This is however disputed by Aitken (2010) who concluded that social resistance has little effect on influencing the planning outcomes of renewable energy projects; he however agrees that resistance may result into delay of the project. To echo this Ferguson-Martin and Hill (2011) after a study of selected Canadian provinces, reiterated that the financial viability of a project has got more influence on project deployment success rates more than social acceptability. The studies however fail to draw correlation with performance of PPPs renewable energy projects. The present study established a statistically significant influence of social acceptance risks on the performance of PPP renewable energy projects.

Conflicts are arising from community non-involvement in renewable energy projects can lead to time overrun or even project abandonment. A scenario witnessed during the construction of the Nile based 250 MW Bujagalli power stations in Uganda. This project was heavily criticized after being rejected by the society owing the perception that it would impact negatively on social and environment wellbeing of the community hosting the project (Kamese, 2004).

Abandoning a financially intensive project could have serious financial consequences to project financiers; this makes community participation a necessary condition for project success and earning investor confidence for possible future engagement (Dengerink, 2011).A lot of renewable energy project failures are attributed to failure to satisfy the expectations and social values of the community (Fielmua, 2011). Land issues present one of the biggest obstacles renewable energy projects implementation. Ensuring projects enjoy local support and get right to access land is very crucial for success implementation of renewable energy projects, this brings to the fore the Kinangop Wind Farm project in Kenya that had to be abandoned after failure to address local concerns.

Research by Gormally *et al.,* (2014) on the attitudes of community towards renewable energy projects in Cumbria underscores the importance of local involvement in the production of renewable energy. The study established the importance of involving the community in renewable energy projects since the communities recognized opportunities that come with renewable energy projects .This study relied on the questionnaires to collect data with an overall return rate of 50% out of the 583 questionnaires delivered. This study is valuable to the current in that it addresses social acceptance risks and performance PPP renewable energy projects. This study however does not look specifically at social acceptance risks and performance PPP renewable energy projects. The current study involved statistical analysis in drawing relationship between social acceptance and performance of PPP renewable energy projects.

Patterson and Pun (2015) presented an analysis of data on the social acceptance of electricity transmission lines; the study was conducted in EU-27.The study established that informing the stakeholders on the advantages of the projects can have profound effects in minimizing opposition by stakeholders. This study underscores the fact explaining a project to the community can increase the level of acceptance; this supports the assertion that social perceptions a project is important in ensuring social acceptance. This study however, does not address the relationship between social acceptance and performance of PPP renewable energy projects. The current study filled this gap as it was undertaken based on empirical data which will be subjected to statistical tests to draw relationship.

A study by Yuan *et al.,* (2018) on Social Risks in the Transportation sector of Public Private Partnerships projects in China. They conducted a survey of stakeholders to investigate their opinions on social risk factors and they established that all the social risk critical to success of

projects. This study demonstrated social risk factors could affect the social sustainability of PPP transport projects in china. All the factors that the study focused on were all found to be statistically significant. The study proposed the concept of people –first Public Private Partnerships so as to minimize social risks and achieve in put different stakeholders before project implementation. The current study focused on social acceptance risk of public private partnership renewable energy projects.

Research work by Wu¨stenhagen *et al.,* (2007) introduces three dimensions of social acceptance related to renewable energy innovations. These factors are socio-political, community and market acceptance. There is an increased recognition of the importance of socio-political and community acceptance in explicating the contrasts between social acceptance of renewable energy projects and complexity in realization of particular projects. This study singled out that social acceptance has not received adequate should be researched further. The current study however sought to draw correlation between social acceptance risks and performance of public private partnership. From the reviewed literature, the main conclusion is that there is a connection between social acceptance and success of renewable energy projects, this corroborates the fourth objective of this study that sought to assess how social acceptance risks influence performance of PPP renewable energy projects.

2.9 Market Risk and Performance of Public Private Partnership Renewable Energy Projects

Market risk presents a possibility that a renewable energy under a public private partnership investment is going to experience losses due to factor related to energy market. Market risks in power sector can be contributed to by factors such as fossil fuel subsidies, price volatility, monopoly, and demand and revenue risk among other factors. Unpredictability of price levels in the power sector can reduce the incentives for investment hence discouraging the private partners (Neuhoff and de Vries, 2004).Renewable energy investors are in concurrence that besides favorable policies, market for power is a factor that drives investment in the renewable energy segment. Market risk is therefore seen as a significant barrier to ginning entry into the power market to private investors (Söderholm,Ek and Pettersson 2007). Takizawa and Suzuki, (2004) aver that regulation of the market in favor projects that require a large initial capital outlay like renewable energy projects increases chances of investment. This is supported by Grobman and Cary, (2001) who observe that when the market is deregulated then prices go up affecting demand for energy.

One factor that contributes to poor or unreasonable pricing is government subsidies mainly enjoyed by conventional energy producers. This creates an unfair environment of competition which turns away private investors in renewable energy projects. Sovacool (2008) advocated for removal of subsidies to create fair completion which will support implementation of renewable energy projects. On the same note UNEP (2008) documented the effect of subsidies and noted that subsidies hindered renewable energy development. Subsidies discourage PPP performance by constraining financing. Similarly UNEP (2012) is in concurrence that transaction costs and subsidizing of fossil fuel is a major hindrance to deployment of renewable energy. They acknowledge major drivers of renewable energy deployment as profit and fair competition and that when electricity tariff scheme that is highly subsidized puts off private investment.

Market monopoly limits financial sustainability of a project hence obstructing renewable energy investments by the private sector (Pegels, 2009). Monopoly also discourages competition even among the dominant players in the market hence resulting to laxity or complacency in investments, for example Eskom, a dominant player in power investments in south Africa recorded a loss of SAR 9.7 billion in spite of the government incentives. Pegels (2009) attributes this poor performance non- competitive energy market. Rambo, (2013) reiterates that this poor performance among government agencies is as result of monopolies as one of main reasons why privatization is factored in economic reforms. Monopolies results to price instability, this where the prices seldom reflects the cost of production or the dynamics in the market which is detrimental to revenue streams hence discouraging private investment (Pegels, 2009; Environics, 2010; Government of Mali, 2012).

Ogira, (2014) suggested in his study than by eliminating power monopoly from the power sector can accelerate industrialization. He further reiterated that with the monopoly in place the vision 2030 will be impractical. This research was interested in establishing the influence of monopoly in the electricity sector on investment. This study corroborates the fact that monopoly discourages private investment initiatives .The study followed a qualitative and quantitative method using interviews and questionnaires. The actual numbers of people interviewed were 931 with 510 from Kakamega and 421 from Bungoma. This study did not however draw correlation between monopoly and how it hinders financing of electricity initiatives. The current study used regression analyses establish the influence of monopoly risks and financing of renewable energy projects.

Revenue risk is a serious challenge that often drives private investors out of power market. Every investor is wary as to whether the generated revenue will cover the costs of operation and give an acceptable return on investment (Regional Economic Outlook, 2008). Another factor that contributes to low revenue risk especially in developing countries is low income, majority of whom can barely afford to pay for the power services rendered. Consumers with low income backgrounds present a very elastic demand for services hence creating a revenue risk. For example in Malawi when the prices of electricity increased by 25%, the government established that the use of charcoal went record high in as much as production of charcoal had been illegalized (Bayliss, McKinley, 2007). Low income also creates other problems to investors like illegal power connections and high default rates, for instance the Regional Economic Outlook, (2008) established that losses recorded by power producers, 52% is attributed to collection losses. This serves as discouragement to private investors who constitute the any Public Private Partnership arrangement.

Generally, availability of market is crucial for the performance of renewable energy initiated through PPPs. The Public Private Partnership financing model is supported by partial or non-recourse basis of financing. The security of the project loan comes from the project cash flow hence requiring little or no upfront collateral to guarantee the safety of loans. Market failures are likely to drive away investors consequently impacting on the performance of PPP projects. Market risks may also exacerbate the cost of financing a renewable energy project because lenders will factor this risk before lending money to a prospective investor.

2.10 Contract Management and Performance of Public Private Partnership Renewable Energy Projects

Contract management includes the activities during the contractual duration that ensures all partners are bound by contractual terms (Bailey, 2008 cited by Kibogo and Mwangangi, 2014).This is the process of ensuring smooth contract execution which minimizes risks and ensures increased operations and enhanced financial performance (Elsey, 2007). Contract management seeks to make sure that the contractual objectives are achieved by both parties (Kakwezi, 2012). Mismanagement of a Public Private Partnership contract can lead to failure of a PPP project.

A study by Kibogo and Mwangangi, (2014) on influence of competence of the employees, technological factors, relationship management and style of management on contract management.This study adopted a descriptive research design and used the questionnaire as

the instrument of data collection. Data was collected from 130 respondents drawn who represented a population of 220. This study was focused on contract management in the public sector, specifically undertaken at the Kenya literature bureau. The study found that the competence of the employees, technological factors, relationship management and style of management has influence on contract management. The study presented gaps to the current study; the study did not consider contract management as a moderating influence and also did not undertake statistical tests to determine causality between the variables. The present study sought to determine how contract management moderated relationship between risk factors and PPP renewable energy projects.

A research by Mutua, Waiganjo and Oteyo (2014) studied how contract management influenced the performance of outsourced projects. They arrived at a conclusion that contract management influenced the performance of project. The study sampled 22 firms which was considered adequate based on the recommendation that 10%-20% of population size is adequate (Cooper and Schindler, 2008). This study was undertaken in Nairobi County. This presented a gap to the current study that sought to determine how contract management moderated the relationship between risks and PPPs, in renewable energy projects.

The Public Private Infrastructure Advisory Fund (PPIAF) explain the goal of contract management as to do with delivering services that is commensurate with cost of contract in a reliable and timely manner to the consumers at an agreed cost and quality which is in consistency with legal standards financial honesty and transparent management. Contract management ensures that all the contracting partners diligently play their role and responsibilities to ensure cost effective delivery of services (PPIAF, 2009). The Public Private Infrastructure Advisory Fund (PPIAF) also names four key provisions that needs be developed by contracting agency, these includes change management, risk allocation, contract monitoring and compliance and checking under performance (Australian National Audit Office, 2012). Contract management involves practical monitoring, management and review of terms of contract established through a procurement process, it is to ensure that delivery is done appropriately (Uher and Davenport, 2009).

The deficiency of contract management endangers the realization of value for money in PPP projects (Rendon, 2010). Contract management good practice entails proper contact planning, award and contract administration and the monitoring and evaluating contractor's performance. The management of contract continuous in the life cycle of a project and it involves proactive

management that anticipates the future and unseen realities for which it is prepared. It also deals with any necessary adjustment to the contract which may include renegotiating the contract with the investor (Cruz and Marques, 2012).

Contract administration makes certain the roles and duties clarified under the contract are fulfilled. It also ensures that risks, payment conflicts, change and questionable performance level are all handled effectively. The main aim to enforce contract terms with a focus to achieving the overall contractual objectives (Davison and Sebastian, 2009). Conflict of interest can be resolved by institution of sound or proper contract management (Mutua *et al.,* 2014). Monitoring the contract can also minimize instance where gents take advantage of the contractual loopholes. Contract is the pillar of relationship between the principal and the agent. It also ensures that acceptable outputs are agreed upon as a way of ensuring value for money in PPP investment.

Research work by Salim (2013) established that ineffective evaluation and monitoring of the key performance of indicators resulted to poor project performance. The study delved on the importance of complying with contract terms and condition by contractors, the technical ability of the contractor and monitoring of the contract towards effective project management. A study by Mturi (2013) on Assessment of effectiveness of procurement contracts management in public organizations in Tanzania observed the problems of unchecked changes to contracts and poor professionalism. He advises for the involvement of contractors in identification of contractual problems. These studies were descriptive and adopted a purposive non probalistic technique of sampling then collected data through interview and questionnaire. Contractor monitoring and acceptance management is about ensuring executes the mandate of the contract. It also aids the contracting authority in identifying any emergency during contract execution. Proper monitoring system is very necessary for the success of the contract. It is essential for a contract to monitor closely and efficiently to ensure success (Wami, 2009).

However, monitoring can be inhibited by information asymmetry due to lack of or wrong information by the private partner (the agent) owing to technical nature of the projects. In this case the principals (the government) may opt for measuring the outcomes of the project (Alchian and Demsetz, 1972). In renewable energy the performance measurement is based on the output given, hence Public Private Partnership's contracts are based on output specification approach. In order to monitor and control the private sector, the performance standard should

be clearly defined in measurable quantitative and qualitative terms and verifiable by the monitoring and evaluation team (Iossa, Spagnolo and Vellez, 2007).

Whenever there is a good working relationship between the contracting parties there is reduction on the quantity of corrective action that may be needed to ensure contract management outcomes (Ernst & Young 2008).This study credits significant advantage to creating a working relationship between the contracting partners. This may enhance long-term prospects of public private partnerships outcomes (Ernst and Young, 2008).Nevertheless, conflict in public private partnerships may be inevitable (Edwards *et al.*, 2004). Conflicts can arise over failure to agree on time frames, quality issues and cost (Leung *et al.*, 2004).Other factors may be project priorities as pointed by (Hope, 2012), human resource conflicts like inadequate skills, interpretation of contract requirements due to biases or preferences (Cambridge Economic Policy Associates ,2005).

A research by Byaruhanga and Basheka (2017) on contract monitoring revealed a statistically significant relationship between contractor monitoring and how road infrastructure projects performed. The study purposively sampled procurements officers and engineers while randomly sampled private consultants, MPs and members of the civil society .Eventually 190 respondents were issued with questionnaires out of which 172 questionnaires were returned and analyzed, resulting to 90.5% response rate. Through a regression analysis they obtained a statistically significant correlation between contract monitoring and performance of road infrastructure projects in Uganda. The current study was undertaken in Kenya with regards to renewable energy project. The objective of this study was to establish the influence of contract management on the relationship between risk factors and performance of PPP renewable energy projects.

Managing the contractor relationship enables the contracting authority to ensure that all its actions and decisions enhance the supplier relationship. On the other hand, the administration of contract should involve maintenance of an updated form of the contract, checking and change management, contractor payment, asset management, contract reporting and contract termination. Dispute resolution entails management of all conflicts that may arise between the two parties. Lastly, contract closure happens when all contractual terms and obligations have been honored (Cropper, 2008).

Research by Maseko (2014) established that a strong control of contract management results to contract compliance which is a critical success factor for project management. This study

was done in South Africa and targeted it individuals with experience in PPP projects. The respondents included individuals in sector like financial services, transportation, energy and mining. The questionnaires captured the demographic profiles of the respondents. The researcher deliberately adopted small sample to achieve reasonable flexibility and achieve maximum interaction which allowed for maximum input. This study underscores the integral role contract management plays in the success of PPPs. It also presents the current study with a research gap; the study did not specifically study the moderating influence of contract management in relation to renewable energy public private partnership. The current study had a larger sample which made generalizability of the study more acceptable. Sound legal procedure is key for Public Private Partnerships to be successfully implemented, clearly defined contracts and clear dispute resolution mechanisms (Zhang and Jia, 2009).

In summary, reviewed literature in this section seems to be on concurrence of the fact that contract management influences performance of project. The current study sought to determine how contract management moderated the relationship between the variables.

2.11 Theoretical framework

The study is hinged on the stakeholder theory.

2.11.1 Stakeholder theory

This theory is associated with Freeman's (1984) now considered a classic definition of stakeholders, it is considered the most cited in literature owing to its popularity. (Kolk and Pinkse, 2007) who offered suggestion that stakeholders are "any group and persons who feels the influence of failure of or the realization of an association's goals" (Freeman, 1984).The stakeholder theory suggests that an organization is understood as an interplay of different stakeholders. It is perceived as a central network of various stakeholders, a complex system where services are exchanged and there is influence of information and resources at play (Freeman, 1984). The government as the principal employs the best agent (a private partners) contractually then creates measures to monitor the behavior of the contractor to ensure they comply with contractual terms and conditions. This theory considers information asymmetry as contributing to the situation of adverse selection and moral hazard. The agent is considered to be more knowledgeable on the provision of the intended services than the government or the public authority. This creates a necessity for the public authority to come up with ways of ensuring contract compliance by the private partners. This theory is relevant to the current study as it deals with risks in public private partnership system or plans. This theory resulted to a major paradigm shift in the management of organizations in the last century (Amaeshi and

Crane, 2006) it is majorly concerned with the nature of the relationship between the firm and its stakeholders (Ayuso, Rodrıguez, and Ricart, 2006). The theory asserts that an organization must be conscious of and respond to the needs of its constituents, as well as employees, customers, investors and suppliers including the local community (Post, Preston, and Sachs, 2002).

Relationship must be fostered between the organization and its stakeholders. This theory suggests that the value of an organization is achieved or created when it contributes to the satisfaction of core stakeholders in a mutually agreeable manner (Bosse Philips and Harrisson, 2008).

2.12 Conceptual Framework

This study will be guided by the following conceptual framework.

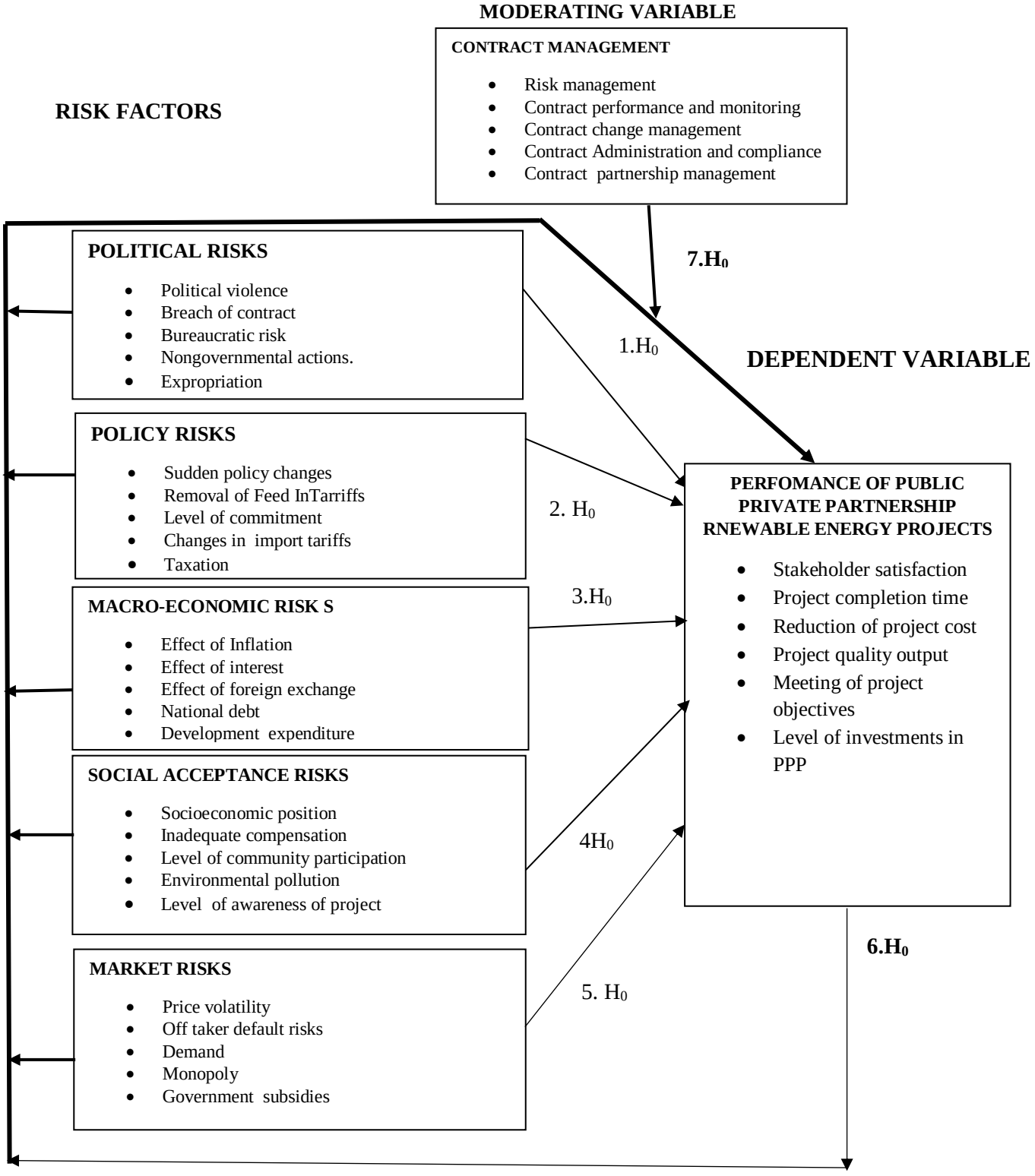


Figure 1: Conceptual Frame work for risk factors, contract management and performance public private partnership renewable energy project

The framework displays the conceptualized interactions of all variables in the study. The independent variables- political, policy, macro-economic, market and social acceptance risks are displayed to the left of the diagram and interact with the dependent variable to the right. The interactions are at two levels. The individual independent variable interaction with the dependent variable represented by hypotheses $1H_0$, $2.H_0$, $3.H_0$, $4.H_0$ and $5.H_0$ and the collective independent variables influence on dependent variable represented by hypothesis $6H_0$. This collective effect is however, moderated by contract management variable that either enhances or reduces the influence of risks on PPP performance depending on the degree of management achieved(represented by hypothesis $7H_0$). Performance of the PPP is therefore the end result of individual and collective effect of the independent variables (political risks) moderated by contract management.

2.13 Summary of the Literature Review

The literature review reveals various gaps, which are listed in Table 2.1

2.14 Knowledge Gaps

Table 2.1 Knowledge Gap

Variable	Author(Year)	Title of the study	Findings	Knowledge Gaps
Political risks	Mashur and Mashfique(2013)	The impact of risk on with Foreign Direct Investment	Political risks negatively influenced Foreign Direct Investment.	The study was based on secondary information hence the analysis to a large extent reflects findings of other studies.
		Expropriation risk and strategic entry decisions in foreign direct investment.		The current was based on empirical data and validity was tested.
	Rambo(2013),	Renewable energy project financing risks in developing countries: Options for vision 2030.	Political instability is top risk factor that influences development of renewable energy projects.	This study was based secondary information sourced from other studies.
				In this study, data was collected from the primary sources therefore validity was determined
	Jeffrey and Randall(2011)	Renewable Energy Politics: Policy Typologies, Policy Tools, and State Deployment of Renewables.	The main finding of this study was that a firm may prefer "soft expropriation" in order to prevent competition.	This paper does not bring out the effect of expropriation risk, for that matter political risk on financing of renewable energy projects. The current study will seek to fill this gap by having clear variables and their indicators and drawing correlation between the risk factor and financing of the public private partnership renewable energy projects.

	Yi and Feiock(2014),	The competing forces driving the development of renewable energy in the American states undertook a study "Renewable Energy Politics: Policy Typologies, Policy Tools, and State Deployment of Renewables."	Politics has a critical influence on financing of renewable energy projects	The fixed-effect vector decomposition as a research approach has been questioned based on plausibility of its assumptions given its relatively new (Breusch, Ward, Nguyen, & Kompas, 2011).The current study will rely on more proven methodology to test hypothesis like multiple regression analysis.
	Busse and Hefeker (2005)	Linkages between political risks, institutions and foreign direct investment inflows using data from 83 countries for the period 1984–2003	This study established that political stability, law and order, bureaucracy internal and external conflict, ethnic tensions and level of democratic accountability significant predictors of foreign investment flows.	This study was not specific to renewable energy project financing and even relied on secondary data which raises questions on the validity of the findings. This necessitates the need for primary data, which the current study fulfils.
Policy risks	Xuegong, et al., (2013),	Market entry barriers for foreign direct investment and private investors.	Found among other things, the authors identified the fragmented regulatory system, unpredictable pricing mechanism, limited access to transmissions, fuel and financing, and unchecked expansion of the state-owned sector as major barriers that impeded the participation of the private sector.	The study failed to link policy risks empirically and financing of public private partnership renewable energy projects. The current study established correlation between policy risk and performance public private partnership renewable energy projects
	L.Byrnes et al(2013)	Australian renewable energy policy: Barriers and challenges"	The study concluded that effective policy and regulatory frameworks are paramount to incentivizing the deployment of renewable energy to	The study however did not establish specifically how energy policy influenced private participation in renewable energy projects. The study further relied on secondary data which

			achieve long term reductions in carbon emissions.	raises questions on the validity hence generalizability of the findings. The current study was based on empirical data and involved both quantitative and qualitative analysis; corellational analysis was employed to draw relationships between variables.
	2013),Komendantova, N., et al. (2009)	Perception of risks in renewable energy projects: The case of concentrated solar power in North Africa"	Stable regulations attract private investments into renewable energy sector	
	Pedo,Kabare and Makori(2017)	Effect of Regulatory Framework on the Performance of Public Private Partnerships road Projects in Kenya	From the regression model this study established a significant and positive influence of regulatory framework on the performance of public private partnership in roads project in Kenya. They also established that government policy moderated the relationship between regulatory framework and performance of public private partnership in road projects in Kenya	This study was based on road project while the current study looked at renewable energy projects.
	Economic Policy Associates (CEPA, 2014)	Policy Risk in Renewable Energy Investments in Developing Countries	This study asserts that policy risk is of concern to investors hence influences financing of renewable energy projects.	This study inadequately described the research design which makes the findings of this study unclear. The study also did not look at the influences of policy on financing of renewable energy projects.
Macro-economic risk factors	Hayakawa et al. (2011), O.G.	The impact of various components of political as well as financial risk on inward Foreign Direct Investment (FDI), from both long- and short-run	Stable exchange rate results to more foreign direct investment.	The studies did not take into account the pertinent issues of currency risks and financing of public private partnership renewable energy projects.

		perspectives, using risk indices from PRS.		The use of pure secondary data might have undermined the generalizability of the findings and conclusions.
	O.G. Omorokunwa and N. Ikponmwosa(2014)	Exchange Rate Volatility and Foreign Private Investment in Nigeria	Sound exchange rate management increases investment by foreign private investors.	The study relied on secondary data, the current study will collect primary data and draw correlation.
	Yousaf et al(2013)	Impact of exchange rate volatility on FDI in Pakistan from 1980-2011	There is a significant positive relationship between exchange rate volatility and inflation and foreign direct investment.	The use of Ordinary Least Square (OLS) regression model could have performed badly due to possibility of outliers due to variability in some measurement. This may have led to invalid conclusions. Since this methodology heavily relies on linearity, this study is silent on non-linearity which lends further doubt to the validity and reliability of the conclusions. The proposed study will rely on regression analysis which is more robust to draw the relationship between the variables.
	Alaba (2003)	The exchange rate volatility-FDI nexus for Sub Sahara African (SSA) countries.	There is an insignificant relationship between FDI inflows and official market exchange rate.	The study relied on secondary data and did not relate volatility and financing of projects.
Social acceptance risks	A.M. Gormally et al (2014)	Attitudes towards community renewable energy in Cumbria.	It is appropriate to allocate risks according to both sectors with risk management capability to manage them.	Did not empirically show the relationship between community involvement risks and financing of renewable energy project financing.

Davis, Rachel and Daniel M. Franks. (2014)	Costs of Company-Community Conflict in the Extractive Sector	Transcaction cost goes up when risks are evident.	
Wu¨ stenhagen et al. (2007)	Social acceptance of renewable energy innovation: An introduction to the concept.	Project risks are linked to social acceptance of renewable energy projects.	This study did not draw correlation with project financing. The current study established a strong correlation and a significant influence of social acceptance risk on the performance of PPPs
Patterson and Pun (2015)	A Value Management Approach for Managing Social Project Risks of International Funding Discontinuity in Guyana	Delay in project approvals and permits and land acquisition are the most frequently considered risks by investors. .	The study employed a descriptive survey design collected and analyzed both quantitative but was silent on the sampling procedure and the sample size.
P.G Ogira, (2014),	Monopoly in Electricity Generation and Electricity Supply is a threat to Investment Expansions in Kenya	Monopolization results to energy price instability. Removal of monopoly enhances investments in the renewable energy sector. Subsidy policy affects profitability of renewable energy investments Factoring of regional difference and customer diversity	To assess the extent to which market risks influences performance of public private partnership renewable energy projects in Kenya.
Rambo(2013)	Renewable energy project financing risks in developing countries: Options for vision 2030.	Monopolization results to energy price instability.	This study was not based on primary empirical data, rather on secondary information sourced from other studies. The validity of the findings of the previous studies could not be tested

				because of use of secondary data. In this study, data was collected from the primary sources therefore validity will be tested
	Jankauskas et al (2014)	Risk factors for stakeholders in renewable energy Investments	Removal of monopoly enhances investments in the renewable energy sector.	This study entirely relied on secondary literature and did no gather any empirical primary data and did not take into account the moderating influence of risk allocation. The use of pure secondary literature puts to question the generalizability of the findings.
	Derya et al(2017)	Price Responsiveness in Electricity Markets: Implications for Demand Response in the Midwest.	Their findings show that industrial customers respond differently to market changes.	The paper did not seek to establish to establish influence on financing of renewable energy projects
Contract management	Mutua , Waiganjo and Oteyo(2014).	The influence of contract management on performance of outsourced projects in medium manufacturing enterprises in Nairobi County, Kenya	The study established that there was influence of contract management on performance of outsourced projects.	The study concentrated on outsourced projects in medium manufacturing enterprises in Nairobi County Kenya, the current study focused on contract management in PPP renewable energy projects. Study deployed appropriate data collection method for qualitative data. There is information on data analysis methods used and how the findings were arrived at. This methodology is in line with current study

	Byaruhanga and Basheka (2017)	Contractor monitoring and performance of road infrastructure projects in Uganda.	Contract monitoring positively influenced road project performance.	This study relied on purposive sampling which confined the study to low reliability due to high level of researcher bias associated with this methodology. This made the study less generalizable. The current study was descriptive and corellational, it applied random sampling which is more appropriate methodology to facilitate generalizability. Besides this, the current study focused on PPP renewable energy projects.
	Maseko (2014)	Analyzed the critical success factors for public-private partnerships in infrastructure development in South Africa.	Contract management control is a critical success factor of projects..	The study relied on a very small sample that could not facilitate plausible generalizability. The current study relies on an authoritative sample hence will be generalizable. There is information on data analysis methods used and how the findings were arrived at is not clear. This is a gap that will be covered in the current study by clearly explicating the methodology and findings of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Chapter three of this study provide the research methodology that were adopted by the research. This chapter therefore describe the paradigm of the research, design of the research, the target population, sampling procedures and sample size, instruments of data collection, procedure of data collection, techniques of data analysis, validity and reliability of research instruments and finally operational definition of variables.

3.2 Research Paradigm

In social research, the term "paradigm" is used to refer to the philosophical assumptions or to the basic set of beliefs that guide the actions and define the worldview of the researcher (Lincoln et al. 2011).This study was guided by pragmatism paradigm. Pragmatic research paradigm embraces plurality of methods, it is based on the proposition that researchers should use methodological that works best for the study (Tashakkori and Teddlie 1998). This paradigm is connected with multiple methods or mixed-methods (see Biesta 2010; Creswell and Clark 2011; Johnson and Onwuegbuzie 2004; Maxcy 2003; Morgan 2014; Teddlie and Tashakkori 2009). This paradigm allowed the researcher to employ multiple approaches in the study on the basis of abduction reasoning that included both induction and deduction enabling use of both qualitative and quantitative in the study. A research methodology may be inclined to a deductive approach which is aligned more to positivist philosophy. Likewise, a research methodology may adopt a deductive approach which is more of interpretivism. A positivist paradigm employs more of deductive reasoning (Saunders, Lewis and Thornhil, 2009).It espouses observable social reality and law like generalizations akin to findings related to physical and natural sciences (Bryman and Bell ,2011). Interpretivism on the other hand is premised on the belief that a research strategy should respect diversity inherent in people and natural sciences and therefore should be subjective (Bryman and Bell, 2011). In essence qualitative approach adopts a highly subjective evaluation required of qualitative data that is collected by using interviews in order to contextualize the findings. Positivists support observable or empirical social reality, a study that has adopted a positivist paradigm is therefore likely to rely on a highly structured method to enable replicability (Saunders et al., 2009).It emphasizes quantifiable data that requires statistical analysis. In spite of the positivists and interpretivists debate, scholars aver that it is very possible to adopt both philosophies in a research study. The use of mixed methods that includes qualitative and quantitative methods is

highly appropriate for social science research Tashakkori and Teddlie's (Saunders, Lewis and Thornhil, 2009). This study was therefore pragmatically skewed to both positivists and intrepretevist paradigms. Pragmatism is therefore the orientation of this study as it employed both qualitative and quantitative approaches. This paradigm allowed the study to undertake the research using varied approaches(Creswell, 2008).This approach acknowledges that research should employ multiple methods and approaches in gathering and analyzing data, which should achieve careful observation and measurement of a phenomenon (quantitative approach) but by also seeking subjective experiences from the researchers and those of his respondents(qualitative approach). This study therefore utilized both quantitative and qualitative ways of collecting data. This mixed method technique enabled data triangulation, since the data was derived from a variety of sources using both the questionnaires and interviews.

3.2.1 Research Design

A research design is what guides the study in arriving at the research solution for the problem being solved (Cohen, Manion and Morrison, 2007).This study adopted a corellational and a descriptive survey research design. This was justified by the fact that the current study was descriptive and corellational in nature. The descriptive survey allowed the researcher to describe the characteristic of the population and phenomenon being studied (Shield and Rangarjan, 2013).To draw and explicate the relationship between variables the study relied on corellational design, this enabled the researcher to explain relationships among the variables of the study (Creswell, 2012). Corellational design was therefore very instrumental in enabling the study to achieve reliability by establishing the influence of independent variables on the dependent variable.

3.3 Target population

A study population is basically a large collection of individuals who are the main focus of a scientific study (Donald and Delno, 2006). The target population was derived from employees of KenGen which has a population of 2407 (KenGen employee summary of 2015). However, the study focused on project employees under business development and geothermal development, the target population was therefore considered under this category who were 769 employees. The sample size was eventually drawn from the 769 employees under business development and geothermal which was relevant to the study.

Table 3.1: Target Population

Population	No of respondents
Senior Management	98
Middle Level Management	259
Lower Level Management	412
TOTAL	**769**

Source: KenGen, June 2018

From the table 3.1 of target population, the company is having 98 senior managers, 259 middle level managers and 412 lower level manager under the Business Development and Geothermal Development. They entailed the target population from which the sampling was drawn.

3.4 Sample size and Sampling Procedure

This section explicates the size of the sample and the procedures that were used in sampling that were used to conduct the study. These are further described in the following subsections.

3.4.1 Sample Size

To arrive at the sample size, Yamane formula was applied. Yamane (1967) enabled a simple way of calculating sample size. The formula is stated as:

$$n= \frac{N}{1+N(0.5)2}$$

Where:

N= Target Population,

e = Precision error at 95% confidence level. e = 0.05

n = minimum sample size (where population is less than 10,000)

e2= (0.05)2= 0.0025

Therefore;

$$n=\frac{769}{1+769(0.0025)}$$

$$=\frac{769}{1+2}= 263$$

Say n= 263

The study therefore arrives at a sample size of 263

3.4.2 Sampling Procedure

The study population constituted of senior managers, middle level managers and lower level managers. Stratified random sampling was consequently applied.

Table 3.2: Distribution of the Sample Size

Population	Number of employees in strata	Number of people in a sample	Sample size	Proportion
Senior management	98	98*263/769	33	13.4
Middle level management	259	259*263/769	88	33
Lower level management	412	412*263/769	141	53.6
Total	**769**		**263**	**100%**

3.5 Research Instrument

Primary and secondary data were employed to establish how risk factors influence the performance of public private partnerships renewable energy projects. The study therefore employed both structured and unstructured questionnaires to gather data. Upon formulation of the questionnaire, it was discussed with the supervisors before embarking on a pilot study and the final actual administration of the instruments to the sampled respondents. The first part (A) of the instruments gathered information on the demographic characteristics of the respondents, this included age bracket, education level, and years worked in the company and finally the management level of the respondents. Part (B) sought information on Performance of PPP renewable energy projects, part (C) sought information on political risk factors and Performance of PPP renewable energy projects ,part (D) policy risks and Performance of Public Private Partnership renewable energy projects, Part (E) macroeconomic risks and Performance of Public Private Partnership renewable energy projects, part (F) on social acceptance risk and Performance of Public Private Partnership renewable energy projects, part (G) on market risks and Performance of Public Private Partnership renewable energy projects and Performance of Public Private Partnership renewable energy projects and part (H) on contract management and Performance of Public Private Partnership renewable energy projects. The items were measured on scale where the respondents stated to what extent they agreed with the given

statements that sought information on the variables. The scale was -Not at all, Small extent, Moderate extent, large extent and Very large extent. Section B, sought information on performance of public private partnership renewable energy projects, section C, sought data on political risks, section D, sought data on policy risks, section E, sought data on macroeconomic risks, section F, sought information on social acceptance risks, section G market risks and finally section H sought data on contract management. On the other hand the interview guide sought to obtain information from the key informants on how the risks factors influenced the performance of projects under public private partnerships in the renewable energy sector.

3.5.1 Pilot testing of the Research Instruments

On pilot testing of the research instruments, the proposed study had identified the Kenya Electricity Generating Company Limited (KENGEN), Western hydro. The study finds KENGEN appropriate because it presents similar characteristic to the main area of study. Just like KENGEN Olkaria has incorporated Public Private Partnership as an approach of financing its hydro-power development projects. Therefore, a random sampling of 27 employees of KENGEN; Western Hydro were selected and used for the pilot study. This was in line with Lackey and Wingate (1998) recommends that 10% of the larger projected sample for the study should be used. The respondents were requested to give their suggestions and comments on the general layout of the questionnaire. This was of great help during the revision; the questionnaires were reviewed for clarity of questions, accuracy of prompted responses and the effect of questions on respondents. The study was also able to establish whether the tool managed to elicit satisfactory response. In this regard the inconsistencies that were realized made it easy to rephrase of the questions in order to achieve the desired clarity. The 26 rephrased questionnaires were resubmitted to the same respondents after about two weeks and collected after 3 days for further review. Scores of the questionnaires were evaluated and assessed for consistency and reliability. The test score was expressed using Cronbach's α (alpha) reliability coefficient where a magnitude of r=0.842 provided support for instruments stability. A tool is considered reliable when r is equal or greater than 0.7(Burns and Grove, 2007), the researcher was therefore convinced the instrument was ready to solicit the required data.

3.5.2 Validity of the Research Instruments

Validity of a research instrument is measured with a view to ensuring that research instrument collects accurate data which captures the objective of the study(Mugenda and Mugenda, 2003).A research instrument is deemed valid when it is appropriate, meaningful and useful for

a particular study (Donald and Delno ,2006). It is also the length at which a research instrument captures the right information from the respondent (Nachmias and Nachmias, 1996). To ensure validity, the research instruments were subjected to test and ascertained to be adequate, data subjected to test of statistical assumptions for the validity of parametric test. Besides, content and construct validity were examined. Content validity was examined to ensure that the instrument items were presenting the content of each construct as explicated in the questionnaire and study guide. The concern whether the research instruments were representative of risk factors ,contract management and performance of public private partnerships renewable energy projects were addressed by consultation. The researcher consulted an expert in the business development unit and the two supervisors who reviewed the instruments. The contents were consequently reviewed with consideration from the comments and modifications recommended by the expert and supervisor. Construct validity was verified by the degree to which the research instrument measured the variables they were intended to. Variables in this study were conceptualized based on literature review, this ensured construct validity was achieved. Revision of research items based on each objectives to ascertain the accuracy with which they responded to the research questions and objectives. Validity was further achieved by reliance on quantitative and qualitative data, this enabled data triangulation. Triangulation enabled the study to circumvent intrinsic bias realized when a single method of data collection is used (Bryman and Bell, 2011).

3.5.3 Reliability of the Instruments

Reliability is considered a necessary condition for validity (Stratford, 1989).Reliability testing of the research instruments ensures internal consistency of the score obtained by a research instrument. An instrument is reliable if it has minimal errors of measurement, shows stability, consistency and is dependable. Reliability has been defined as the consistency of score obtained; reliability exhibits two aspects of stability and equivalency (Donald and Delno, 2006). A research instrument achieves reliability when it gives consistent results with repeated measurements. In this study reliability was obtained by pretesting the questionnaire, a total of 27 respondents were used to pretest the questionnaire. 10% of the study population is considered adequate for the pilot study (Baker, 1994).The respondents were drawn from a different population but with experience in public private partnerships. This research relied on Cronbach's Alpha to gauge the reliability coefficients of the study instruments. According to Nunally, a reliability coefficient of between 0.5 and 0.6 is adequate for a basic research (Nunnally, 1967).However for the current study the researcher aligned to an Alpha reliability

coefficient of at least 0.7 as proposed by Creswell (1994)**.**Cronbach's alphas of at least 0.7 indicated the reliability of the items was acceptable (George and Mallery, 2016).The reliability tests for the dependent, independent and moderating variable yielded the following coefficient on Table 3.3

Table 3.3: Reliability Coefficients

Variables	No of cases	Number of items	Reliability coefficient
Performance of PPP	27	10	0.786
Political Risks	27	10	0.799
Policy Risks	27	10	0.789
Macro-economic risks	27	10	0.796
Social Acceptance risk	27	10	0.850
Market risks	27	10	0.811
Contract management	27	10	0.886
Composite Cronbach's α (alpha) reliability coefficient			**0.842**

3.6 Data Collection Procedure

The researcher applied for authorization to conduct the research from the University of Nairobi, this was granted. The researcher then went ahead and applied for a permit for the research from the National Commission for Science, Technology and Innovation. After acquiring the permission, the researcher acquired an introductory letter from the university and proceeded to visit the county commissioners and the county education offices for introduction and clearance to undertake the study in Nakuru County. Equipped with all the letters the researcher then applied for research authorization from Kenya Electricity Generation Company to undertake the researcher within its premises, this was granted. A reconnaissance visit of the study area was undertaken, this basically involved a preliminary visit to the human resource office, the human resource officer then sent an email to all the departments alerting the staff of a student researcher permitted to collect data in two days' time, hence their cooperation. The following day, upon a revisit one of the staff was assigned to take the researcher round the premises, this enabled the researcher to map the study area. The study area was simplified by fact that most of the target respondents were located in one location since their office blocks were a single

development (plaza). The researcher then reviewed research etiquette like issues of courtesy, presentation, confidentiality and avoidance of leading questions and biasness. On the data collection day, the assigned member of staff and the researcher visited all the target departments where each and every respondent's permission was sought before being given a copy of self-administered questionnaire. The respondents were given a sufficient period of three days to complete the questionnaire which were however collected after five days owing to the fact that some of respondents were also engaged in field work. The key respondents were interviewed concurrently, each interview lasting for about 15-25 minutes.

3.7 Data Analysis Techniques

Data analysis began by the examination of the data that had been collected during the research to support in decision making and drawing of inferences (Donald and Delno, 2006). In this study, data analysis involved the use of mixed methods data analysis techniques thus incorporating both descriptive and inferential data analysis. The study relied on SPSS Version 20 software for quantitative data analysis. The measures of central tendency, the mean and standard deviation were used because the data values were finite hence were expected to cluster around a central value (Wisberg, 1992). Descriptive statistics involved the use of central tendency (mean, mode and median) frequencies, proportions, standard deviations and variance. Due to the homogeneity nature of the target population, the researcher anticipated a normal distribution hence data was expected to cluster around statistical averages. Measurement of the data was therefore based whether it had a strong or weak tendency based on the standard deviation from the mean (Ghahramani, 2000).

For parametric analysis data was first explored for test for statistical assumptions and analysis, this involved test of normality, test for multicollinearity and test of homogeneity of variance, and this was to ascertain that the assumptions were met. Pearson correlation coefficient(r) in the analysis of the strength between the variables (Huber, 2004). Regression analyses were performed to determine the strength of the variables as far as the relationship between risk factors and performance of public private partnership was concerned. To investigate the moderating influence of contract management on the relationship between risk factors and performance of PPPs, Stepwise Regression (R^2) analysis was used. The analysis was there after displayed in the form of tables to facilitate verification. Hypotheses were analyzed by F-test using P-values at 95% confidence, this determined rejection or adoption of the null hypothesis at 0.05 significance levels. Multiple linear regressions were performed to determine the level of influence the independent variables had on the dependent variable.

3.7.1 Quantitative Data Analysis

Questionnaire is the instrument that was used to collect quantitative data, The data was sought on the five independent variables (risk factors), the moderating variable (contract management) and the dependent variable (performance of public private partnership renewable energy projects).The main body of the questionnaire had a total sixty items in the main body, these items were structured to generate likert response options based on a 5-point ordinal scale. The scale ranged from 1-5, marked as Not at all, To a small extent, To a moderate extent, To a large extent and To a very large extent. For the analysis, the study borrowed from (Carifio and Perla, 2007), who used a 5-point equidistance scale. The assumption of equidistance was fulfilled by adopting a decision rule such that Not at all 1.0 <NA<1.8; to a small extent 1.8<S<2.6; moderate extent 2.6<M<3.4; to a large extent 3.4<L<4.2; and to a very large extent 4.2<VLE<5.0, this gave an equidistance of 0.8. Composite scores were generated and used in the analysis, the decision rules was guided by the logical equal levels of the score as approximated with to the first decimal point in line with equidistance assertions as supported by (Bertam, 2007 and Lantz, 3013).Likert data can be analyzed as an interval measurement scale, the scales are derived by calculating a composite mean from the likert-type items (Boone and Boone, 2012).For interval scale data analysis, descriptive statistics is recommended, so the study used the mean for central tendency and standard deviations to measure variability. Other appropriate data analysis procedures include, the Pearson(r), t-test, Analysis Of Variance (ANOVA) and regression procedures (Carifio and Rocco, 2007).Murray (2013) conducted a study to determine if the type of statistical tests used on likert scale data affect the conclusion based on the results obtained. The study concluded that both parametric and non-parametric tests like Spearman rho and Pearson conducted on likert scale have no influence on the conclusions. Another study by De Winter and Dodou (2010) sought to draw comparison on type I and II error levels of t-test against the Mann-Whitney-Wilcoxon (MWW) based on five-point Likert items. The researchers concluded that the t-test and Mann-Whitney-Wilcoxon generally the same power and therefore researchers do not have to worry about finding a difference.

3.7.2 Qualitative Data Analysis

Qualitative data was processed manually using thematic content analysis method, this approach reviewed the respondent's responses to individual questions in the interview guide and identified themes, consistencies and differences. Data analysis was performed primarily by transcribing the interviews, this involved typing the field notes. The transcription and

translation, the researcher ensured that there was no modification, the responses were verbatim. This ensured that original responses were not interfered with, this provided reflection of the original conversation .The transcribed data was reviewed and notes made of short phrases that that summed up the respondents responses. The phrases from all scripts were collected on new sets of pages and reviewed, this was to remove duplications and overlapping views before summarization into categories. These categories were further reviewed and refined by collapsing them into a final category system capturing the themes of the interview. Each category was then coded after being given identity, then transcript reviewed for responses in every question, frequently used words were identified and highlighted. Contextual description and direct quotations from the respondents in line with each theme was developed into a narrative. Inductive approach to data analysis was used without any predetermined framework. Upon completion the data analysis was verified and validated by the supervisors in order to eliminate biases and enhance theme development.

3.7.3 Inferential Analysis

To quantify the strength of association between the variables, correlational analysis was performed. Correlation coefficient derived from Pearson Product Moment correlation coefficient is normally denoted as r and ranges -1 and +1. A negative effect implies an inverse relationship or results into an opposite direction between predictor and response variable (increase-decrease). A positive influence on the other hand implies that an increase (or reduction) in the predictor variable dictates an increase (or decrease) of the dependent variable. For interpretation, the relationships were deemed strong when $r \geq 0.5$, moderate when r 0.3 ranges from to 0.49 and weak when r is less than 0.49, a correlation of 0 indicated no relationship. Pearson correlation is mainly used in used in social sciences to judge the degree of strength of linear relationship between the variables (Huber, 2004). Table 3.4 shows the correlation model used by the study. In this study determined the linear relationship between risk factors and performance of PPP renewable energy projects.

The following formula represents the model that was used;

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

r= Pearson product moment correlation coefficient

ΣY = sum of indicators of performance of public private partnership renewable energy projects

ΣX = sum of indicators of risk factors

ΣY^2 = sum of squares of indicators of performance of public private partnership renewable energy projects,

ΣX^2 = sum of squares of indicators of risk factors

ΣXY = sum of product of indicators of risk factors and indicators of performance of public private partnership renewable energy projects,

n = sample size.

Multiple correlation model was also used where several variables were correlated to analyze the strength and direction of influence of risks factors on performance of public private partnership projects. The following model was used;

$$R= \sqrt{\frac{r^2_{yx1}+ r^2_{yx^2}-r^2_{yx1}.r^2_{yx2}+\cdots+r^2_{yx5}}{1-r^2_{x1x4}}}$$

The coefficient of the multiple correlations is represented by R

$^{r2}yx1$ = correlation coefficient for variables y and x1,

$^{r2}yx2$ = correlation coefficient for variables y and x2,

$^{r2}yx3$ = correlation coefficient for variables y and x3,

$^{r2}yx4$ = correlation coefficient for variables y and x4,

$^{r2}yx5$ = correlation coefficient for variables y and x5,

$^{r2}y1x5$= value of correlation coefficient for variables x1, x2, x3, x4, x5.

3.7.3.1 Regression Models

To investigate how risk factors influenced the performance of PPPs, the study performed regression analyses. Regression models were used to test the strength of the relationship between the variables .The contribution of each of the risk factors to the performance of PPP renewable energy projects was determined using the coefficient of determination. For hypothesis testing the study used the F-statistics. The following models were used as explicated for each objective of the study. Table 3.4 shows the variables that were used in the analysis.

Table 3.4: Variables and Indicators

Variable		Indicator
Dependent	Performance of public private partnerships(Y)	Stakeholder satisfaction ,Project completion time ,Reduction of project cost, Project quality output ,Meeting of project objectives and Level of investments in PPP
Independent	Risk factors(X_1,X_2,X_3,X_4,X_5)	Political risks(X_1) Policy risks(x_2) Macroeconomic risks(x_3), Social Acceptance risks (X_4)and Market Risks(X_5), combined risk factors(X_1,X_2,X_3,X_4,X_5)
Moderating	Contract management(M)	Risk management plan, Contract performance and monitoring, Contract change management, Administration and compliance and Contract partnership management. (X_1,X_2,X_3,X_4,X_5) *M+ε

The following correlation and regression models guided the data analysis whereby:

y =Dependent Variable

β_0 = Constant Term

β_1 ,$_2$,β_3,…β_n = Beta Coefficients

X_1 ,$_2$,X_3,…Xn = Predictor Variables

ε – Error Term

The models are explicated in Table 3.5

Table 3.5: Models for Testing the Hypothesis

Objective	Hypotheses	Model for hypothesis testing.	Interpretations
To establish how political risks influence performance of public private partnership renewable energy projects in Kenya.	H0 There is no significant influence of political risks on performance of PPP renewable energy projects in Kenya	$y=\beta_0+\beta_1 X_1+ \varepsilon i$ Y=Performance of PPP renewable energy projects $\beta_{0=}$ constant $\beta_{1=}$Beta coefficient $X_{1=}$Political risks εi = error term	Accept H_A, if p<0.05, otherwise accept H_0, if p > 0.05
To establish the extent to which policy risks influences performance of public private partnership renewable energy projects in Kenya.	H0There is no significant influence of policy risks on performance of PPP renewable energy projects in Kenya.	$y=\beta_0+\beta_2 X_2+ \varepsilon i$ Y=Performance of PPP renewable energy projects $\beta_{0=}$ constant $\beta_{1=}$Beta coefficient $X_{1=}$Policy risks εi = error term	Accept H_A, if p<0.05, otherwise accept H_0, if p > 0.05
To assess the extent to which macro-economic risks influences performance of public private partnership renewable energy projects in Kenya.	H0There is no significant influence of macro-economic risks on performance of PPP renewable energy projects in Kenya.	$y=\beta_0+\beta_3 X_3+ \varepsilon i$ Y=Performance of PPP renewable energy projects $\beta_{0=}$ constant $\beta_{1=}$Beta coefficient $X_{1=}$Macroeconomic risks εi = error term	Accept H_A, if p<0.05, otherwise accept H_0, if p > 0.05
To assess how social acceptance risks influences performance of public private partnership renewable energy projects in Kenya.	H0There is no significant influence of social acceptance risks on performance of PPP renewable energy projects in Kenya.	$y=\beta_0+\beta_4 X_4+ \varepsilon i$ Y=Performance of PPP renewable energy projects $\beta_{0=}$ constant $\beta_{1=}$Beta coefficient $X_{1=}$Social Acceptance risks εi = error term	Accept H_A, if p<0.05, otherwise accept H_0, if p > 0.05
To assess the extent to which market risks influences performance of public private partnership	H0There is no significant influence of market risks on performance of PPP	$y=\beta_0+\beta_5 X_5+ \varepsilon i$ Y=Performance of PPP renewable energy projects	Accept H_A, if p<0.05, otherwise accept H_0, if p > 0.05

renewable energy projects in Kenya.	renewable energy projects in Kenya.	$\beta_{0=}$ constant $\beta_{1=}$Beta coefficient $X_{1=}$Political risks εi = error term	
To determine how combined risk factors influences performance of public private partnership renewable energy projects in Kenya	H0There is no significant influence of combined risk factors on performance of PPP renewable energy projects in Kenya.	$y=\beta 0+ \beta X_1+\beta X_2+\beta X_3+ \beta X_4+ \beta X_5+ \varepsilon i$ Y=Performance of PPP renewable energy projects $\beta_{0=}$ constant $\beta_{=}$Beta coefficients $X_{1...}x_{5=}$Political, policy, macroeconomic, social acceptance and market risks. εi = error term	Accept H_A, if $p<0.05$, otherwise accept H_0, if $p > 0.05$
To determine the moderating influence of contract management on the relationship between risk factors and performance of public private partnership renewable energy projects in Kenya.	H0There is no significant moderating influence of contract management on the relationship between risk factors and performance of performance of PPP renewable energy projects in Kenya.	$y=\beta_0+\beta_1X_1 + \beta 2\ X_2+ \beta 3\ X3+ \beta_4X_4+ \beta_5X_5$*M+ε Where β_0, β1, β2 and β_3 are the correlation coefficients, Performance of Public Private Partnerships is the dependent variable, RF (risk factors) is the independent variable; M (Moderating variable); RF*M is the interaction factor between Risk Factor(RF) and Moderating variable(M); and ε is the error term.	Accept H_A, if $p<0.05$, otherwise accept H_0, if $p > 0.05$

3.8 Ethical Considerations

To adhere to ethical consideration, the researcher applied for and obtained permission from the National Commission for Science, Technology and Innovation (NACOSTI). Both primary and secondary data are acquired through a permission (Donald and Delno, 2006). The data collection process only commenced after the requisite approval by the Kenya Electricity Generating Company that issued a written permission Participation in the study was purely at the volition of the respondents besides this the confidentiality and anonymity was strictly adhered to as measure of protecting the participant's right to privacy (Cooper and Schindler 2003). Identities of the respondents were therefore not disclosed in the entire process of the study. Participants were free to decline participation at any stage of the study.

3.9 Operationalization of the Variables

This section describes the scale of measurements, research approach and statistical analysis that was used to measure the variables.

Table 3.6: Operationalization of the Variables

	Objectives	Variables	Indicators	Measurement scales	Research approach	Tools of Data analysis	Data analysis techniques
		Independent variables					
1	To establish how political risks influence financing of Public-Private Partnership renewable energy projects.	Political risks	Risk of expropriation -Breach of contract -Civil disturbances -Political conflict -Graft	Nominal/ Ordinal/Interval	Mixed methods	Simple and multiple linear Regression Spearman's product moment correlation coefficient. Thematic content analysis	-Parametric -Descriptive analysis -Inferential analysis -Predictive analysis -Exploratory analysis -Causal analysis
2	To establish the extent to which the National Energy Policy influences financing of Public-Private Partnership renewable energy projects.	Low carbon policy risks	Regulatory risks -Changes in energy policy	Nominal/ Ordinal/Interval	Mixed methods	Simple and multiple linear Regression Spearman's product moment correlation	Parametric -Descriptive analysis

			-Unpredictable pricing mechanism -Commitment level -Time frame alteration	Nominal/ Ordinal/Interval		coefficient. Thematic content analysis	-Inferential analysis -Predictive analysis -Exploratory analysis -Causal analysis
3	To assess the extent to which currency risks influences financing of Public-Private Partnership renewable energy	Macroeconomic risks	-Foreign exchange risk -Currency fluctuation -Inflation -External debt	Nominal/ Ordinal/Interval		Simple and multiple linear Regression Spearman's product moment correlation coefficient. Thematic content analysis	Parametric -Descriptive analysis -Inferential analysis -Predictive analysis -Exploratory analysis -Causal analysis
3	To assess how social acceptance risks influence financing of Public-Private Partnership renewable energy projects	Social acceptance risks	Level of community support - Project t knowledge and acceptance -Satisfaction with project benefit	Nominal/ Ordinal/Interval	Mixed methods	Simple and multiple linear Regression Spearman's product moment correlation coefficient. Thematic content analysis	Parametric -Descriptive analysis -Inferential analysis -Predictive analysis -Exploratory analysis

							-Causal analysis
4	To assess the extent to which market risks influences financing of Public-Private Partnership renewable energy projects	Market risks	Government subsidies -Unilateral price determination -Market competition -Taxation	Nominal/ Ordinal/Interval	Mixed methods	Simple and multiple linear Regression Spearman's product moment correlation coefficient. Thematic content analysis	Parametric -Descriptive analysis -Inferential analysis -Predictive analysis -Exploratory analysis -Causal analysis
5	To establish how combined risk factors influence financing of Public-Private Partnership renewable energy projects.	Combined risk factors		Nominal/ Ordinal/Interval		Simple and multiple linear Regression Spearman's product moment correlation coefficient Thematic content analysis	Parametric -Descriptive analysis -Inferential analysis -Predictive analysis -Exploratory analysis -Causal analysis
		Moderating variable					
6	To determine the moderating influence of contract management	Contract management	Contract planning	Nominal/ Ordinal/Interval		Stepwise Regression	Parametric

on the relationship between risk factors and performance of Public-Private Partnership renewable energy projects.		Contract change management Contract monitoring Management commitment			Spearman's product moment correlation coefficient Thematic content analysis	-Descriptive analysis -Inferential analysis -Predictive analysis -Exploratory analysis -Causal analysis
	Dependent variable					
	Performance of public private partnerships	Number of projects financed by PPPs Number of projects seeking PPPs Number of long-term PPP contracts Number of power purchase agreements. PPP Contracts under negotiations PPP Projects at financial close	Nominal/ Ordinal/Interval	Mixed methods	Stepwise Regression Spearman's product moment correlation coefficient Thematic content analysis	Parametric -Descriptive analysis -Inferential analysis -Predictive analysis -Exploratory analysis -Causal analysis

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the study results after analysis, discussion based on themes and sub-thematic areas drawn from study objectives. The thematic areas include: Questionnaire return rate, ,Demographic information about the respondents, Basic statistical assumptions, political risks and performance of PPP renewable energy projects, Policy risks and performance of PPP renewable energy projects, Macroeconomic risks and performance of PPP renewable energy projects, Social Acceptance risks and performance of PPP renewable energy projects, Market risks and performance of public private partnership renewable energy projects, Combined risks factors and performance of public private partnership renewable energy project and Contract management, risk factors and performance of PPP renewable energy projects.

4.2 Questionnaire Return Rate

The study sought to establish the questionnaire return rate; this was done to know how many questionnaires were returned for analysis. When the response rate was high or adequate for better inference to a population can be made **(**Newbert, 2008; Awino, 2011; Ongeti, 2014). The return rate of the questionnaire is also a determinant of bias, inference can be misleading in the event bias exists. The perceived utility of a survey is compromised if there is low participation rate (National Research Council, 2013). Table 4.1 is showing the rate of response;

Table 4.1: Questionnaires Return Rate

Category	Targeted respondents(N)	Responsive respondents(n)	Response percentage
Senior management	33	21	10.1
Middle level management	88	76	36.7
Lower level management	141	110	53.1
Total	**263**	**207**	**100.0**

A sample size of 263 was selected from a population 769 employees tasked with business and geothermal development. Questionnaires given out were 263 where 207 questionnaires were received and analyzed. The study indicate that 21(10.1%) of the respondents were senior managers, 76(36.7%) were middle level managers while lower managers comprised the

majority of the respondents at 110(53.1 %.). The researcher consequently proceeded with the study since the respondents were deemed capable of responding to the questionnaire items.

Questionnaire administration covered a period of one week was carried out with the researcher himself with the help of one of the company secretaries. This was possible since the company offices were housed in one storey building, the Kengen geothermal plaza, Olkaria and Kengen Plaza Nairobi. As a result a high questionnaire return rate of 78.7% was achieved. The questionnaire return rate is a key indicator of the accuracy in the research findings. When the return rate is low there is a risk of sampling bias in a study (National Research Council, 2013).The best way to obtain survey estimates that are not biased is through a high return rate of the questionnaire (Dillman, 2000; Heberlin and Baumgartner, 1978).This study achieved a questionnaire return rate of more than 75% which is considered sufficient for accurate estimation (Werner, 2004). This was partly attributed to the support by the human resource department who emailed an internal memo to all the targeted participants alerting them of the study. The memo urged the participants to cooperate and offer support to the researcher .The researcher also met the participants face to face and explained the purpose, significance and the importance of voluntary participation in the study.

4.3 Demographic information of Respondents

The respondents profile considered were, gender, age, level of education, number of years worked and management level.

4.3.1 Distribution of the Respondents by Gender

Data was sought from the respondents which asked them to state their gender. The respondents were consequently asked to state whether they were males or female, this was to ascertain the distribution between the two genders. It is important to note that in this study no gender was given preference during the selection of the respondents. Respondents were consequently requested to state their gender. Table 4.2 is showing the distribution of the respondents by gender.

Table 4.2: Distribution of the Respondents by Gender

Particulars	Frequency	Percent
Male	134	64.7
Female	73	35.3
Total	**207**	**100.0**

Table 4.2 shows that out of the 207 respondents who participated in the study 134 (64.7%) were male, while 73(35.3%) were female.

4.3.2 Distribution of the respondents by age

Since the individual age was not a consideration when selecting the respondents, the distribution of respondents by age was done to ascertain whether the respondents were normally distribution based on their age groups. Age could also have influence on the participant's critical appreciation of the performance of public private partnership renewable energy projects

Table 4.3: Distribution of the Respondents by Age

Age bracket	Frequency	Percent
21-25 years	34	16.4
26-30 years	36	17.4
31-35 years	34	16.4
36-40 years	27	13.0
41-45 years	37	17.9
46-50 years	17	8.2
51-55 years	16	7.7
Over 55 years	6	2.9
Total	**207**	**100.0**

The study findings indicate that 34(16.4%) of the respondents were between ages of 21-25years;36(17.4%) of the respondents between 26-30 years; 34(16.4%) between ages 31-35 years;27(13.0%) between ages of 36-40 years; 37(17.9%)between ages of 41-45 years;17(8.2%) between ages of 46-50 years;16 (7.7%) 51-55 years while 6(2.9%) represented age group of 55 years and above. It is clear that most of the respondents were 35 years and

above and were therefore in a position to give honest opinion to the questionnaire items. This enable the study to source information from a majority of respondents who were mature enough to critically respond to issues of performance of public private partnership renewable energy projects.

4.3.3 Distribution of the Respondents by Level of Education

The level of education of the respondents was important in gauging their level of understanding of performance of PPP projects. The researcher consequently requested them to indicate level of education under the following categories; High school, Post-high school certificate, Diploma, Degree and Post-graduate. Table 4.4 bears the results,

Table 4.4: Distribution of the Respondents by Level of Education

Level of Education	Frequency	Percent
High school	12	5.8
Post high school certificate	14	6.8
Diploma	67	32.4
Degree	84	40.6
Post graduate	30	14.5
Total	**207**	**100.0**

The response level of education is shown in Table 4.5 show that, 12(5.8%) of the respondents had high school status qualification 14(6.8%) has certificate level of education; 67(32.4%) had diploma level of education; 84(40.6%) had degree level of education while 30 (14.5%) had post graduate qualifications. The results indicate that 87.4% of the respondents had Diploma level of education and above, this was an indication that the respondents were intellectually and capable of gauging the performance of PPP renewable energy projects. Data collected was therefore deemed reliable and relevant to the study.

4.3.4 Distribution of the respondents by Tenure of service

To get data on the respondents' tenure of service they were asked to indicate the duration they had worked in the company. The number of years worked was considered important in appreciating their level of knowledge of performance of public private partnerships renewable energy projects. The results are shown in Table 4.5

Table 4.5: Distribution of the Respondents by Tenure of Service

Duration	Frequency	Percent
1-5 years	31	15.0
5-10 years	14	6.8
10-15 years	43	20.8
15-20 years	89	43.0
20-24 years	20	9.7
over 25 years	10	4.8
Total	**207**	**100.0**

From the findings 31(15 %) of the respondents had worked for five between 1-5 years, 5-10 years were 14(6.8%), 10-15 years were 43(20.8%),15-20 years were 89(43.0%),20-24 years were 20(9.7%) and over 25 years were 10(4.8%). The data reveal that 85% of the respondents had worked in the company for more than five years consistently. Majority of the respondents were therefore considered by the study sufficient to make objective responses. It is assumed that employees who have stayed longer in the organization are more knowledgeable about organizational processes, systems and history. This is in line with Newbert (2008) who argues that researchers should carefully select respondents who have deep understanding of their contexts.

4.3.5 Distribution of the Respondents by Level Management

Data was on the level of management was sought. This was due to their perceived increase of knowledge of performance of public private partnerships. Participants therefore stated their level of management; the results are shown in Table 4.6

Table 4.6: Distribution of the Respondents by Level Management

Level of Management	Frequency	Percent
Senior management	45	21.7
Middle level management	69	33.3
Lower level management	93	44.9
Total	**207**	**100.0**

The research findings indicated that 45(21.7%) of the respondents were senior managers, 69 (33.3%) belonged to the middle level management category 93(44.9%) fell on the lower level management category. This finding implied that the respondents were mainly of middle level management and above hence had requisite knowledge for effective participation in the study and providing relevant information.

4.4 Basic Test for Statistical Assumptions

Data was explored to ensure that basic test for statistical assumptions were not violated. Parametric tests are usually based on a normal distribution with four basic assumptions of normality of the distribution, homogeneity of variance, interval data and independence (Field, 2009).These assumptions are tested to ensure that they are not violated; this further ensures the validity and reliability of the inferences drawn from the analyzed data. Failure to comply with these assumptions may lead to type I or type II errors. This study therefore relied on Shapiro-Wilk test, Test for multicollinearity, and homogeneity of variances to test for these assumptions. The results were thereafter presented in the following sections;

4.4.1 Test of Normality

To achieve reliable and accurate conclusions, the study performed the test of normality (Ghasemi and Zahedial, 2012). Violation of this assumption would invalidate the analysis from the collected data. However, some scholars like George and Mallery (2003) have argued that as sample sizes get bigger, the less the importance of the test of normality. They argued that a large sample size of more than 200 reduces the detrimental effect of non-normality. When normality is argued on the basis of central limit theorem that posits that as sample sizes get larger the less assumption of normality matters as the sample distribution will be normal regardless of what the data looks like (Field, 2013). Elliot and Woodward, (2007) have argued that Kolmogorov-Smirnov and Shapiro-Wilk are recommendable only when dealing with

sample sizes less than 50, that for large sample sizes (40 and above) the central theorem limit can be assumed; hence the use of parametric tests can still be justified. In this study, the researcher performed Shapiro Wilk tests and also relied on graphical plots (visual inspection of Q-Q plots) to ascertain normality. Shapiro Wilk test, is a test of the null hypothesis that a sample: X_1, X_2, 3…X_n is obtained from a population that was normally distributed. The SW test statistic, W, is given by the following formulae;

$$W = \frac{(\sum_{i}^{n} = 1^{aix(i)})^2}{\sum_{i=1}^{n}(x_1 - \bar{x})^2}$$

Where $x_i$is the ith order statistic and $\bar{x} = (x_1+\cdots+x_n)/n$ is the sample mean. The constants a_i are

Given by:

$$(a_{1,\ldots\ldots,}a_n) = \frac{m^T V^{-1}}{(m^T V^{-1} V^{-1} m)^{1/2}}$$

Where m=(m1,…m2,…m_n)⊤and m1,m2,…$m_n a$ are the expected values of the order statistics of independent and identically distributed random variables sampled from the standard normal distribution while V is the covariance matrix of those order statistics. While testing whether a population is normal by use of SW-test, statistic, the null hypothesis should be rejected where value of W is too small (Shapiro and Wilk, 1965). In this study, all the SW-test statistics as revealed in Table 4.7 were approaching 1 > 0.05 and hence the null hypothesis indicating that population was not normal is rejected.

The null hypothesis is not adopted of the value of W is too small (Shapiro and Wilk, 1965). The SW- test statistics were all very close to one as shown in table 4.7 and from the visual observation of observed values against the expected normal values on a normal Q-Q plot for all the variables. The test of normality proved that normality assumption was not broken. The test of normality results are shown in Table 4.7

Table 2.7: Test of Normality

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Market risks	0.069	206	0.019	0.987	206	0.050
Macroeconomic risks	0.077	206	0.005	0.993	206	0.395
Policy Risks	0.045	206	0.200*	0.994	206	0.603
Political risks	0.045	206	0.200*	0.994	206	0.626
Contract management	0.123	206	0.000	0.980	206	0.005
Social acceptance risks	0.095	206	0.000	0.984	206	0.019
Performance of PPPs	0.122	206	0.000	0.983	206	0.014

The study relied on graphical plots besides statistical test to judge the departure from normality. Graphical analysis of normality is considered more reliable approach; this is because it compares the actual data with the cumulative distribution of a normal distribution (Lind, Marchal and Wathen, 2008). If the data closely aligns to the diagonal straight line of the distribution the data is considered normally distributed. From the Q-Q graphical plots it is shown that the data closely followed the diagonal line hence the researcher considered the data as normally distributed. See figure 1-6

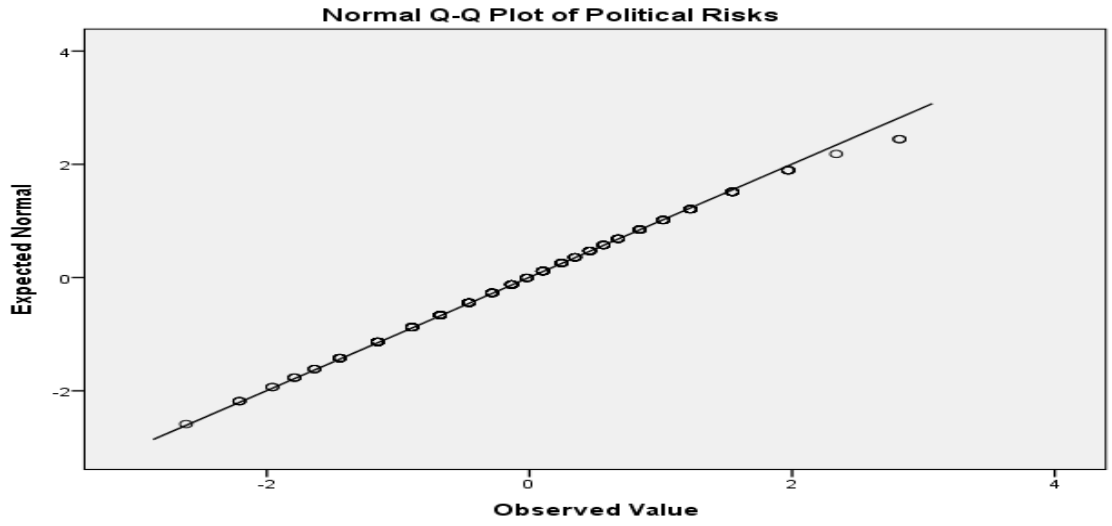


Figure 2: Normal Q-Q Plot of political risks

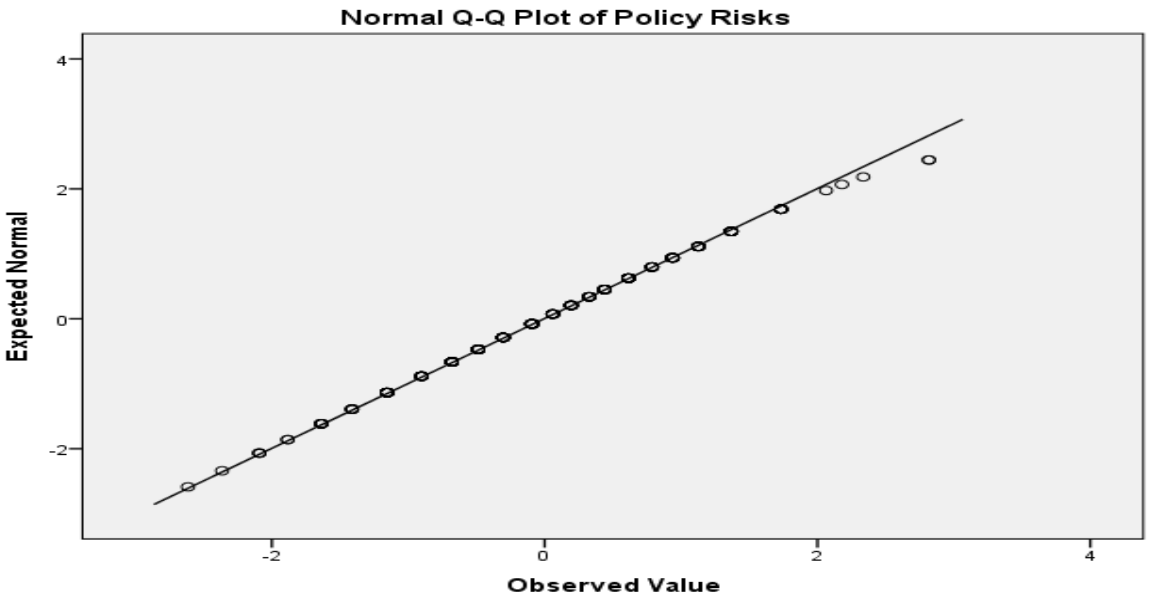


Figure 3: Normal Q-Q Plot of policy risks

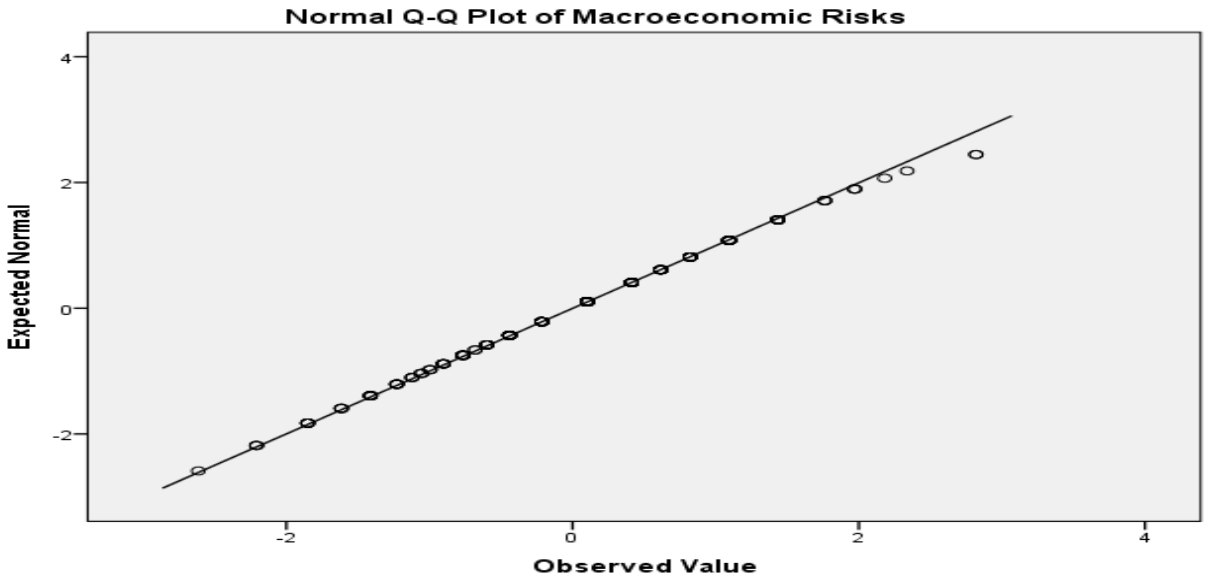


Figure 4: Normal Q-Q Plot of macroeconomic risks

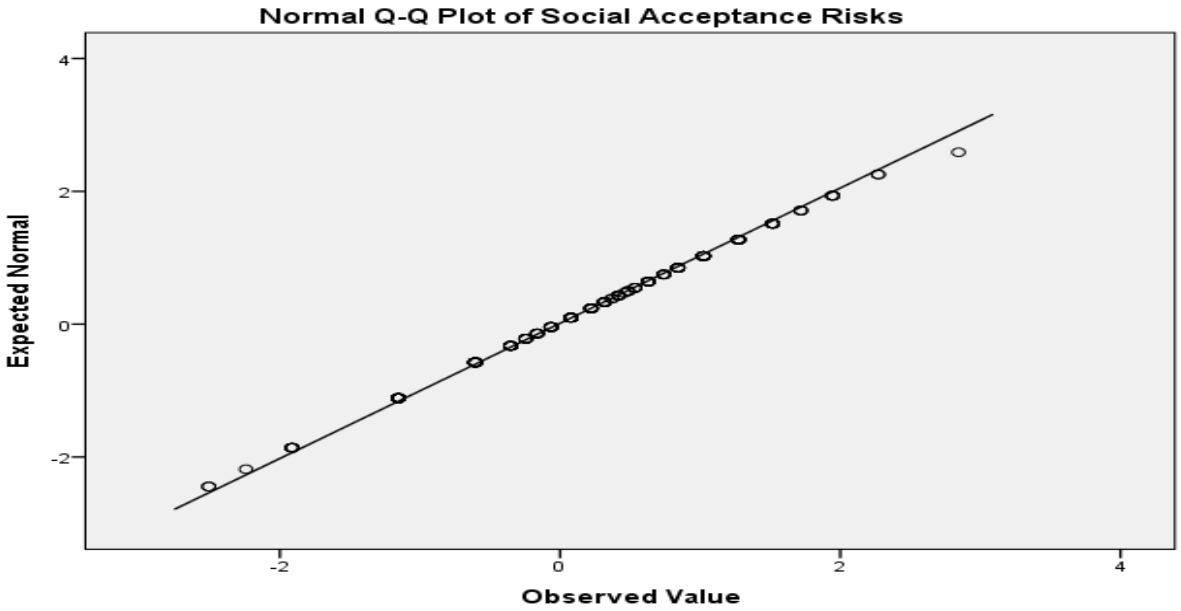
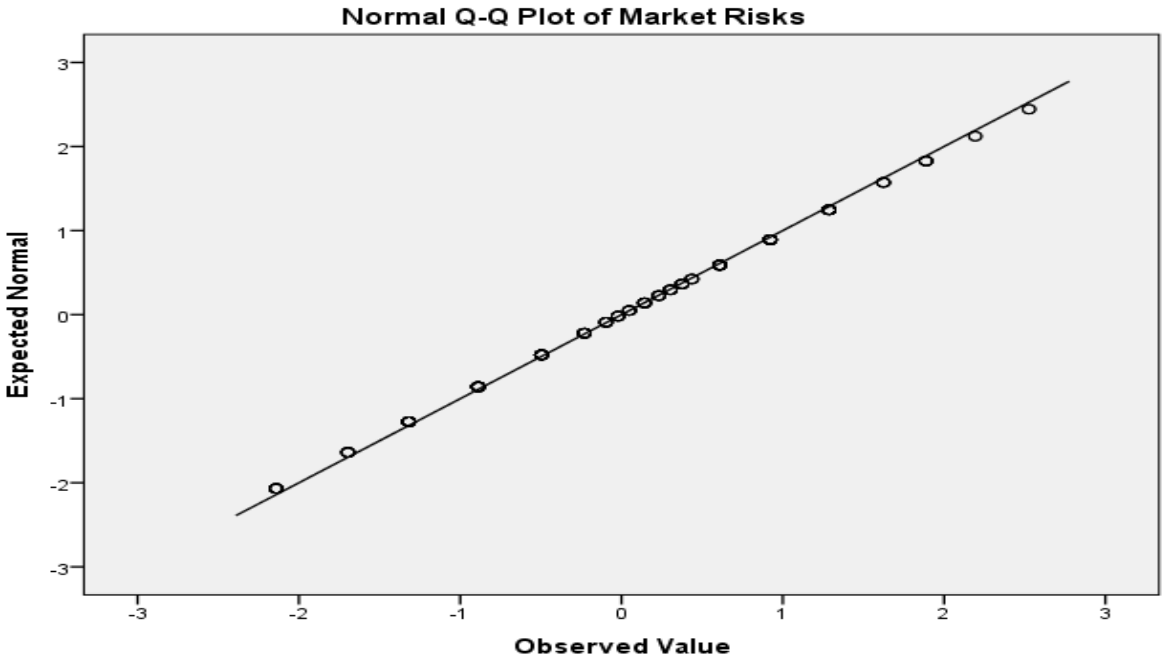


Figure 5: Normal Q-Q Plot of social acceptance risks



Normal Q-Q Plot of market risks

Figure 6: Normal Q-Q Plot of market risks

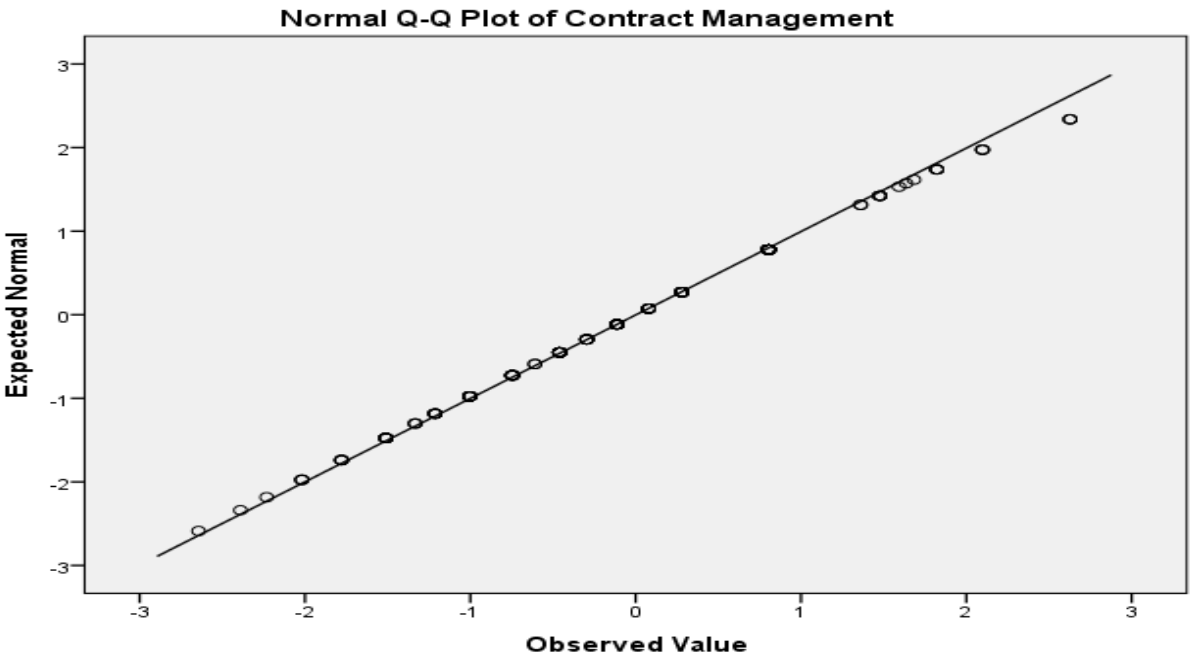


Figure 7: Normal Q-Q Plot of contract management

4.4.2 Test for Multicollinearity of Independent Variables

Multicollinearity is considered high when the independent variables share substantial information; this creates a competition in explanation of a similar variance thereby making it hard to assess the effect of individual variable on the dependent variable (Kutner et al, 2005). This implies that the independence of the predictor variables is compromised more so in regression analysis. Whenever two or more independent variables are inter-correlated, multi collinearity of collinearity will always exist. Researchers are therefore not concerned with existence of multicollinearity but the impact it has on the analysis (Baguley, 2012). In as much as multicollinearity does not have impact on the overall regression model and related statistical outputs such as R^2 and p-values, it becomes a problem when a study seeks to assess the effects of individual independent variable on the dependent variable (Gujarati and Porter, 2009). High multicollinearity increases the variances of the parameter thereby compromising the statistical significance of individual predictor models in as much as the overall model may be significant. Multicollinearity problem can be solved by dropping one of the collinear variables or by combining or transforming the high correlated variables into a single variable (Allison, 1999).

In this study the variance inflation factor (VIF) was used in testing of multicollinearity among the independent variables in a multiple regression model. This is a quick measure of how much a predictor variable is contributing to standard error in the regression. When the variance inflation factors for one of the variables equals or exceeds five, then it is a pointer to multicollinearity. Tolerance is the reciprocal of variance inflation factor (VIF). In test for multicollinearity when the VIF of a variable exceed five, the variable is discarded as this implies that the regression coefficient has been poorly estimated (O'Brien, 2007). This can be remedied by re-specifying the model by removing one or more of the variables which are considered to be highly correlated.

Table 4.8: Test for Multicollinearity

Variables	**Collinearity Statistics**	
	Tolerance	**VIF**
(Constant)		
Political Risks	0.296	3.379
Policy risks	0.297	3.371
Macroeconomic Risks	0.510	1.962
Social acceptance risks	0.248	4.040
Market risks	0.326	3.071

The output of test for multicollinearity is presented in Table 4.8 above, the VIF results were all less than five, and this implied that the study conformed to the assumption of non-existence of multicollinearity.

4.4.3 Test for Homogeneity of Variance

To test for homogeneity of variance among the predictor variables Levene's test was conducted. This is a test of the null hypothesis that the difference between the variance is zero. Should the test output be significant at $P \leq 0.05$, then it is conclusive that the null hypothesis is not correct and that the variances are significantly different. Should this be the case then the statistical assumption regarding homogeneity of variance has been violated.

Table 4.9: Test for Homogeneity of Variance

Variables	Levene Statistic	df1	df2	Sig.
Performance of PPPs	0.358	2	204	0.699
Political risks	1.055	2	204	0.350
Policy Risks	0.897	2	204	0.409
Macroeconomic risks	0.049	2	204	0.952
Social acceptance risks	2.433	2	204	0.090
Market risks	1.166	2	203	0.314
Contract management	0.064	2	204	0.938

Table 4.9 displays the output of Levene's test from the study's data. The Levene Statistic was less than 5 for all the variables that were tested hence the data conformed to the assumptions of homogeneity of variances (Kinuu, 2014).Again for all the variances the test was insignificant with, $p \geq 0.05$, the alternate hypothesis was therefore rejected. The study conformed to the assumptions of Test for homogeneity of variances.

4.4.4 Control of Type I Error and Type II Error

Controlling type I and II error essential for validation of the statistical findings, type I error occurs when a researcher adopts the alternative hypothesis instead of the null hypothesis on the other hand type II error occurs where the null hypothesis is adopted instead of the alternative hypothesis (Larry, 2013). By adopting a confidence level of 95% which has an implication of a standard variate of 1.96, the study minimized type I error. Type II error was minimized by adoption of adequate sample size of 207(Sekaran, 2003).

4.5 Performance of Public Private Partnerships Renewable Energy Projects

This section presents a descriptive analysis of Performance of public private partnership renewable energy projects. Specifically, it evaluates the mean scores of each questionnaire item and the standard deviation. Performance of public private partnerships renewable energy projects was identified as dependent on five risk factors-political risks, policy risks, macroeconomic risks, social acceptance risks and market risks. In this study eight indicators of performance of public private partnerships were analyzed; stakeholder satisfaction, social acceptance, project time management, project cost management, project quality management, public feedback and trend of adoption and the number. These indicators were assessed using ten Likert items. The items assessed the extent to which the respondents agreed with the statements seeking to measure performance of public private partnership renewable energy

projects. Frequencies and percentages were determined to quantify the responses in terms of their perception of strength of influence of risk factors. This was measured using a five point scale where the anchors were ranging from Not at all to very large extent with the others representing small extent, moderate extent and large extent. The assumption of equidistance was fulfilled by adopting a decision rule such that Not at all 1.0-1.8; to a small extent 1.8-2.6; moderate extent 2.6-3.4; to a large extent 3.4-4.2; and to a very large extent 4.2-5.0, this gave an equidistance of 0.8. The result of analysis of means and standard deviation is presented in Table 4.10

Table 4.10: Performance of Public Private Partnerships Renewable Energy Projects

Statements	n	5	4	3	2	1	Mean	Std. Dev.
1. As a stakeholder you are satisfied with the performance of PPP renewable energy projects.	207	6 (2.9%)	117 (56.5%)	71 (34.3%)	11 (5.3%)	2 (1.0%)	3.5507	0.6870
2. You are satisfied with the cost performance of PPP renewable projects.	207	15 (7.2%)	99 (47.8%)	77 (37.2%)	14 (6.8%)	2 (1.0%)	3.5362	0.7680
3. Project milestones are consistently achieved under PPP renewable energy projects.	207	18 (8.7%)	119 (57.4%)	49 (23.7%)	19 (9.2%)	2 (1.0%)	3.6377	0.8060
4. Public private partnerships have resulted to better project completion time.	207	69 (33.3%)	60 (29.0%)	60 (29.0%)	16 (7.7)	2 (1.0%)	3.8599	1.0023
5. Cost overrun has been minimized with the adoption of public private partnership projects.	207	97 (46.9%)	50 (24.1%)	43 (20.8%)	15 (7.2%)	2 (1.0%)	4.0870	1.02501
6. Public Private partnerships have resulted to reduction of project cost.	207	11 (5.3%)	126 (60.9%)	41 (19.8%)	27 (13.0%)	2 (1%)	3.5652	0.82105
7. Public Private partnerships have ensured improved quality of project outcomes.	207	56 (27.1%)	116 (56.0%)	28 (13.5%)	7 (3.4%)	0 (0.0%)	3.7826	0.77965
8. Issues of project quality have been minimized under Public Private Partnerships	207	56 (27.1%)	107 (51.7%)	28 (13.5%)	12 (5.8%)	4 (1.9%)	4.0676	0.73423
9. Under Public Private partnerships the government has realized her development objectives.	207	56 (27.1%)	107 (51.7%)	28 (13.5%)	12 (5.8%)	4 (1.9%)	3.9614	0.90224
10. Project objectives are better realized under Public private partnership arrangements.	207	63 (30.4%)	107 (51.7%)	28 (13.5%)	7 (3.4%)	2 (1.0%)	4.0725	0.81226
Composite mean and standard deviation							**3.8121**	**0.6988**

Valid N (list wise) Alpha coefficient= 0.786

Table 4.10 indicated that all the 207 participants in the study responded to the items in the questionnaire. The first item sought to establish whether the satisfaction of the stakeholders with the performance of PPP renewable energy projects. The result showed that 6(2.9%) indicated to very large extent they agreed, 117(56.5%) were largely in agreement, 71(34.3%) were moderately in agreement, 11(5.3%) agreed to a small extent while 2(1.0%) did not agree at all. This resulted to a mean score of 3.5507 with a standard deviation of 0.6870. When compared to the composite mean score of 3.8121 with a standard deviation of 0.6988, this item mean was lower. This means that cost performance in PPPs is very important and should be taken into consideration regarding public private partnership performance. A higher composite Standard Deviation implies a divergent opinion among the respondents. The lower item mean score compared to the composite mean means that even though stakeholder satisfaction is an important aspect of performance of PPP renewable energy project currently it does not have influence on performance of PPP renewable energy project.

The third item sought to determine if project milestones were consistently achieved under public private partnerships renewable energy projects. The analysis show that 18(8.7%) indicated they to a very large extent approved the statement 119(57.4%) agreed largely with statement 49(23.7%) agreed to a moderate extent, 19(9.2%) agreed to a small extent while 2(1.0%) did not agree at all. This item got a mean of 3.6377 with the standard deviation of 0.8060. Compared with the overall mean score of 3.8121 the standard deviation being 0.6988 this item mean was lower. This means that in as much as achieving project milestone is an important aspect it had no influence on performance PPP renewable energy projects since the mean was lower than the composite mean as a base.

The fourth item sought to establish if public private partnership had resulted to better project completion time. From the results 69(33.3%) indicated very large extent, 60(29.0%) admitted they were in agreement to a large extent, 60(29.0%) agreed moderately with the statement, 16(7.7%) indicated to a small extent agreed while 2(1.0%) did not agree at all with the questionnaire statement. This item obtained a mean score of 3.8599 while the standard deviation was 1.0023, the respondents mostly agreed to a large extent with statement. Compared to the composite mean of 3.8121 with a standard deviation of 0.6988, the item mean was higher, this implied that the respondents had divergent views as to whether public private partnership resulted to better project completion time.

The fifth item examined whether cost overrun had been minimized with the adoption of public private partnership. The outcome of the descriptive statistics indicate that 97(46.9%) of the respondents agreed with the statement to a very large extent, 50(24.1%) indicated to a large extent, 43(20.8%) to a moderate extent, 15(7.2%) while 2(1.0%) did not agree at all with the statement. This gave a mean score of 4.0870 and a standard deviation of 1.0250. Since this was above the composite mean score of 3.8121 with a standard deviation of 0.6988, it implied that there was divergent opinion. The aspect of cost overrun influenced performance of PPP renewable energy projects as the mean was higher than the composite mean as a base.

The sixth item sought to determine whether public private partnership had resulted to reduction of project cost. Results on table 4.10 indicate that 11(5.3%) agreed to a very large extent, 126(60.9%) to a large extent, 41(19.8%) to a moderate extent, 27(13.0%) to a small extent and 2(1.0%) did not agree at all with the questionnaire statement. The obtained mean score was at 3.5652 while the standard deviation was 0.8211 implying most participants had largely agreed with the statement. When compared to the composite mean composite mean of 3.8121 with a standard deviation of 0.6988, this item mean was lower. This implies that even though cost reduction is an important aspect of performance PPP renewable energy there is divergent opinion in regard to this item. It also indicate that currently it has no influence because their mean is lower that the composite mean as a base.

The seventh item sought to establish if Public Private Partnership has ensured improved quality on project outcomes. The results indicated that 56(27.1%) were to a very large extent, while 116(56.0%) to a large extent, 28(13.5%) indicated they acceded moderate extent with the questionnaire statement, 7(3.4%) agreed to small extent while 0(0.0%) indicated not all. His resulted to mean score of 3.7826 with a standard deviation of 0.7797.In comparison to the composite mean score of 3.8121 and a standard deviation of 0.6988, this item mean is lower. Given the standard deviation of the composite mean is higher than the item mean implies a divergent judgments from the respondents. A higher composite mean also indicate that there is no influence in as much as quality is an important aspect in PPP renewable energy performance.

The eighth item examined issues of project quality, whether they were minimal under public private partnership. From the results 56(27.1%) indicated they had agreed with questionnaire statement to a very large extent 107(51.7%) indicated to a large extent, 28(13.5%) agreed moderately 12 (5.8%) agreed to a small extent with 4(1.9%) indicating not at all implying they totally disagreed with the questionnaire statement. This item had a mean score of 4.0676 and a

standard deviation of 0.7342, this mean is higher than the composite mean. The item has both higher mean and standard deviation which implies divergence in opinion which also implies that quality currently implies the performance of PPP renewable energy projects in Kenya.

The ninth item assessed whether Public Private Partnerships has enabled the government realize her development objectives. From the analysis, 56(27.1%) of the respondents agreed to a very large extent that Public Private Partnership renewable energy projects enabled the government realize her objectives, 107(51.7%) agreed to a large extent, 28(13.5%) agreed to a moderate extent, 12(5.8%) agreed to a small extent while 4(1.9%) indicated not all, meaning absolute disagreement with the statement. A mean score of 3.9614 with 0.9022 as the standard deviation implied most of the respondents agreed to a large extent with the statement. When compared to the composite mean score of 3.8121 with 0.6988 as the standard deviation, this mean was higher hence can be said that PPP can translate to realization of government objectives. Comparison of the two standard deviations shows that there was a divergence of opinion even though majority of the respondents agreed that PPP has enabled the government realize her objectives.

The last examined whether project objectives are better realized under public private partnerships arrangements. From the description of the responses, 63(30.4%) of the participants indicated they had to a very large extent approved the statement, 107(51.7%) indicated to a large extent, 28(13.5%) indicated to moderate extent, while 7(3.4%) indicated to a small extent and 2(1.0%) did not agree by indicating not all. This resulted to a mean of 4.0725 with a standard deviation of 0.8123 which is above the composite mean of 3.8121 and a standard deviation of 0.6988. The evidence that item SD is greater than the composite SD is an indication of divergent views regarding the fact that project objectives are better realized under PPPs. Project objective is an important aspect that influences the performance of PPP renewable energy projects as evidenced by a higher item mean than the composite mean.

Table 4.10 shows that the Cronbach Reliability for the ten items that were used to measure the performance of public private partnerships renewable energy projects was 0.786 .This showed that there was internal consistency of the item used to measure performance of public private partnership renewable energy projects. The composite mean score or the mean of means was 3.8121 while the composite standard deviation was 0.6988. The implication of this in respect to the study was that the respondents agreed performance of PPPs taking into consideration the

stakeholder satisfaction, project completion time, reduction of project cost, project quality output and meeting of project objectives was positive.

4.6 Political Risks and Performance of Public Private Partnerships Renewable Energy Projects

Research objective one of this study sought to establish how political risks influence the performance of PPP renewable energy projects. It involved analysis of the mean score of the individual items, the mean of means (composite mean score) and the respondents perception of risks in relation to PPP renewable energy projects. The indicators of Political risks were political violence, breach of contract, bureaucratic risk, non-governmental actions and expropriation. The influence of this constructs were examined through simple linear and multiple regression analysis. To test the hypothesis political risks entailing all the constructs were used. The items assessed the extent to which the respondents agreed with the influence of political risk factors, frequencies and percentages were determined to quantify the responses in terms of their perception of strength of influence of risk factors. This was measured using a five point scale where the anchors were; Not at all to very large extent with the others representing small extent, moderate extent and large extent. The assumption of equidistance was fulfilled by adopting a decision rule such that Not at all 1.0-1.8; to a small extent 1.8-2.6; moderate extent 2.6-3.4; to a large extent 3.4<A<4.2; and to a very large extent 4.2-5.0, this gave an equidistance of 0.8. This was particularly followed in the descriptive analysis and interpretations.

The study used descriptive analysis of data where frequency distributions, means, percentages and standard deviations were involved. The relationship between the variables was determined using Pearson correlation. Regression models were used to determine the strength of political risk factors as far as relationship with performance of PPP renewable energy projects is concerned. How each political risk factor contributed was determined using the coefficient of determination. The regression analyses resulted to various values which include R, R2, F-ratio, t-values and p-values. The relationship between variables were tested at $p<0.05$ or 95% accuracy level, this is the point a decision was made to confirm the hypothesis at F-ratio where $p<0.05$.

The following models were adopted:

$Y=\beta_0+\beta 1X_11……..+BX_35+\varepsilon$ for multiple regressions

$Y= \beta_0+\beta 1X_11+ \varepsilon$ for simple linear regression

The results for the various statistical analyses are presented in Tables 4.11, 4.12, 4.13 and 4.14 as shown;

Table 4.11: Political Risks and Performance of Public Private Partnerships Renewable Energy Projects

Statements	n	1	2	3	4	5	Mean	Std.Dev
1. Cases of political violence has made it difficult to meet PPP objectives	207	11 (5.3%)	114 (55.1%)	15 (7.2%)	63 (30.5%)	4 (1.9%)	2.6860	1.0253
2.Political instability has impacted on the cost and quality of public private partnership projects	207	7 (3.4%)	93 (44.9%)	48 (23.2%)	39 (18.8%)	20 (9.7%)	2.8647	1.0708
3. Contractual disputes have impacted on cost and time performance of public private partnerships.	207	10 (4.8%)	108 (52.2%)	38 (18.4%)	46 (22.2%)	5 (2.4%)	2.6522	0.9577
4.Failure to honor contractual obligations has discouraged private investors from PPPs	207	22 (10.6%)	71 (34.3%)	68 (32.9%)	29 (14.0%)	17 (8.2%)	2.7488	1.0860
5.Corruption in procurement of PPPs impacted on the quality of projects delivered,	207	56 (27.1%)	58 (28.0%)	30 (14.5%)	55 (26.5%)	8 (3.9%)	2.5217	1.2496
6. Bureaucracy has contributed to unsatisfactory outcomes of public private partnership projects.	207	10 (4.8)	119 (57.5%)	30 (14.5%)	36 (17.4%)	12 (5.8%)	2.6184	1.0165
7.Agitation by NGOs has contributed to delays and cost overruns of PPP projects	207	9 (4.4%)	108 (52.2%)	33 (15.9%)	23 (11.1%)	34 (16.4%)	2.8309	1.2009
8. Satisfactory performance Of PPPs projects can be attributed to collaboration with Non-governmental action groups.	207	2 (1.0%)	27 (13.0%)	57 (27.5%)	43 (20.8%)	78 (37.7%)	3.8116	1.1097
9. Possibility of illegal takeover of private partner's assets has influenced the performance of PPPs.	207	7 (3.4%)	44 (21.2%)	62 (30.0%)	25 (12.1%)	69 (33.3%)	3.5072	1.2459
10. Cases of political expropriation of investment assets in the region have influenced the performance of PPPs in Kenya	207	2 (1%)	22 (10.6%)	104 (50.3%)	33 (15.9)	46 (22.2%)	3.4783	0.9845
Composite Mean, Standard Deviation							**2.9720**	**0.6095**

Alpha Coefficient= 0.799,

The first objective investigated the influence of political risks on performance of public private partnership renewable energy projects. Indication from both theoretical and empirical literature pointed that political risks influence the performance of PPPs renewable energy projects. A ten item questionnaire was consequently developed to establish this relationship.

The first item sought to establish if cases of political violence had made it difficult to meet objectives of public private partnership renewable energy projects. From the results on table 4.11, 11 respondents (5.3%) indicated not all implying political violence had not made it difficult to meet PPP renewable energy objectives, 114 respondents (55.1%) agreed to a small extent, 15 respondents (7.2%) agreed to a moderate extent, 63 respondents (30.5%) indicate they agreed to a large extent while 4(1.9%) agreed to a very large extent. The resulting mean score is 2.6860 with a standard deviation of 1.0253 which is lower in comparison to the composite mean and Standard Deviation of 2.9720 and 0.6095 respectively. This is an indication that there was a divergence of views in respect political violence influencing objectives in PPP renewable energy projects. Political violence being a risk factor in performance of PPP renewable energy project currently does not influence the performance of PPP renewable energy projects.

The second item sought to assess the extent to which the respondents agreed that political instability had impacted on cost and quality of public private partnership renewable energy projects. Out of the 207 respondents 7(3.4%) of the respondents indicated not at all, 93 (44.9%) respondents were in agreement to a small extent, 48(23.2%) were moderately in agreement, 39(18.8%) were largely in agreement, 20(9.7%) while 20(9.7%) agreed to a very large extent. This resulted to a mean score of 2. 8647 and Standard Deviation of 1.0708.This compared to the composite mean of 2.9720 was lower ,however the item Standard Deviation was higher than the composite SD of 0.6095 indicating divergence in opinion. The respondents held differing opinions as to whether the political instability impacted of cost and quality of PPP renewable energy projects. The lower item mean is an evidence that currently political instability does not influence the performance of PPP renewable energy projects in Kenya. However there is need to review its activities in order for it to support renewable energy projects fully.

The third item sought to establish if contractual disputes had impacted on the cost and time performance of PPP renewable energy projects. Out of the 207 respondents, 10(4.8%) respondents indicated not all, meaning that contractual disputes did not impact on cost and time

of the projects. 108(52.2%) respondents agreed to a small extent, implying somehow contractual disputes impacted on the performance of Public Private Partnership renewable energy projects while 38(18.4%) respondents indicated they agreed to a moderate extent, 46(22.2%) respondents indicated they were largely in agreement that contractual disputes had impacted on the performance cost and time and 5(2.4%) respondents to a very large extent were in agreement. The mean for this item is 2.6522 and 0.9577 as the corresponding standard deviation. Compared to the composite mean both the mean and standard deviation were lower, this indicated a difference of opinion among the respondents. Contractual disputes in as much as is an important aspect in performance of PPP renewable energy projects at the moment does not influence the performance.

The fourth item assessed whether investors were discouraged by failure to honor contractual obligations. Of the 207 respondents 22(10.6%) respondents indicated not at all meaning they did not agree with the statement, 71(34.3%) respondents were in agreement to a small extent, 68(32.9%) respondents indicated to a moderate extent, 29(14.0%) respondents indicated they agreed to a large extent while 17(8.2%) respondents were to a very large extent. The mean for the fourth item is 2.7488 and SD of 1.0860, this is lower than the composite mean of 2.9720, however the SD was higher than that of the composite mean which is 0.6095.A higher composite standard deviation implies that there is divergence of opinion, even though it may be an important aspect of PPP renewable energy performance it currently has no influence on PPP performance.

In the fifth item the study sought to determine if corruption during the procurement of public private partnership impacted on the quality of projects delivered. Of the 207 respondents 56(27.1%) respondents did not agree at all with the statement, 58 (28.0%) respondents they were in agreement to a small extent, 30(14.5%) respondents indicated they agreed to a moderate extent, 55(26.6%) respondents were largely in agreement while 8(3.9%) respondents indicated they to a very large extent in agreement. This item realized a mean score of 2.5217 with1.2496 as the corresponding standard deviation. Compared with the composite mean of 2.9720 with 0.6095 standard deviation the item mean was lower. This implied difference of opinion as to whether corruption impacted on the quality of projects under PPP renewable energy. The fact that the item mean is lower than the composite mean is evidence that corruption during procurement currently does not influence the performance of PPP renewable energy projects in Kenya

Item six assessed if bureaucracy had contributed to unsatisfactory outcomes of PPP renewable energy projects. From the results 10(4.8%) respondents did not agree at all with the statement,119(57.5%) respondents to a small extent were in agreement, 30(14.5%) respondents indicated they were moderately in agreement,36 (17.4%) respondents were largely in agreement while 12(5.8%) respondents indicated they were to a very large extent in agreement. The item mean is 2.6184 with a standard deviation of 1.1065, in comparison to the composite mean and standard deviation, 2.9720, 0.6095 respectively the item mean was lower with a higher standard deviation. This indicated a lack of consensus on opinion as to whether bureaucracy had contributed to unsatisfactory outcomes. As evidenced by a lower mean than the composite mean, it can be concluded that bureaucracy has no influence on the performance of PPP renewable energy project at the moment.

The seventh item desired to establish if agitation by nongovernmental organizations (NGOs) had contributed to delays and cost overruns of the Public Private Partnership renewable energy projects. Out of the 207 respondents who participated 9(4.4%) respondents of the respondents indicated not at all, 108(52.2%) respondents were in agreement to a small extent, 33(15.9%) respondents were moderately in agreement 23(11.1%) respondents were largely in agreement 34 (16.4%) respondents were in agreement to a very large extent. This item mean score is 2.8309 with a standard deviation of 1.2009, this was lower than the composite mean, though the SD was higher. This implied a divergence of opinion as to whether agitation by NGOs has contributed delays and cost overruns of the Public Private Partnership renewable energy projects. The lower mean also indicated that agitation by NGOs did not currently have influence on the performance of Public Private Partnership renewable energy projects in Kenya.

The eighth item sought to determine if collaboration with NGOs could be attributed to satisfactory performance. Out of the 207 respondents 2 (1.0%) respondents did not agree entirely with the statement, implying satisfactory performance public private partnership renewable energy projects could not have attributed to collaboration with NGOs. 27(13.0%) respondents indicated they agreed to a small extent, 57(27.5%) respondents were moderately in agreement while 43 (20.8%) respondents were largely in agreement while 78(37.7%) respondents indicated they were to very large extent in agreement. The mean for this item is 3.8116 with a standard deviation of 1.1097, this is higher compared to the composite mean. This implies that there is divergence of opinion, the higher mean implies a positive contribution

to the performance of PPP renewable energy projects. Collaboration therefore currently has influence on the performance of PPP renewable energy projects.

The ninth item assessed the possibility of illegal takeover of private partners' assets, whether it had influenced performance of public private partnership renewable energy projects. Of the 207 participants who responded to this item, 7(3.4%) respondents did agree at all, 44(21.2%) respondents were in agreement to a small extent, 62(30.0%) respondents indicated them moderately in agreement, 25 (12.1%) respondents indicated they were largely in agreement, while 69 (33.3%) respondents indicated they were in agreement to a very large extent. The mean is 3.5072 with a SD of 1.2459, this was higher than the composite mean of 2.97290 with a composite deviation of 0. 6095. This indicate varying opinion as to whether possibility of illegal takeover of private partners' assets influenced performance of public private partnership renewable energy projects.

Item ten sought to establish if cases of political expropriation of investment assets in the region had influenced PPP renewable energy projects performance. Of the respondents who participated in the study, 2 (1.0%) respondents indicated not at all, 22 (10.6%) respondents indicated to be in agreement to a small extent, 104 (50.3%) respondents indicated they moderately in agreement, 33 (15.9%) respondents indicated to a large extent while 46(22.2%) indicated to they were to a large extent in agreement. This item got 3.4783 as the mean with a SD of 0.9845, this compared to the composite mean of 2.9720 with SD of 0.6095 is higher. The item mean was higher than the composite mean of 2.9720 with 0.6095 indicating that in as much as there is divergence in opinion political expropriation is an important aspect that has influence of the performance of PPP renewable energy projects. This is evidenced by the higher item mean than the composite mean as a base.

The Cronbach Alpha Reliability Coefficient for all the ten items used to measure political risks was 0.799**.**This reliability coefficient was an indicator that there was internal consistency with the items that were used. The mean of means was 2.9720 while the composite standard deviation 0.6095.

4.6.1 Correlation between Political Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

This section of analysis covers the connection between political risk factors and performance of public private partnerships renewable energy projects. The first part explores the correlation between risk factors and PPP renewable energy projects performance. This was done using Pearson Correlation Product Moment.

Each of the indicators under political risks and the dependent variable were correlated.

Table 3.12: Correlation between Political Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Variables		1	2	3	4	5	6
Performance of PPP	Pearson correlation	1					
	Sig. (2-tailed)						
Political violence	Pearson correlation	-0.642**	1				
	Sig. (2-tailed)	0.000					
Breach of contract	Pearson correlation	-0.528**	0.522**	1			
	Sig. (2-tailed)	0.000	0.000				
Bureaucratic risk	Pearson correlation	-0.498**	0.389**	0.552**	1		
	Sig (2-tailed)	0.000	0.000	0.000			
Nongovernmental actions.	Pearson correlation	-0.076	0.078	0.297**	0.319**	1	
	Sig. (2-tailed)	0.276	0.266	0.000	0.000		
Expropriation	Pearson correlation	-0.234**	0.004	0.215**	0.260**	0.575**	1
	Sig. (2-tailed)	0.001	0.958	0.002	0.000	0.000	

Correlation analysis of the variables indicate a string inverse correlation between political violence and performance of public private partnerships renewable energy projects, (r=-0.642,p<.01.Likewise on breach contract the study established a strong negative correlation with public private partnerships renewable energy projects, (r =-0.528, p<.01). Similarly Bureaucratic risk was found to have a negative correlation of (r =-0.498, p< .01). For Nongovernmental the correlation analysis revealed a weak linear relationship(r= -0.76,

p>0.276). A moderate inverse relationship was established between expropriation and performance of public private partnerships renewable energy projects.

4.6.2 Regression analysis of Political Risk Factors on the Performance of Public Private Partnerships Renewable Energy Projects

Multiple regression analysis was performed using political risk factors (indicators) which included effect of political violence, contract breach, bureaucratic risks, non-governmental actions and expropriation on the performance of PPP renewable energy projects. The model was as follows;

$Y=\beta_0+\beta_3X_31……..+ \beta_3X_35+\varepsilon$ for multiple regressions

Where;

Y= Performance of public private partnership renewable energy projects

β_0=Constant

X_11= Political violence

X_12=Breach of contract

X_13= Bureaucratic risks

X_14= Non-governmental actions

X_15= Expropriation

ε = Error term

The results are presented in Table 4.13

Table 4.13: Political Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.746[a]	0.556	0.545	0.18989

Predictors: (Constant), Expropriation, political violence, Bureaucratic risks, Nongovernmental actions, Breach of contract

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	9.092	5	1.818	50.429	0.000[b]
	Residual	7.248	201	0.036		
	Total	16.340	206			

a. Dependent Variable: Performance

b. Predictors: (Constant), Expropriation, political violence, Bureaucratic risks, Non-governmental actions, Breach of contract

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	1.196	0.056		21.191	0.000		
	political violence	-0.557	.064	-0.489	-8.661	0.000	0.693	1.442
	Breach of contract	-0.312	0.121	-0.162	-2.580	0.011	0.561	1.782
	Bureaucratic risks	-0.426	0.112	-0.223	-3.803	0.000	0.644	1.552
	Nongovernmental actions	0.256	0.063	0.241	4.056	0.000	0.627	1.596
	Expropriation	-0.292	0.061	-0.278	-4.784	0.000	0.655	1.528

a. Dependent Variable: Performance

The researcher performed multiple regression analysis with the view to determining the influence of political risk indicators on PPP performance in renewable energy projects in Kenya. The collinearity statistics show that none of the variable had a variation inflation factor (VIF) of more than 5.0 indicating the statistical assumption of nonexistence of multicollinearity was complied with. The statistic, $F(5, 201) = 50.429$, $p = 0.00 < 0.05$ shows that independent significantly predicted the dependent variable. The $R^2 = 55.6$ is an indication that political risk factors explained 55.6% in the variation in the on PPP performance in renewable energy

projects. The coefficient for political risks on PPP performance in renewable energy projects on table 4.13 indicate that;

Political violence influence was significant, ($\beta = -0.489$, $p < 0.001$) on performance of public private partnerships renewable energy projects perform. The negative coefficient indicates that the relationship is inverse, higher likelihood of political violence would result to a lower PPP project performance. The effect of breach of contract was also established to be negative ($\beta = -0.162$, $p < 0.001$), a weak inverse relationship indicated that lower cases of breach of contract would lead to higher performance of public private partnership renewable energy projects. Bureaucratic risks significantly influenced the performance of PPPs ($\beta = -0.223$, $p < 0.001$), higher bureaucratic risks is associated with lower performance of PPPs. Similarly, another study on how public private partnership model of financing perform in Kenya established that there is an inverse relationship between corruption and performance of public private partnerships in Kenya. This is in line with the findings of **(**Kilaka and Omwega, 2015) who also established an inverse relationship between corruption and performance of PPP road projects in Kenya. This finding are further corroborated by (Getz and Volkema, 2001) who established that corruption increases the risk and unpredictability of an investment environment hence affecting the PPP renewable energy projects. Likewise a study by Habib and Zurawicki (2002) found a negative relationship between corruption and foreign direct investment. An earlier finding however seem to contradict the current results, Hines (1995) established no significant relationship between corruption and investment inflows in a country.

The relationship between Nongovernmental action and performance of public private partnership renewable energy projects was significant ($\beta = -0.241$, $p < 0.001$). The influence of expropriation risks was statistically significant by the study ($\beta = -0.278$, $p < 0.001$). The negative coefficient indicates and inverse relationship where by lower risk of expropriation is associated with a higher performance of public private partnerships renewable energy projects. Overall this finding agrees with Hainz and Kleimeier, (2012) concluded that political instability inhibits private investment hence political risks affects performance of public private partnerships.

4.6.3 Test of hypothesis one

The first hypothesis tested the fact that there is no significant relationship between political risks and performance of Public-Private Partnership renewable energy projects in Kenya. Consequently a linear regression was conducted to assess the influence of political risks on performance of PPP renewable energy projects. The composite mean for the indicators of

political risks was used as the independent variable. The test was based on the following linear regression model;

Performance of Public Private Partnerships $=\beta 0+\beta_1 X_1 + \varepsilon i$

$y=\beta_0+\beta_1 X_1$

y = Performance of Public Private Partnership Projects

$\beta 0$= Constant Term

β_1 = Beta Coefficients

X_1= Political risks

ε = Error Term

The results are presented in Table 4.14

Table 4.14: Political risk and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.572[a]	0.327	0.324	0.23154

Predictors: (Constant), political risks

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	5.349	1	5.349	99.771	0.000[b]
	Residual	10.991	205	0.054		
	Total	16.340	206			

a. Dependent Variable: Performance of public private partnerships

b. Predictor: political risks

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.789	0.033		24.147	0.000		
	Political risks	-0.560	0.056	-0.572	-9.989	0.000	1.000	1.000

a. Dependent Variable: Performance

As explicated on Table 4.14, the regression of political risks on performance of public private partnerships renewable energy projects was F (1,205) = 99.771, p<.05. The significant F-ratio implies that political risks has strong influence on how public private partnership renewable energy projects perform. This provided enough grounds for the adoption of the alternate hypothesis by the study. The study therefore held that political risk significantly influences the performance of PPP renewable energy projects. The model obtained $R^2 = 0.327$, showing that approximately 33% of the variance in performance of public private partnerships renewable energy projects can be accounted for by political risks.

This finding agree with the findings of Kilaka and Omwega (2015) who studied factors affecting the performance of Public Private Partnerships in infrastructure financing. They determined that political risk negatively influenced performance of PPP infrastructure financing in Kenya. They obtained a coefficient of - 0.426 (p-value=0.000). According to their findings a unit increase in political risk would result to 0.426 decrease in performance of infrastructure financing through PPPs in Kenya. Similarly a study by Mashur and Mashfique (2013) on political risks and investment concluded that political risks relate negatively with investment. Contrarily Hausmann and Fernandez-Arias (2000) found no relationship between investments and political risks on the other hand Schneider and Frey (1985) established an inverse relationship between the variables

The findings also show an inverse significant relationship between political risks and performance of public private partnerships renewable energy projects. A coefficient of -0.560 (p-value=0.000) shows that a unit increase in political risks would result into 0.560 decrease in level of performance of public private partnerships. This finding conforms to the findings of Sachs et al (2007) who concluded that political risks influence on leverage decisions and the implementation of public private partnerships projects by investors. Their study was largely in china and other Asian countries like Indonesia and Vietnam. Sachs and Tiong (2009) observe that political risks are inherent in developing countries hence globally report higher levels of investment risks; this makes it necessary to study risks.

A research on relationships between political risks and PPP opportunities by Tillmann, Tiong, Wang, (2007) provides insight on how political risk affect PPPs. The political risks were analyzed in China and a few selected Asian countries. They concluded that countries which are perceived to bear political risks also offer less public private partnership opportunities. Political risk exacerbates the risk profile for PPP investment as investors less certain about their return

on investment. A disadvantage to renewable energy projects due their capital intensive nature. Political risk is therefore a major risk factor, in fact a primary filter relied on by potential investors and financiers during investment decision making processes (UN-Energy/Africa, 2011).

Findings lend credence to other research findings. For instance; Rambo (2013) studied the financing risks in developing countries and underscored the need for political stability in promotion of private and foreign investment Ethnic tensions, and internal conflicts affect foreign direct investments which consequently impact on how PPPs perform. (Kolstad and Tondel, 2004). Bu and Milner (2008) affirmed that Politics affected investment by foreigners in developing and that investments initiated as a result of international trade agreements varies greatly across developing countries and over time due to political reasons. Henisz (2000) points out that political factor affect the flows of funding and that they are well understood. He focused on the relationship between trade and investment. In another study by (Lee and Rajan, 2009) established that countries with lower political risk seemed to attract more direct investment, they concluded that political risks impacted more on investment than economic and financial risks

One of the respondents acknowledged the influence of political risks on performance of public private partnerships renewable energy projects. The respondents suggested there is need for a strategic Public Private Partnership approach to mitigate the cost overruns and schedule delays. That this could be done by delineating governance, sharing of risks, resource integration , implementation of best practices and establishment of a life cycle long perspective of costs and accountability.

4.7 Policy Risk and Performance of Public Private Partnerships Renewable Energy Projects

The second objective of the study was to establish the extent to which policy risks influences performance of public private partnership renewable energy projects in Kenya. Policy risk was considered as independent variable that is predictive of the dependent variable, performance of public private partnerships renewable energy projects. Indicators were sudden policy changes, removal of feed in tariffs, level of commitment, changes in import tariffs and taxation. These indicators were assessed using a 10 item self-administered questionnaire. This was based on a five point scale where the anchors were ranging from Not at all to very large extent with the others representing small extent, moderate extent and large extent. The assumption of equidistance was fulfilled by adopting a decision rule such that Not at all 1.0-1.8; to a small

extent 1.8-2.6; moderate extent 2.6-3.4; to a large extent 3.4-4.2; and to a very large extent 4.2-5.0, this gave an equidistance of 0.8. This was particularly followed in the descriptive analysis and interpretations.

Data was thereafter descriptively analyzed; this involved the use of frequency distributions, mean scores, percentages and standard deviations. Tables were used to present the data. To establish the significance of the variables, Pearson correlation was performed. F-test was further used to determine the level of the significance of the model. The regression analyses resulted into various values which include R, R2, F-ratio, t-values and p-values. The relationship between variables were tested at 95% level of confidence ($p<0.05$) at which point a decision was made to confirm the hypothesis at F-ratio where $p<0.05$. The results for the various statistical analyses are presented in Tables 4.15, 4.16, 4.17 and 4.19 as shown;

Table 4.15: Policy Risk and Performance of Public Private Partnerships Renewable Energy Projects.

Statements	n	1	2	3	4	5	Mean	Std. Dev.
1. There is an established and appropriate public private partnership policy frame work.	207	0 (0.0)	0 (0.0%)	9 (4.3%)	194 (93.8%)	4 (1.9%)	3.9758	0.25004
2.Sudden changes in policy have had negative impact on public private partnerships	207	9 (4.3%)	88 (42.5%)	42 (20.3%)	44 (21.3%)	24 (11.6%)	2.9324	1.13003
3.Removal of feed in tariffs would affect the performance of PPP projects	207	9 (4.3%)	103 (49.8%)	38 (18.3%)	49 (23.7%)	8 (3.9%)	2.7295	.99721
4.Unilateral adjustments to feed in tariffs has impacted on the overall performance of PPPs	207	20 (9.7%)	71 (34.3%)	64 (30.9%)	31 (15.0%)	21 (10.1%)	2.8164	1.12134
5. Lack of commitment to policy has affected the performance of public private partnerships.	207	54 (26.1%)	56 (27.1%)	31 (15.0%)	57 (27.5%)	9 (4.3%)	2.5700	1.25940
6. Poor performance of public private partnerships is due to minimal commitment towards policy.	207	7 (3.4%)	116 (56.0%)	31 (15.0%)	41 (19.8%)	12 (5.8%)	2.6860	1.01587
7.Changes of import tariff influence cost and time performance of PPP projects	207	5 (2.4%)	40 (19.3%)	62 (30.0%)	29 (14.0%)	71 (34.3%)	3.5845	1.21134
8.Import tariff management has impacted on the performance of public private partnership	207	1 (0.5%)	21 (10.1%)	106 (51.2%)	36 (17.4%)	43 (20.8%)	3.4783	0.94933
9.Unfair taxation has led to decrease in PPP investments	207	10 (4.8%)	112 (54.1%)	32 (15.5%)	23 (11.1%)	30 (14.5%)	2.7633	1.17292
10.Taxation has influenced the performance of public private partnerships	207	4 (1.9%)	21 (10.1%)	60 (29.1%)	89 (43.0%)	33 (15.9%)	3.6087	0.93815
Composite Mean and Standard Deviation							**3.1145**	**0.54451**

Alpha Coefficient=0.789,

The first item assessed appropriateness public private partnership policy framework. From the results 0(0.0%) respondent indicated not at all, similarly 0(0.0%) respondent indicated they were in agreement to a small extent, 9(4.4%) respondents were moderately in agreement while 194(93.7%) respondents were in agreement to a large extent, 4(1.9%) of the respondents indicated to a very large extent were in agreement. This item mean of 3.9758 and a standard deviation 0.2500 is higher than the composite mean which is 3.1145 and a SD of 0.54451.This portrays that policy frame work is an important aspect of public private partnership. In as much

as there is divergence of opinion it has influence on performance of PPPs since the item mean is higher than the composite mean as a base,

The second item sought to establish whether sudden changes in policy had impacted negatively on public private partnerships. This item was responded to by 207 respondents of which, 9 (4.3%) respondents indicated they did not agree at all, 88(42.5%) respondents indicated they were in agreement to a small extent, 42(20.3%) respondents were moderately in agreement, 44 (21.3%) respondents to a very large extent were in agreement while 24(11.6%) respondents were in agreement to a very large extent. The resulting mean is 2.9324 and a SD of 1.1300, considering that the composite mean is 3.1145 and a SD of 0.5445, this item mean was lower with a higher SD. This implies a lack of consensus among the respondents regarding policy changes. Even though policy changes is an important aspect of the performance of PPP renewable energy projects it currently has no influence on the performance. This is because the item mean is lower than the composite mean.

The third item sought to assess if removal of feed in tariffs would affect the performance of PPP renewable energy projects. Of the participants 9(4.4%) of the respondents indicated not at all, 103 (49.7%) respondents indicated that they were in agreement to a small extent, 38(18.4%) indicated they had agreed to moderate extent, 49(23.7%) respondents indicated they were largely in agreement that removal of feed in tariffs affect PPP performance while 8(3.9%) respondents indicated they agreed to a very large extent. This item has a mean score of 2.7295 and a SD of 0.9973, in comparison to the composite mean of 3.1145 and a SD of 0.54451 the item mean is lower. This shows divergent views regarding feed in tariffs and performance of PPP renewable energy projects. Feed in tariffs despite being a very important aspect of PPP renewable energy projects currently does not influence performance of PPP renewable energy projects.

The fourth item sought to establish if unilateral adjustments to the feed in tariffs had impacted on how PPP performed with regard to the renewable energy projects. Out of the 207 participants 20(9.7%) respondents indicated they were not in agreement at all, 71(34.3%) respondents to a small extent in agreement while 64(30.9%) respondents indicated they were moderately in agreement, 31 (15.0%) respondents agreed to a large extent while 21(10.1%) respondents indicated they were in agreement to a very large extent. From this item a mean score of 2.8164 with a standard deviation of 1.1213 was obtained which in comparison to the composite men of 3.1145 and a SD of 0.54451 was lower with a higher SD. Again this implies

divergence in opinion among the respondents. It indicated that unilateral adjustments of feed in tariffs has no impact on performance at moment due to a higher composite mean.

The fifth item sought to determine if PPP performance was affected by lack of commitment to policy. The results indicate that 54(26.1%) respondents did not agree at all, 56(27.1%) respondents indicated they were in agreement to a small extent, 31(15.0%) respondents were moderately in agreement, 57(27.4%) respondents agreed to a large extent while 9(4.4%) respondents agreed to a very large extent. The mean score for this item is 2.5700 and a SD of 1.2594, this compared to the composite mean of 3.1145 was lower, however, SD of item was higher than the composite SD which is 0.54451. This lower item mean implies that did not influence the performance of PPP renewable energy projects. However, the fact that item SD is higher than the composite SD implies that there is divergence of opinion among the respondents as to whether lack of commitment to policy determined the performance of PPP renewable energy projects.

The sixth item sought to establish if poor performance of public private partnership could be attributed to minimal commitment towards policy. From the descriptive statistics output, 7 (3.4%) respondents of the respondents indicated not at all, 116 (56.0%) respondents agreed to a small extent, 31(15.0%) respondents indicated they were moderately in agreement, 41(19.8%) respondents were largely in agreement while 12(5.8%) respondents were to a very large extent in agreement. This item mean is 2.6860, this is lower than the composite mean which is 3.1145, an indication that the item did not influence the performance of PPP renewable energy projects. However, the item SD of 1.0159 is higher than the composite SD of 1.0159 which is an implication of divergence in opinion among the respondents regarding the impact of commitment to policy on performance of PPP renewable energy projects.

The seventh item sought to determine whether changes in import tariff influence cost and time performance of projects under PPP renewable energy initiatives. From the 207 responses analyzed, 5(2.4%) respondents indicated not at all, 40 (19.3%) respondents agreed to a small extent, 62 (30.0%) respondents were moderately in agreement, and 29(14.0%) respondents were largely in agreement while 71(34.3%) respondents were in agreement to a very large extent. This item mean is 3.5845 is higher than the composite mean which is 3.1145, this implies a positive contribution to the cost and time performance of project. The item SD of 1.2113 was also higher than the SD for the composite mean of 0.5445, which implies divergence of opinion among the respondents.

The eighth item sought to determine if the management of import tariff had impact on PPP performance of renewable energy projects. The analysis revealed that 1(0.5%) respondent did not agree at all, 21(10.1%) respondents agreed to a small extent, 106 (51.2%) respondents were moderately in agreement, 36(17.4%) respondents were in agreement to a large extent, while 43(20.8%) respondents largely agreed that import tariff had impacted on PPP performance. This item has a mean of 3.4783 and a SD of 0.9493, this compared to the composite and SD of 3.1145 and SD of 0.54451 respectively is higher. This has implication that there was divergence of opinion among the respondents in as much as the higher item mean indicate that there was a positive contribution to the performance of PPP renewable energy projects.

Item nine sought to determine if there was a correlation between unfair taxation and investments in public private partnership renewable energy projects. The respondent were therefore to state their agreement with the statement, "Unfair taxation has led to decrease in Public Private Partnership investments." The analysis revealed that 10 (4.8%) respondents of the respondents indicated not at all, 112(54.1%) respondents were in agreement to a small extent, 32(15.5%) respondents were in agreement moderately while 23(11.1%) respondents were to a large extent in agreement, 30 (14.5%) respondents to a very large extent agreed there was a relationship between taxation and PPP investments. The mean score from all the responses is 2.7633 with a standard deviation of 1.1730. Compared to the composite mean of 3.1145 with 0.54451 as the standard deviation, the item men was lower, however it had a higher SD. This implies a divergence of opinion among the respondents regarding taxation and investing in PPP renewable energy projects. This item however has no influence at the moment to the performance of PPP since the mean score was lower compared to the composite mean.

Item ten sought to determine if taxation had influenced PPP performance. From the results on table 4.16, 4 (1.9%) respondents indicated not all, 21(10.1%) respondents agreed to a small extent, 60(29.0%) respondents agreed to a moderate extent, 89 (43.0%) respondents were largely in agreement while 33(15.9%) respondents to a very large extent agreed. The mean score was 3.6087 with 0.9382 as the corresponding standard deviation of meaning majority were a large extent in agreement. Comparatively this mean was higher than the composite mean which is at 3.1145 with a standard deviation of 0.54451. The higher mean for the item in comparison to the composite mean shows that taxation has an influence on the performance of PPP renewable energy projects. The higher item SD implies that there was divergence of opinion in as much as taxation is an important aspect that has influence on performance of PPP renewable energy projects.

The reliability alpha coefficient for this item was 0.789; this indicated there was internal consistency of the items used to measure variable. The composite mean score was 3.1145 with 0.5446 as the corresponding standard deviation .This was interpreted that majority of the respondents felt that to a moderate extent policy risks influenced the performance of PPPs. The finding underscored need for policy improvement to improve PPP renewable energy projects.

4.7.1 Correlation between Policy Risks and Performance of Public Private Partnerships Renewable Energy Projects

Correlational analysis between policy risks and performance of PPP renewable energy projects is covered in this section. To ascertain the relationship the researcher used Pearson correlation and linear regression analyses.

The study performed a Pearson correlation analysis to ascertain the relationship between policy risks and performance of public private partnerships renewable energy projects. The correlation value(r) was used to interpret the strength of these relationships. The interpretation was based on the recommendation by Shirley et al. (2005). Therefore 0.5 to 1.0 was interpreted as a strong correlation, 0.3 to 0.49 was considered a moderate correlation while 0.10 to 0.29 was interpreted as a weak correlation. Negative correlation was considered an inverse relationship between the variables. This study therefore considered $r < 0.1$, indicated no relationship between the variables being investigated. These guidelines were used in assessing the correlation between policy risks and performance of public private partnerships renewable energy projects.

Table 4.16: Pearson Correlation between Policy Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Variables		1	2	3	4	5	6
Performance of PPP renewable energy projects	Pearson correlation	1					
	Sig. (2-tailed)						
Sudden policy changes	Pearson correlation	-0.439**	1				
	Sig. (2-tailed)	0.000					
Removal of Feed In Tarriffs	Pearson correlation	-0.682**	0.445**	1			
	Sig. (2-tailed)	0.000	0.000				
Level of commitment	Pearson correlation	-0.681**	0.305**	0.608**	1		
	Sig (2-tailed)	0.000	0.000	0.000			
Changes in import tariffs	Pearson correlation	-0.179**	0.085	0.254**	0.257**	1	
	Sig. (2-tailed)	0.010	0.225	0.000	0.000		
Taxation	Pearson correlation	-0.109	-0.028	.292**	0.219**	0.291**	1
	Sig. (2-tailed)	0.116	0.692	0.000	0.002	0.000	

Each of the subcomponents of political risks was correlated with performance of PPP renewable energy projects. The research revealed that sudden policy changes and performance of public private partnerships were moderately correlated ($r= -0.439$, $p<0.001$). The correlation analysis reveals a strong relationship between feed in tariffs and performance of PPP renewable energy projects, ($r=-0.682$, $p< 0.001$). Similarly, the result reveals a strong relationship between commitment to policy and Performance of PPP renewable energy, ($r=-0.681$, $p< 0.001$), the relationship was inverse. Changes in import tariff and performance of public private partnerships renewable energy projects were weakly related ($r=-0.179$, $p>0.001$). Finally taxation and performance of public private partnerships also have a weak correlation ($r=-0.109$, $p>0.1$). The findings on correlation between taxation and performance of PPP align with the assertion by (Grimsey and Lewis, 2002). They observed that taxation may affect public private partnership projects owing to the complexity of public private partnerships.

4.7.2 Regression analysis of Policy Risks and Performance of Public Private Partnerships Renewable Energy Projects

To test the association of policy risk and the performance of PPP renewable energy projects both the study performed both simple and multiple regression analysis. Hypothesis was tested to determine the statistical significance of the influence of policy risk on the performance of PPP renewable energy projects. The regression analysis values of R, R2, F-ratio-values and were obtained and used in the analysis .The R-values indicated the strength of the relationship between the dependent and the independent variables. The coefficient of determination (R^2) showed how the level of variation in independent variables explained the dependent variable (explanatory power).F-statistic explicated the statistical significance of the overall model while the t-values represented the significance of each variable. The beta (β) values on the other hands indicate the effect the independent variable on the dependent variable. The p-values show the confidence level, where by 95% 0r 0.05 confidence levels is considered robust enough to justify adoption of alternate hypothesis. The hypothesis was tested to test the statistical significance of policy risk factors on the performance of PPP renewable energy projects in Kenya. The decision rule adopted was; if p-value < 0.05, reject the null hypothesis and accept alternative hypothesis and if p-value >0.05, accept the null hypothesis and reject the alternative hypothesis (Huitema, 2011). To examine the influence policy risk factors on performance of PPP the study performed multiple regression analysis. As shown in Table 4.17

Table 4.17: Policy Risk Factors and the Performance of Public Private Partnerships Renewable energy projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.772[a]	0.596	0.586	0.17939

a. Predictors: (Constant), Level of commitment, sudden policy changes, Changes in import policy, Removal of Feed in Tariffs, Taxation

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	9.511	5	1.902	59.107	0.000[b]
	Residual	6.436	200	0.032		
	Total	15.947	205			

a. Dependent Variable: Performance of public private partnerships

b. Predictors: (Constant), Level of commitment, sudden policy changes, Changes in import policy, Removal of Feed in Tariffs, Taxation

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.891	0.060		14.757	0.000		
	Sudden policy changes	-0.155	0.059	-0.133	-2.611	0.010	0.773	1.293
	Removal of Feed In Tarriffs	0.410	0.064	-0.396	-6.379	0.000	0.523	1.911
	Lack of commitment	-0.433	0.059	-0.418	-7.355	0.000	0.625	1.601
	Changes in import tariffs	0.004	0.052	0.004	0.078	0.938	0.842	1.188
	Taxation	0.037	0.018	0.103	2.082	0.039	0.825	1.213

a. Dependent Variable: Performance

From the results on the coefficients table it is evidence that there was very low level of multicollinearity. All the variables were within the acceptable Variance Inflation Factor (VIF) as they were less than five implying that the assumption of nonexistence of multicollinearity was not violated. These results of the regression analysis partially confirmed the research hypothesis. The beta coefficients show that the following variables significantly predicted

performance of public private partnerships renewable energy projects: sudden policy changes (β= -0.155, t=-2.611, p<0.05), removal of feed in tariff (β= -0.410, p< 0.05), lack of commitment (β= -0.433, p< 0.05), taxation (β= 0.037, p<0.05). However changes in import tariffs (β=-0.433, t=0.078, p< 0.05) and Taxation (β=-0.433, t=2.082, p< 0.05) did not significantly predict the performance of public private partnership renewable energy projects. The findings showed that there was a significant influence of policy risk factors on the performance of public private partnership renewable energy projects. Sudden policy changes, removal of feed in tariffs, lack of commitment , changes in import tariffs and Taxation explained a significant amount of variance in the performance of public private partnership renewable energy projects, F(5,200)= 59.107, P<0.05, R=0.772,R^2=0.596. There was a strong correlation (r= 0.0772, p-value <0.05), the R^2 =0.596 implied that policy risk factors(X) explained 59.6% of the variation in the performance of PPP renewable energy projects(Y).

4.7.3 Test of hypothesis two

The second hypothesis tested the relationship between policy risks and performance of public private partnership renewable energy projects in Kenya. Consequently regression was conducted to assess the influence of policy risks on performance of PPP renewable energy projects. A composite mean for the indicators of policy risks was used as the independent variable. The test was based on the following linear regression model;

Performance of Public Private Partnerships =$\beta 0+\beta_1 X_1 + \varepsilon i$

Performance of Public Private Partnerships =$\beta 0+\beta 2 X_2 + \varepsilon i$

$y=\beta_0+\beta_2 X_2$

y = Performance of Public Private Partnership Projects

$\beta 0$= Constant Term

β_2 = Beta Coefficients

X_2= Policy risks

ε = Error Term

Table 4.18: Policy Risk and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.627[a]	0.393	0.390	0.21992

Predictors: (Constant), Policy Risks

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	6.425	1	6.425	132.851	0.000[b]
	Residual	9.914	205	0.048		
	Total	16.340	206			

a. Dependent Variable: Performance of Public Private Partnerships

b. Predictors: (Constant), Policy Risks

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.816	0.031		26.301	0.000		

a. Dependent Variable: Performance

The hypothesis that policy risks did not significantly influence the performance of PPP renewable energy projects was tested.

From the regression results the F-ratio was significant with, F (1,205) =132.851, p-value=0.001. This show that policy risks had significant influence on the performance of PPP renewable energy projects. The analysis yielded a correlation of r=0.627 as shown in table 4.20, this was a strong linear relationship between policy risks and performance of PPP renewable energy projects. The R^2 = 0.393 demonstrate that policy risk explain 39.3% of the variation in the performance of PPP renewable energy projects. An implication that 60.7% of performance of PPP renewable energy projects in Kenya is explained by other factors not considered in the model. Since the regression model was significant statistically, the null hypothesis that there is no significant influence of policy risks on performance of PPP renewable energy projects was rejected. The study consequently adopted that policy risk influenced the performance of PPP significantly.

The findings corroborate the findings by Okwaro, Chepwony and Boit (2017) who found that lack of policies was a big hindrance to performance of PPPs. Evidence of influence of policy risks on performance of PPPs was also established by Wüstenhagen and Menichetti, (2012). They concluded that reduced volume of renewable energy investment was a reflection of addition of renewable energy policies that fully failed to account for investment incentives. Similarly upon analysis of policy instruments Mezher et al ,(2012) concluded that policy instruments were capable of attracting investments, this implied influence of policy on performance of public private partnerships. Mohee et al., (2012) asserted the influence of policy by observing that policies that are supportive created enabling environment for renewable energy investments, this promoted PPP renewable energy projects.

The findings concur with Pedo, Kabare and Makare (2017) who established a significant relationship between policy and performance of PPP projects in the roads sector Kenya .This findings are further in agreement with the literature review by Harris (2014) that asserted the need for appropriate policy regarding partnerships.

A respondent observed that policies should be harmonized and enhanced to encourage investments because decisions to invest are heavily influenced by policy instruments. Another also said that investors prefer policy incentives that produce better returns on their investment during the duration of the project.

4.8 Macroeconomic Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

The third objective of the study sought to assess the extent to which macroeconomic risk factors influenced the performance of PPP renewable energy projects in Kenya. This subsection therefore assesses the extent to which macroeconomic risks influences the performance of PPP renewable energy projects in Kenya. Macroeconomic risks were determined by the following indicators; effect of inflation, effect of interest rate, effect of foreign exchange rate, effect of national debt, and development expenditure. The indicators were developed into a ten item self-administered questionnaire. This were measured using a five point scale where the anchors were ranging from Not at all to very large extent with the others representing small extent, moderate extent and large extent. The assumption of equidistance was fulfilled by adopting a decision rule such that Not at all 1.0-1.8; to a small extent 1.8-2.6; moderate extent 2.6-3.4; to a large extent 3.4-4.2; and to a very large extent 4.2-5.0, this gave an equidistance of 0.8. Data analysis was done descriptively, this involved use of frequency distributions, percentages,

means and standard deviations. Results were presented in tabular form. F-test was used to test hypothesis. Simple and multiple regressions were applied in order to analyze the influence of macroeconomic risks on the performance of public private partnerships renewable energy projects. The regression analyses resulted to various values which include R, R2, F-ratio, t-values and p-values. The relationship between variables were tested at 95% level of confidence ($p<0.05$) at which point a decision was made to confirm the hypothesis at F-ratio of $p<0.05$. Results that rated p values>0.05 saw the hypothesis rejected.

The following models were adopted:

$Y=\beta_0+\beta 3X_3 1……..+BX_3 5+\varepsilon$ for multiple regressions

$Y= \beta_0+\beta 3X_3 1+ \varepsilon$ for simple linear regression

The results of the statistical analyses of the mean scores are presented in Tables 4.19, 4.20, 4.21 and 4.22.

Table 4.19: Macroeconomic Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Statements	n	1	2	3	4	5	Mean	Std. Deviation
1.Inflation rate has impacted on project costs	207	11 (5.3%)	114 (55.1%)	15 (7.2%)	63 (30.5%)	4 (1.9%)	2.6860	1.02538
2.The rate of inflation has influenced the financing of public private partnerships projects	207	7 (3.4%)	93 (44.9%)	48 (23.2)	39 (18.8%)	20 (9.7%)	2.8647	1.07082
3.Interest rate has influence on financing decisions of PPP projects	207	4 (1.9%)	60 (29.0%)	36 (17.4%)	90 (43.5%)	17 (8.2%)	3.2705	1.03072
4. High interest rate has influenced private partner participation in public projects.	207	7 (3.4%)	25 (12.1%)	76 (36.7%)	65 (31.4%)	34 (16.4%)	3.4541	1.0128
5.Foreign exchange rate influences financing of public private partnerships projects	207	10 (4.8%)	85 (41.1%)	33 (15.9%)	67 32.4%)	12 (5.8%)	2.9324	1.0772
6.Foreign exchange fluctuation has impacted on PPP project timeline	207	16 (7.7%)	17 (8.2%)	84 (40.6%)	66 (31.9%)	24 (11.6%)	3.3140	1.0395
7. National debt has influenced financing of public private partnerships projects.	207	00 (0.0%)	37 (17.9%)	44 (21.4%)	73 (35.3%)	53 (25.6%)	3.6860	1.0442
8. Investors prefer low debt to gross domestic product ratio (GDP).	207	21 (1.0%)	24 (11.6%)	50 (24.1%)	112 (54.1%)	19 (9.2%)	3.5894	0.8479
9.The level of Development expenditure has influenced investment decisions into public private partnerships	207	3 (1.4%)	49 (23.7%)	32 (15.5%)	109 (52.6%)	14 (6.8%)	3.3961	0.9692
10.Investors in PPPs are influenced by development expenditure	207	6 (2.9%)	39 (18.8%)	66 (31.9%)	42 (20.3%)	54 (26.1%)	3.4783	1.1526
Composite Mean and Standard Deviation							3.2671	0.53570

Alpha Coefficient=0.796

Objective three of this study sought to assess extent of influence macroeconomic risks had on the public private partnership performance. Respondents were therefore requested to state to what extent they agreed with the statements under the macroeconomic risks of the questionnaire.

Item one sought to assess if the rate of inflation had impacted on the cost of projects. Out of the 207 responses11 (5.3%) indicated not at all, agreed to a small extent 114(55.1%) respondents agreed to a small extent, 15(7.2%) respondents were moderately in agreement, 63(30.4%) respondents were largely in agreement while 4 (1.9%) respondents were in agreement to a very large extent. This item has a mean of 2.6860 with a SD of 1.0254 against a composite mean of 3.2671and a SD of 0.5357, the item mean is lower with a higher SD. This implies that rate of inflation does not currently influence the cost of project as an aspect of performance of PPP renewable energy projects. Nevertheless the higher standard deviation shows there was a divergence of opinion among the respondents regarding

The second item sought to assess if the rate of inflation has influenced the financing of public private partnerships renewable energy projects. From the analysis, the respondents who indicated not at all were 7(3.4%), to a small extent were 93(44.9%), to a moderate extent were 48(23.2) to a large extent were 39(18.8%) while to a very large extent were 20(9.7%). The mean score for the second item is 2.8647 and a SD of 1.0708, the composite mean on the hand is 3.2671with a SD of 0.5357. Comparing the two means, the composite is higher than the item mean, this implies that the rate of inflation currently does not influence financing of PPP renewable energy projects. A look at the two SDs reveal that the composite mean had a lower standard deviation than the item mean. This indicates that there is difference in opinion among the respondents.

The third questionnaire item sought to establish if the rate of interest influence the financing under PPP renewable energy projects. The findings reveal that , 4 (1.9%) respondents indicated not at all, 60 (29.0%) respondents were in agreement to a small extent, 36 (17.4%) respondents were moderately in agreement ,90(43.5%) respondents to a large extent were in agreement while 17 (8.2%) respondents indicated to a very large extent they were in agreement with the statement. The mean score was 3.2705 with a standard deviation of 1.0307, comparison with the composite mean of 3.2671 and a SD of 0.5357 the item mean and SD is higher. The higher mean score implies that at the moment there is an influence of the rate of interest on financing.

A higher standard deviation tells that there is a divergence of opinion among the respondents as to whether rate of interest influence financing of PPP renewable energy projects.

The fourth item sought to establish if high interest rate had influenced the participation of private partners in public projects. Out of 207 participants 7(3.4%) indicated not at all, 25(12.1%) agreed to a small extent, 76(36.7%) respondents were moderately in agreement, 65(31.4%) respondents were to a large extent in agreement while 34(16.4%) respondents to a very large extent were in agreement. This item mean score was 3.4541 with a standard deviation of 1.0128, the composite mean on the other hand is 3.2671 with a SD of 0.5357. Comparatively this mean score was higher than the composite mean which implies that interest rate at the moment has influence on the performance of PPP renewable energy projects. The higher item SD indicates that there is a divergence of opinion among the respondents.

The fifth item sought to determine if foreign exchange rate influence financing of public private partnerships renewable energy projects. From the results 10(4.8%) of the respondents indicated not at all, 85(41.1%) agreed to a small extent, 33(15.9%) respondents moderately agreed, 67 (32.4%) respondents were to a large extent in agreement while 12(5.8%) respondents indicated they were in agreement to a very large extent. The mean score was 2.9324 with a standard deviation 1.0772 which when compared to the composite mean of 3.2671 is lower, the composite SD of 0.5357 is however lower. The item mean implies that currently foreign exchange rate has no influence on financing of PPP renewable energy projects. The lower composite mean indicate that in as much as exchange rate is an important aspect of PPPs there is a divergence of opinion among the respondents.

Item six attempted to establish foreign exchange fluctuation had impacted on public private partnerships renewable energy project timeline. Out of the 207 respondents 16(7.7%) indicated not at all, 17(8.2%) agreed to a small extent, 84(40.6%) agreed to a moderate extent, 66 (31.9%) respondents were largely in agreement, while 24 (11.6%) respondents in agreement to a very large extent. This item mean is 3.3140 with a standard deviation of 1.0395 while the composite mean is 3.2671 with a standard deviation of 0.53570. When the two means are compared, the item mean is higher than the composite mean which implies that fluctuation of foreign exchange rate impacted on public private partnerships renewable energy project timeline. The item mean also had a higher standard deviation than the composite mean, this shows a divergence of opinion among the respondents concerning foreign exchange fluctuation and performance of PPP renewable energy projects.

The seventh item sought to determine if debt has influenced public private partnership financing of renewable energy projects. Out of the respondents 0 (0.0%) or none of the respondents indicated not at all, however, 37 (17.9%) respondents were in agreement to a small extent, while 44(21.3%) respondents indicated they were moderately in agreement,73 (35.3%) respondents were in agreement to a large extent while 53 (25.6%) respondents indicated . This item had a mean of 3.6860 with a standard deviation of 1.0442 which is higher compared to the composite mean of 3.2671 and a standard deviation of 0.53570. The higher mean and standard deviation reveal that in as much as debt is currently an important aspect with influence on PPP renewable energy there are still divergence of opinion among the respondents.

The eighth item sought to establish the preference of investors in relation to debt and gross domestic product ratio (GDP). From the results on table 4.22; 21(1.0%) of the respondents indicated not at all, 24(11.6%) agreed to a small extent, 50(24.2%) agreed to moderate extent, 112(54.1%) respondents were in agreement to a large extent while 19(9.2%) respondents to a large extent were in agreement. This item mean was 3.5894 and 0.8479 as the standard deviation. In comparison to the composite mean of 3.2671 with a standard deviation of 0.53570 the item mean is higher. This implies that this item had an influence on the performance of PPP in as much as there were divergent opinion as evidenced by the higher standard deviation.

Item nine sought to determine if level of development influence investment decision of public private partnership under renewable energy project investment decision. From the results, 3(1.4%) respondents indicated not at all, meaning they were not in agreement, however 49(23.7%) respondents were in agreement to a small extent, 32(15.5%) respondents were moderately in agreement, 109(52.7%) respondents were in agreement to a large extent while 14(6.8%) respondents to a very large extent were in agreement. The item mean was 3.3961 with a standard deviation of 0.9692; this was higher than the composite mean of 3.2671 with 0.53570 as the corresponding standard deviation. The higher item mean implies it positively contributed to composite mean hence had influence on the performance of PPP renewable energy projects. Even though level of development is an important aspect there is still divergent opinion among the respondents as shown by a higher standard deviation.

The tenth item sought to establish if investors in Public by development Private Partnerships are influenced by development expenditure. Out of the 207 respondents 6(2.9%) indicated not at all, meaning they were not in agreement, 39(18.8%) respondents indicated they were in agreement to a small extent, 66(31.9%) respondents indicated they were moderately in

agreement, 42(20.3%) respondents were largely in agreement while 54(26.1%) respondents indicated to a very large extent. Mean score of 3.4783 with 1.15257 as the standard deviation was obtained from this item. Comparatively, this item had a higher mean score than the Composite Mean which is 3.2671 with a Standard Deviation of 0.53570. This item contributed positively to the overall mean score. This was an indicator that investors are influenced by level of development in as much as there were divergent opinion.

Cronbach Alpha Reliability Coefficient for the ten items used to assess the influence of macroeconomic factors on performance of public private partnership renewable energy projects was 0.796. The composite mean score was 3.2671 with a standard deviation of 0.5357.This means macroeconomic factors influence the performance of public private partnership renewable energy projects. .The reliability coefficient shows that there was internal consistency of the items used to show direction of the macroeconomic risk variable in relation to research objectives. The descriptive statistics are shown in Table 4.19

4.8.1 Correlation between Macroeconomic Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

This section analyses the relationship between macroeconomic risks and performance of public private partnerships. To acquire information on the magnitude of the association between macro-economic risks and performance of PPP renewable energy Pearson correlation test was performed. The interpretation was based on the recommendation by Shirley et al. (2005). Therefore 0.5 to 1.0 was interpreted as a strong correlation, 0.3 to 0.49 was considered a moderate correlation while 0.10 to 0.29 was interpreted as a weak correlation. The direction of association was indicated by the negative or positive sign; an inverse association was indicated by a negative sign.

The Pearson correlations between the variables are shown Table 4.20

Table 4.20: Correlation of Macroeconomic Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Variables		1	2	3	4	5	6
Performance of PPP	Pearson correlation	1					
	Sig. (2-tailed)						
Effect of inflation	Pearson correlation	-0.623**	1				
	Sig. (2-tailed)	0.000					
Effect of interest rate	Pearson correlation	-0.469**	0.265**	1			
	Sig. (2-tailed)	0.000	0.000				
Effect of foreign exchange rate	Pearson correlation	-0.313**	0.264**	0.540**	1		
	Sig (2-tailed)	0.000	0.000	0.000			
Influence of debt	Pearson correlation	-0.465**	0.230**	.276**	0.197**	1	
	Sig. (2-tailed)	0.000	0.001	0.000	0.005		
Development expenditure	Pearson correlation	-0.181**	-0.041	0.257**	0.174*	0.505**	1
	Sig. (2-tailed)	0.009	0.562	0.000	0.012	0.000	

From results on Table 4.20, there is a significant association between inflation and performance of PPP renewable energy projects, the analysis yielded r=-0.623 with p=0.001. The analysis also revealed an inverse correlation, it was implicit that high inflation negatively impacts on performance of public private partnership renewable energy projects. This findings support the assertion by (Estache, Juan and Trujillo, 2007) that inflation entails a financial risk to a project. They concluded that inflation inflates the cost of project which negatively impacts on performance of PPP. The association between interest rate and performance of public private partnerships indicated a significant negative association(r=-0.460, p<0.001). This also indicated an inverse relationship, lower interest would likely result to a more enhanced performance of public private partnerships. Foreign exchange rate and debt as a risk factors was found to be moderately inversely related with the performance of PPP renewable energy projects, r=-0.313 with p=0.001 and for debt was r=--0.465,p=0.001 . A weak negative correlation between development expenditure and performance of public private partnerships renewable energy projects indicated that development expenditure did not explain the performance of PPP renewable energy projects, the analysis yielded r=-0.181, p=0.001.

4.8.2 Regression analysis of Macroeconomic Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Macroeconomic risk factors influence on the performance of public private partnerships renewable energy projects was determined by using multiple regression analysis. Multiple regression analysis was performed using macroeconomic risk factors (indicators) which included effect of inflation, interest rate, foreign exchange rate, and debt and development expenditure on the performance of PPP renewable energy projects. The study model tested was;

$Y=\beta_0+\beta_3X_31……..+ \beta_3X_35+\varepsilon$ for multiple regressions

Where

Y= Performance of public private partnership renewable energy projects

β_0=Constant

$X_3$1= Effect of inflation

$X_3$2=Effect of interest rate

$X_3$3= Effect of foreign exchange rate

$X_3$4= Effect of debt

$X_3$5= Effect of development expenditure

ε = Error term

The multiple regression analysis of macroeconomic risk factors and performance of public private partnership renewable energy projects are presented in Table 4.21

Table 4.21: Macroeconomic Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.747[a]	0.559	0.548	0.18944

Predictors: (Constant), Development expenditure, effect of inflation, effect of foreign exchange rate, Debt, effect of interest rate

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	9.126	5	1.825	50.857	0.000[b]
	Residual	7.214	201	0.036		
	Total	16.340	206			

a. Dependent Variable: Performance of public private partnerships

b. Predictors: (Constant), Development expenditure, effect of inflation, effect of foreign exchange rate, Debt, effect of interest rate

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	1.564	0.085		18.502	0.000		
	Effect of inflation	-0.150	0.016	-0.489	-9.560	0.000	0.839	1.192
	Effect of interest rate	-0.090	0.019	-0.273	-4.707	0.000	0.655	1.526
	Effect of foreign exchange rate	0.006	0.018	0.018	.323	0.747	0.690	1.450
	Debt	-0.103	0.020	-0.287	-5.028	0.000	0.675	1.482
	Development expenditure	0.004	0.022	0.010	0.186	0.853	0.691	1.447

a. Dependent Variable: Performance

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The F-ratio for the model shows a statistically significant influence, F (5,201) = 50.857, p< 0.001, this was an indication that macroeconomic risks had a statistically significant influence on performance of PPP renewable energy projects. This model obtained R^2= 0.559 hence approximately 55.9% of the variation on PPP performance was accounted for by the risk factors. .The individual predictors were further examined and indicated that inflation (t=-9.560, p=0.00), interest rate (t=-4.707, p=0.00) and Debt (t=-5.028, p=0.00) were significant

predictors in the model. However, foreign exchange (t=0.323, p=0.747) and development expenditure (t=0.186, p=0.853) were not significant contributors to the model.

Multiple regression of macroeconomic risk factors accounted 55.9 percent (R^2= 0.559) of performance of public private partnerships. From the results there was an inverse relationship between inflation and performance of public private partnerships (β=-0.150, p= 0.000). This result corroborates the finding by Yartey and Adjasi (2007) who established that inflation negatively affected investment inflows of a country. Investors seldom invest in an economy characterized by high inflation rate. This findings corroborate earlier findings that equally linked the rate of inflation and debt financing of infrastructure projects in developing countries. This implies that whenever there is an increase in inflation then the leverage of debt and equity financing is low consequently fewer private investors willing to partners with the government(Gungoraydinoglu and Öztekin (2011); Frank and Goyal (2009) ;Baltaci and Ayaydin (2014).

Interest rate was having a statistically significant relationship with performance (β=-0.090, p= 0.000), an inverse relationship. This is converse to the findings by Oladipo (2013) who in light of foreign direct investment determined that increase in lending rates makes it easier for foreign investors to move capital from their home countries so as to maximize rate of returns. In a way this researcher asserts that increase in interest rates can attract investors instead of discouraging, more so for foreign companies seeking public private partnerships. The relationship between effect of foreign exchange rate and performance was statistically insignificant (β=-0.006, p= 0.747). Similarly, a study by Kirkpatrick, Parker and Zhang, (2006), established that greater volatility in exchange rates discouraged private investors from participating in financing of public infrastructure. A country's debt significantly related to the performance of public private partnerships renewable energy projects, (β=-0.103, p= 0.000). Metwally and Tamaschke (1994) also found that debt negated investment in a study that assessed debt problems in North African countries. Similar findings were also established by Checherita and Rother (2010) who established that debt negatively affected private investment including total factor productivity.

The last macroeconomic risk factor, development expenditure was found to have an insignificant relationship with performance of public private partnership renewable energy projects, (β=0.004, p= 0.853).Contrarily, a study by Shah and Iqbal (2016) established that the level of governments spending on development had a positive and significant link with

investments in the long run. There is a strong linear relationship between macroeconomic risk factors and performance of public private partnerships as shown by r=0.747.

4.8.3 Test of hypothesis three

Hypothesis three tested the relationship between macro-economic risks and performance of public private partnership renewable energy projects in Kenya. Consequently a linear regression was conducted to assess the influence of macro-economic risks on performance of PPP renewable energy projects. The composite mean for the indicators of macro-economic risks were used as the independent variable. The test was based on the following linear regression model;

Performance of Public Private Partnerships $=\beta 0+\beta 3X_3 + \varepsilon i$

$y=\beta_0+\beta_3 X_3$

y = Performance of Public Private Partnership Projects

$\beta 0$= Constant Term

β_3 = Beta Coefficients

X_3=Macroeconomic risks

ε = Error Term

Table 4.22 Macroeconomic Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.603[a]	0.364	0.361	0.22512

a. Predictors: (Constant), Macro Economic Risks

b. Dependent Variable: Performance of public private partnerships

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	5.950	1	5.950	117.416	0.000[b]
	Residual	10.389	205	.051		
	Total	16.340	206			

a. Dependent Variable: Performance of public private partnerships

b. Predictors: (Constant), Macro Economic Risks

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.805	0.032		25.306	0.000		
	Macro-Economic Risks	-0.592	0.055	-0.603	-10.836	0.000	1.000	1.000

a. Dependent Variable: Performance

Accordingly, the regression results from on Table 4.22 shows that macroeconomic risks was significantly related to performance of public private partnerships renewable energy projects with F (1,205) = 117.416, p< 0.001, R^2=0.364. The study recorded a correlation of r=0.603 indicating a strong linear relationship between macroeconomic risk and performance of public private partnerships renewable energy projects. With a coefficient of determination (R^2) of 0.364 means macroeconomic risks accounted for 36.4% of the variation in the level of performance of public private partnership renewable energy projects in Kenya. The regression result show the hypothesis test results was within the test confidence level of 5%, since p< 0.001. Basing on this the study rejected the null hypothesis. The alternate hypothesis was consequently adopted making this research to conclude that performance of public private partnership renewable energy projects was significantly influenced by macro-economic risks.

This finding was consistent by conclusion by Rambo and Lucas (2016) who obtained a statistically significant influence of macroeconomic factors on financing of build-operate-transfer projects. This result also validates the findings by African Development Bank (2013) that the key challenge to private sector investment in Kenya is macroeconomic volatility. This affects the foreign and interest rates, debt and equity capital including inflation. When there is an increase in inflation economic conditions become uncertain thereby discouraging private sector involvement in projects that are capital intensive(Baltaci and Ayaydin, 2014). This is also echoed by Nyamita, Garbharran and Dorasamy (2014) who stated that the rate of inflation is one of the pointers of a country's economic stability.

The findings are further supported by a respondent who associated macroeconomic risk and performance of PPP renewable energy projects. She pointed out that the rate of inflation is a major concern for the private investors and this either promotes or hampers PPPs.

4.9 Social Risks and Performance of Public Private Partnerships Renewable Energy Projects

The fourth objective of the study sought to assess how social acceptance risks influences performance of public private partnership renewable energy project. The researcher collected data to assess how social acceptance risk factors influence performance of public private partnership renewable energy projects. The assumption of equidistance was fulfilled by adopting a decision rule such that Not at all 1.0-1.8; to a small extent 1.8-2.6; moderate extent 2.6-3.4; to a large extent 3.4-4.2; and to a very large extent 4.2-5.0, this gave an equidistance of 0.8. Data analysis was done descriptively, this involved use of frequency distributions, percentages, means and standard deviations. Results were presented in tabular form. F-test was used to test hypothesis. Social acceptance risks were measured by five indicators which include; socioeconomic position, inadequate compensation, level of community participation, environment pollution and level of awareness of project that were evaluated by a ten item questionnaire. The hypothesis was adopted based on $\alpha = 0.05$ significance level, the alternate hypothesis was adopted at 0.05 level of significant otherwise the null hypothesis was retained.

The following models were adopted:

$Y=\beta_0+\beta 3X_3 1……..+BX_3 5+\varepsilon$ for multiple regressions

$Y= \beta_0+\beta 3X_3 1+ \varepsilon$ for simple linear regression

The results of the statistical analyses are presented in the form of Tables; 4.23, 4.24, 4.25 and 4.26

Table 4.23: Social Risks and Performance of Public Private Partnerships Renewable Energy Projects

Statements	n	1	2	3	4	5	Mean	Std. Dev
1.Socioeconomic position or status of the society has contributed to embracing of the PPP projects	207	6 (2.9%)	143 (69.1%)	24 (11.6%)	27 (13.0%)	7 (3.4%)	2.4493	0.87915
2.Education status of the project hosting community has contributed to social support of the project	207	5 (2.4%)	112 (54.1%)	36 (17.4%)	25 (12.1%)	29 (14.0%)	2.8116	1.1356
3. Low level of project awareness has led to rejection of projects by host community members.	207	2 (1.0%)	152 (73.4%)	5 (2.4%)	48 (23.2%)	0 (0.0%)	2.4783	0.8580
4.Indifference of community towards the projects can be attributed to low level of project awareness	207	12 (5.8%)	93 (44.9%)	46 (22.2%)	37 (17.9%)	19 (9.2%)	2.7971	1.0916
5.Project acceptance depends on level of community participation	207	15 (7.2%)	115 (55.5%)	32 (15.5%)	38 (18.4%)	7 (3.4%)	2.5507	0.9834
6.Lack of community participation has led to rejection of projects by the project host community	207	34 (16.4%)	73 (35.4%)	58 (28.0%)	27 (13.0%)	15 (7.2%)	2.5942	1.1276
7. Environmental pollution is normally a source of conflict with the community hosting the project.	207	2 (1.0%)	108 (52.2%)	41 (19.8%)	35 (16.9%)	21 (10.1%)	2.8309	1.0545
8.Agitation by local environmental action groups has led to delay of projects	207	4 (1.9%)	110 (53.1%)	20 (9.7%)	71 (34.3%)	2 (1.0%)	2.7923	0.9756
9. Compensation issues by displaced community members usually take a long time to solve.	207	1 (0.5%)	100 (48.3%)	1 (0.5%)	94 (45.4%)	11 (5.3%)	3.0676	1.0817
10.There are no issues regarding compensation of displaced community members	207	3 (1.4%)	88 (42.5%)	58 (28.0%)	34 (16.5%)	24 (11.6%)	2.9420	1.0551
, Composite Mean and Standard Deviation							**2.7314**	**0.72956**

Alpha Coefficient=0.850

The first item sought to assess whether socioeconomic position or status of the society had contributed to the embracing of the Public Private Partnership renewable energy projects. From the results of the analysis, of the 207 respondents, 6(2.9%) indicated not at all, 143(69.1%) of the participants approved the statement to a small extent, 24(11.6%) of the respondents

indicated they agreed moderately, 27(13.0%) agreed to a large extent while 7(3.4%) assented to a very large extent. This item obtained a mean score 2.4493 and a standard deviation of 0.8792. Comparatively this mean was below the Composite Mean of 2.7314 and a Standard Deviation of 0.72956. This implied that the socioeconomic status of the society negatively influenced public private partnership performance in renewable energy projects. However, the fact that the item standard deviation is higher is an indication of divergence of opinion among the respondents. This is despite the fact that socioeconomic status of the status is an important dimension of Public Private Partnership renewable energy projects.

The second item sought to determine if education status the project hosting community was a contributing factor for social support of the project within the community. From the results 5(2.4%) indicated not at all, 112(54.1%) agreed to a small extent, 36(17.4%) respondents were in agreement to a moderate extent, 25(12.1%) agreed to a large extent while 29(14.0%) agreed to a very large extent. A mean score of 2.8116 with a standard deviation of 1.1356 is realized on this item. The higher item mean implies that education status of the project hosting is an important aspect that is currently a contributing to social support of the project within the community. The standard deviations of the item mean is higher than the composite mean, this implies that in as much as education status is an important dimension of PPP renewable energy projects there were divergence of opinion among the respondents.

The third item in the questionnaire sought to assess if low level of project awareness contributed to rejection of projects by host community members. From the analyzed responses 2(1.0%) indicated not at all, 152(73.4%) were in agreement to a small extent with the statement, 5(2.4%) were in agreement moderately 48(23.2%) of the participants were in agreement to a large extent 0(0.0%) none of the respondents indicated agreement to a very large extent with the statement. The item has a mean score of 2.4783 with a standard deviation of 0.85801. This compared to the composite mean of 2.7314 and a Standard Deviation of 0.72956, the item mean was lower implying that low level of project awareness currently does not influence the performance of PPP renewable energy projects. The higher SD on the other hand shows that there the respondents opinions were varying as to whether low level of project awareness contributed to rejection of projects.

The fourth item sought to determine if indifference by members of the community towards the projects contributed to low project awareness. Out of the 207 respondents 12(5.8%) indicated not at all while 93(44.9%) of the respondents were in agreement to a small extent, 46(22.4%)

were in agreement moderately, 37(17.9%) of the respondents were largely in agreement while 19(9.2%) were in agreement to a very large extent with the statement. The mean score is 2.7971 and a standard deviation of 1.09162, this is higher than the composite mean of 2.7314 and a deviation of 0.72956.This implies that indifference by members of the community somehow contributed low project awareness. The higher SD reveals a divergence of opinion among the respondents.

The fifth item sought to determine if project acceptance depended on the level of community participation. From the results in table 4.26; 15 (7.2%) of the respondents indicated not at all, 115(55.5%) agreed to a small extent, 32(15.5%) agreed to a moderate extent, 38(18.4%) agreed to a large extent while 7(3.4%) were largely in agreement. A mean score of 2.5507 with 0.9834 as standard deviation was obtained from this item. The composite mean is 2.7314 with a standard deviation of 0.72956. A comparison reveal that the item mean was below the composite mean, however, the standard deviation of the item mean was higher. This implies that currently the level of community participation has no influence on project acceptance. However the higher standard deviation shows that the respondents had different opinions regarding the fact that project acceptance depended on the level of community participation.

The sixth item sought to determine if lack of community participation has led to rejection of projects by the project host community. From the responses 34(16.4%) indicated not at all while 73(35.4%) indicated to a small extent they were in agreement, 58(28.0%) were in agreement to a moderate extent, 27(13.0%) agreed to a large extent while 15(7.2%) were in agreement to a very large extent. With a mean of 2.5942 and a standard deviation of 1.1276 obtained, this is against a composite mean of 2.7314 and a SD of 0.7296. The item had a lower mean implying currently community participation does not influence rejection of projects by the host community. The higher item standard deviation compared to the composite standard deviation indicates divergent views among the respondents.

The seventh item sought to establish if environmental pollution is normally a source of conflict with the community hosting the project. From the outcome of the analysis 2(1.0%) of the respondents indicated not at all, 108(52.2%) participants representing were in agreement to a small extent, 41(19.8%) respondents representing were moderately in agreement, 35(16.9%) were largely in agreement while 21(10.1%) were very largely in agreement with the statement. This item mean was 2.8309, the standard deviation was 1.0545. The composite mean on the

other hand is 2.7314 and a standard deviation of 0.7296, the item mean compared with the composite mean is higher. The higher item mean is implicit that environmental pollution is an important aspect of PPP projects and can possibly result to conflict which influences project performance. The higher item standard deviation implies a divergence of opinion among the respondents in as much as environmental pollution is a very important aspect of PPP renewable energy performance.

The eight items sought to determine if agitation by local environmental action groups has led to delay of projects. Out of the 207 respondents 4(1.9%) indicated not at all, 110(53.1%) indicated to a small extent 20(9.7%) moderately agreed 71(34.3%) respondents about were largely in agreement and 2(1.0%) were to a very large extent in agreement. The mean score is 2.7923 with a standard deviation of 0.9756 for this item on the other hand the composite mean is 2.7314 with a standard deviation of 0.7296. Comparing the two means the item mean is higher than the composite mean, implying that most of the respondents feel agitation by environmental action groups has led to delay of projects. The higher SD implies that there is difference in opinion regarding the issue of environmental agitation and delay or time performance of PPP renewable energy projects.

Item number nine sought to determine if issues of compensation issues by displaced community members usually took a long time to solve. Of the respondents who participated in the study 1(0.5%) indicated not at all, 100(48.3%) agreed to a small extent, 1(0.5%) respondent about was in agreement to moderate extent, 94(45.4%) respondents largely approved the statement, 11(5.3%) to a very large extent were in agreement. The mean score was 3.0676 with a standard deviation of 1.0817. This mean is higher than the composite mean score of 2.7314 with a standard deviation of 0.7296. This shows that in as much as there is divergence of opinion as shown by the higher item standard deviation the higher mean shows issues of compensation currently influence on performance of PPP renewable energy projects.

Item number ten desired to obtain the extent to which the participants were in agreement with the statement “There are no issues regarding compensation of displaced community members.” From the results as shown on table 4.26; out of 207 respondents 3(1.4%) indicated not at all, 88 (42.5%) respondents, were in agreement to a small extent, 58 (28.0%) respondents were in agreement to a moderate extent while 34(16.5%) were in agreement to a large extent and 24 (11.6%) respondents to a very large extent were in agreement with the statement. A mean score of 2.9420 and a SD of 1.0551, the composite mean is 2.7314 and a SD of 0.7296. The item

mean is higher implying that the respondents felt there are no issues regarding compensation of displaced community members. However, the higher standard deviation reveals a divergence of opinion regarding compensation.

The item used to assess the influence of social acceptance risks had an alpha coefficient of 0.850 which was an indication the item had good internal consistency. The ten items had a composite mean score of 2.7314 with a standard deviation of 0.7296. This could be inferred that the respondents were moderately in agreement with items on social acceptance risks.

4.9.1 Correlation between Social Risks and Performance of Public Private Partnerships Renewable Energy Projects

This section assesses the relationship between social acceptance risk factors and performance of PPP renewable energy projects. The section explores the correlation between social acceptance risk factors and performance of public private partnerships using Pearson Correlation Product Moment. To explain how policy risks influence performance of PPP renewable energy regression analysis was performed.

The correlation between the variables was established by performing a Pearson corellational analysis. The interpretation was based on the recommendation by Shirley et al. (2005). Therefore 0.5 to 1.0 was interpreted as a strong correlation, 0.3 to 0.49 was considered a moderate correlation while 0.10 to 0.29 was interpreted as a weak correlation. Negative correlation was considered an inverse relationship between the variables. A negative association was interpreted to mean that as the value of one variable increased the value of the other variable decreased. The results were presented in Table 4.24

Table 4.24: Correlation Analysis of Social Acceptance Risks and Performance of Public Private Partnerships Renewable Energy Projects

Variables		1	2	3	4	5	6
Performance of PPP renewable energy projects	Pearson correlation	1					
	Sig. (2-tailed)						
Socioeconomic position	Pearson correlation	-0.403**	1				
	Sig. (2-tailed)	0.000					
Compensation	Pearson correlation	-0.483**	0.651**	1			
	Sig. (2-tailed)	0.000	0.000				
Community participation	Pearson correlation	-0.308**	0.473**	0.621**	1		
	Sig (2-tailed)	0.000	0.000	0.000			
Environmental pollution	Pearson correlation	-0.661**	0.798**	0.568**	0.299**	1	
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		
Level of awareness of project	Pearson correlation	-0.483**	0.668**	0.673**	0.279**	0.791**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	

Each of the indicators was correlated with the response variable. From the Pearson correlation coefficients, there was an inverse correlation between the variables. There was a moderate relationship between socio economic position and performance of PPP renewable energy projects $r = -0.403^{**}$, $n = 207$, $p = 0.001$, this relationship was also significant. Likewise there was a moderate relationship between performances of public private partnership renewable energy projects and issues of compensation ($r=-0.483$, $n = 207$, $p< 0.01$). Similarly relationship between performance of public private partnership renewable energy projects with community participation was moderate ($r=-0.308$, $n = 207$, $p< 0.01$). However, the study established a strong correlation between environmental pollution and performance of public private partnership renewable energy projects ($r=-0.661$, $n = 207$, $p<0.01$). Lastly a moderate correlation was established between the levels of awareness of the project and performance of public private partnership renewable energy projects($r=-0.483$, $n = 207$, $p<0.01$).

4.9.2 Regression analysis of Social Acceptance Risks and Performance of Public Private Partnerships Renewable Energy Projects

Regression was conducted to assess how social risks predicted performance of PPP renewable energy projects. Indicators of social risk variable were used as predictors. The following model was used for the regression analysis

$Y=\beta_0+\beta_4X_41……..+ \beta_4X_45+\varepsilon$ for multiple regressions

Where

Y= Performance of public private partnership renewable energy projects

β_0=Constant

$X_4$1= Socioeconomic position

$X_4$2= Compensation

$X_4$3= Community participation

$X_4$4= Environmental pollution

$X_4$5= Level of awareness of project

ε = Error term

Table 4.25 bears the results of the regression

Table 4.25: Regression Analysis of Social Acceptance Risks and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.754[a]	0.569	0.558	0.18726

Predictor: (Constant), Socioeconomic position ,Compensation ,Community participation, Environmental pollution

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	9.291	5	1.858	52.996	0.000[b]
	Residual	7.048	201	0.035		
	Total	16.340	206			

a. Dependent Variable: Performance of Public Private Partnerships

b. Predictors: Constant), Socioeconomic position ,Compensation ,Community participation, Environmental pollution

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	1.114	0.051		21.640	0.000		
	Socioeconomic position	0.189	0.028	0.574	6.651	0.000	0.288	3.474
	Compensation	-0.112	0.027	-0.338	-4.183	0.000	0.329	3.044
	Community participation	-0.034	0.019	-0.114	-1.808	0.072	0.544	1.839
	Environmental pollution	-0.342	0.030	-1.104	-11.543	0.000	0.235	4.263

a. Dependent Variable: Performance

The results of multiple regression presented in table 4.28 show that social risk factors were significantly related to the performance of PPP renewable energy projects. F-ratio for the model is significant, $F\ (5,201) = 52.996$, $p< 0.001$.The $R^2 = 0.569$ shows that the model explained 56.9 percent of the variance, the remaining 43.1 percent being explained by other factors. The individual predictors were further examined and indicated that socioeconomic position (t=6.651, p=0.00), compensation (t=-4.183, p=0.00), community participation (t=-1.808,

p=0.00), environmental pollution (t= -11.543, p=0.00) and development expenditure (t=0.186, p=0.853) and level of awareness (t=3.047, p=0.03).

The collective influence of social risk factors was significant in explaining the performance of public private partnerships renewable energy projects.

4.9.3 Test of hypothesis four

The fourth hypothesis tested the relationship between social acceptance risks and performance of public private partnership renewable energy projects in Kenya. Consequently regression was conducted to assess the influence of social acceptance risks on performance of PPP renewable energy projects. The study formulated the following hypothesis;

H0 There is no significant relationship between social acceptance risks on the performance of PPP renewable energy projects.

To test the hypothesis, F-test was used.

The following regression model was applied;

Performance of Public Private Partnerships $=\beta 0+\beta_4 X_4 + \varepsilon i$

$y=\beta_0+\beta_4 X_4$

y = Performance of Public Private Partnership Projects

β_0= Constant Term

β_4 = Beta Coefficients

X_4=Social Acceptance Risks

ε = Error Term

To establish whether the relationship between the variables was statistically significant, the researcher performed F-test at $\alpha=0.05$ significance level. The P-value obtained guided the study as tow whether to adopt or reject the null hypothesis. The outcome of the analysis was eventually presented in table 4.26.

Table 4.26: Social acceptance risks and performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.565[a]	0.319	0.316	0.23294

Predictors: (Constant), Social acceptance risks

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	5.216	1	5.216	96.135	0.000[b]
	Residual	11.123	205	0.054		
	Total	16.340	206			

a. Dependent Variable: Performance of Public Private Partnerships

b. Predictors: (Constant), Social acceptance risks

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.790	0.033		23.720	0.000		
	Social acceptance risks	-0.562	0.057	-0.565	-9.805	0.000	1.000	1.000

a. Dependent Variable: Performance of Public Private Partnerships

Influence of social acceptance risks on the performance of public private partnership renewable energy projects. The results in Table 4.26 show that model was robust enough to justify significant influence of social acceptance risks on the performance of public private partnership renewable energy projects($r=0.565$, p-value<0.01). Correlation results show a strong relationship between the two variables. The $R^2= 0.319$, shows that social risk factors accounts for approximately 31.9% of the variation in the performance of public private partnerships renewable energy projects. The F-test for this factor in the regression model was found to be significant, $F(1,205) =96.135$, $p< 0.001$.This provided evidence for the rejection of null hypothesis. The study therefore adopted the alternate hypothesis and concluded that there is significant influence of social acceptance risks on the performance of public private partnerships renewable energy projects.

These results are in conformity with the findings of Gormally et al., (2014) who established that it is important to involve the community in renewable energy projects to avoid the risk of social acceptance. Similarly, a study by Patterson and Pun (2015) who established that stakeholder involvement and informing the stakeholders on the advantages of projects can have profound effects in minimizing opposition to projects. These studies link social acceptance risks to performance of renewable energy projects, they corroborate the current findings. This position was articulated by one of the respondents who remarked "…society plays a very important role in project performance; investors shy away when they feel that social dimensions of the projects have not been addressed satisfactorily…" One was very explicit….projects and social tensions are intertwined; any community gets concerned when a project is being implemented in their locality. It is very difficult for any project to realize success if it is in conflict with the society, social acceptance risks is a determinant of project success. Another noted that social conflict could see a project delay for long hence impacting on the cost; the worst case is when investors are forced to abandon projects due to social rejection.

4.10 Market Risks and Performance of Public Private Partnerships Renewable Energy Projects

This section presents a description of the analysis on the influence of market risk on the performance of public private partnerships renewable energy projects as the fifth objective of the study. Both theoretical and empirical review indicated market risk influence the performance of public private partnership renewable energy projects. Ten items were consequently developed in this study to measure the extent of this relationship between market risks and performance of public private partnerships renewable energy projects. This was also in response to the fifth objective of the study-to assess the extent to which market risks influences performance of public private partnership renewable energy projects in Kenya. The respondents therefore were requested to state the extent to which they agreed or disagreed with the statements in a likert scale of 1-5. Market risks were measured by five indicators; price volatility, off taker default risks, demand, monopoly and government subsidies that were evaluated in the ten item questionnaire. The mean score of the individual item was evaluated to assess the degree of agreement expressed in the statements. The composite mean score was computed with a view to determining the extent of respondents agreement with the statement expressed in the item. To determine correlation, the Pearson corellational analysis was performed. To determine the influence simple and multiple regression was performed. The results of the analysis are presented in Table 4.27

Table 4.27: Market Risks and Performance of Public Private Partnerships Renewable Energy Projects

Statements	n	1	2	3	4	5	Mean	Std. Dev
1.Price volatility has influenced the performance of public private partnerships	207	6 (2.9%)	120 (57.9%)	18 (8.7%)	61 (29.5%)	2 (1.0%)	2.6763	0.9637
2.Cost performance of PPP projects is impacted by price changes	207	2 (1.0%)	108 (52.2%)	41 (19.8%)	35 (16.9%)	21 (10.1%)	2.8309	1.0545
3. The possibility of power off-taker default has influenced the cost performance of public private projects.	207	4 (1.9%)	116 (56.1%)	27 (13.0%)	58 (28.0%)	2 (1.0%)	2.7005	0.9333
4. Power off take agreements has improved financing of PPP projects.	207	6 (2.9%)	88 (42.5%)	37 (17.9%)	65 (31.4%)	11 (5.3%)	2.9372	1.0339
5.Demand influence the performance of PPPs.	207	7 (3.4%)	103 (49.8%)	38 (18.3%)	54 (26.1%)	5 (2.4%)	2.7440	0.9634
6. Demand risk has influenced financing of public private partnership projects.	207	11 (5.3%)	112 (54.1%)	18 (8.7%)	64 (30.9%)	2 (1.0%)	2.6812	1.0023
7.Monopoly has complicated initiation of public private partnerships	207	6 (2.9%)	93 (44.9%)	46 (22.2%)	41 (19.9%)	21 (10.1%)	2.8937	1.0786
8.Monopoly has influence on financing of public private partnerships	207	0 (0.0%)	0 (0.0%)	0 (0.0%)	133 (64.3%)	74 (35.7%)	4.3575	0.4804
9.Government subsidies influence investment decisions in public private partnerships	207	0 (0.0%)	13 (6.3%)	0 (0.0%)	159 (76.8%)	35 (16.9%)	4.0435	0.6484
10.Subsidies are attractive to private investors	207	0 (0.0%)	54 (26.1%)	50 (24.2%)	31 (15.1%)	72 (34.8%)	3.5845	1.2113
The composite mean score composite standard deviation of							**3.1449**	**0.5615**

The first item sought to determine if price volatility had influence on public private partnership performance. Participants in this study were 207 of which 6(2.9%) indicated not at all, 120 (57.9%) respondents were in agreement to a small extent with the statement, another 18 or (8.7%) were moderately in agreement, 61 (29.5%) participants indicated they were largely in agreement while 2(1.0%) were in agreement to a very large extent. The mean score for this item is 2.6763 with a standard deviation of 0.9664, the composite mean on the other hand is 3.1449 with 0. 5615 comparatively the item mean is below the composite, this implies that

currently price volatility does not influence performance of PPP renewable energy projects. The higher item standard deviation communicates that there is a divergence of opinion among the respondents regarding the influence of price volatility on performance of PPP renewable energy projects.

The second item sought to determine if cost performance of PPP renewable energy was impacted on by price changes. From the responses, 2 (1.0%) respondents indicated not at all, 108 (52.2%) were to a small extent were in agreement, 41(19.8%) respondents were moderately n agreement, 35 (16.9%) were in agreement to a large extent while 21(10.1%) were in agreement very large extent. The mean for this item is 2.8309 with a standard deviation of 1.0545, the composite is 3.1449 with standard deviation of 0.5615.the lower item mean compared to the composite mean indicates that price changes had no impact on performance of PPP renewable energy projects. The higher composite standard deviation implies divergent opinion among the respondents as regarding price changes.

The third item sought to establish if the possibility of power off taker default had influenced the cost performance of the public private partnership renewable energy projects. Out of the 207 respondents who participated in the study, 4(1.9%) indicated not at all, 116(56.1%) indicated to a small extent, 27(13.0%) agreed to a moderate extent, 58(28.0%) while 2(1.0%) were to a very large extent in agreement resulting to a mean of 2.7005 and a standard deviation of 0.9333. Since this mean is below the composite mean of 3.1449 and standard deviation of 0.5615 possibility of power off taker default does not influence the cost performance of the public private partnership renewable energy projects. Nevertheless, the higher item standard deviation indicates that there is divergence of views in as much as off taker is a very important element of performance of the public private partnership renewable energy projects.

The fourth item sought to assess if power off take agreements had improved performance of public private partnership projects under renewable energy. Out of the participants 6(2.9%) indicated not at all, 88(42.5%) agreed to a small extent, 37, (17.9%) respondents were moderately in agreement, 65(31.4%) agreed to a large extent while 11 (5.3%) respondents were to a very large extent in agreement. This item mean was 2.6812 with a corresponding standard deviation of 1.0023. This mean score was lower than the composite mean score of 3.1449 with standard deviation of 0.5615 implying power off take agreement currently has no influence on the performance of public private partnership renewable energy projects. However, there were

differing opinion as to whether power off take agreements had improved performance of public private partnership projects under renewable energy as evidence by the higher item SD.

The fifth item sought to inquire if power demand influenced public private partnership performance with regard to renewable energy projects. From the responses 7(3.4%) indicated not at all, 103(49.8%) respondents indicated they were in agreement to a small extent ,38(18.3%) interviewees moderately agreed, 54 (26.1%) respondents largely agreed 5(2.4%) respondents were in agreement to a large extent with the statement. A mean score of 2.744 with 0.9640 as the corresponding standard deviation was obtained. Compared the mean of means which was 3.1449 with a corresponding standard deviation of 0.5615 shows that the item mean was below. This shows that power demand currently has no influence on to the performance of PPP, however, the higher item standard deviation is in indication that the respondents had divergent opinion.

The sixth item sought to determine if demand risk had influenced the financing of public private partnership renewable energy projects. Of the respondents 11(5.3%) indicated not at all while 112 respondents (54.1%) indicated that they were to small extent in agreement, 18 respondents (8.7%) moderately agreed, 64 respondents (30.9%) were in agreement to a large extent 2(1.0%). This item mean was 2.6812 the corresponding standard deviation was 1. 0023. Compared with the composite mean score of 3.1449 with 0.5615 as the corresponding standard deviation, the item mean was below. This indicates demand risk had no influence on PPP performance considering the renewable energy projects. In spite of this there were divergent opinion among the respondents as shown a higher SD of the item mean.

The seventh item sought to establish if monopoly had complicated initiation of public private partnerships. Of the respondents 6(2.9%) indicated not at all, 93(44.9%) respondents were bin agreement to a small extent, 46 (22.2%) respondents moderately agreed, 41(19.8%) respondents largely agreed with the statement while 21(10.1%) respondents were to a very large extent in agreement. A mean score of 2.8937 with a standard deviation of 1.0786, this was below the composite mean score of 3.1449 with standard deviation of 0.5615. This show that monopoly at the moment has no influence on the performance of public private partnership renewable energy projects. It implies that monopoly is an important aspect though there are divergent views about it from the respondents as shown by the higher item standard deviation.

The eighth item sought to determine if monopoly had influenced financing of public private partnerships renewable energy projects. None of the respondents indicated not at all, 0(0.0%),

similarly there was no response for the options of to a small extent and to a moderate extent, their score was there at 0(0.0%). Never the less, 133(64.3%) respondents indicated they were in agreement to a large extent a large extent while 74(35.7%) respondents indicated they were in agreement to a very large extent. This item mean was 4.3575 with 0.4804 as the standard deviation. Since this mean is higher than the composite mean of 3.1449 and a SD of 0.5615 it is an indication that monopoly has influence on PPP renewable energy projects.

The ninth item under market risks sought to establish if Government subsidies had influence investment decisions of public private partnerships renewable energy projects. From the results none of the respondents indicated not at all, 0(0.0%), 13(6.3%) agreed to a small extent, 0(0.0%) indicated to a moderate extent, 159(76.8%) of the respondents agreed to a large extent while 35 respondents (16.9%) were in agreement to a very large extent. This item mean was 4.0435 with 0.64841 as the corresponding standard deviation of, this was above the composite mean score of 3.1449 with standard deviation of 0.5615, it was therefore deduced that government subsidies influenced the performance of PPP renewable energy projects. In as much as market is an important aspect of PPP renewable energy there were divergence opinion regarding its influence among the respondents since the item had a higher standard deviation.

The last item sought to determine if subsidies attracted investors into public private partnership renewable energy projects. Out of the participants, 0(0.0%) indicated not at all, 54(26.1%) agreed to a small extent, 50(24.2%) respondents responded they were in agreement to a moderate extent, 31 (15.0%) respondents were largely in agreement while 72(34.8%) respondents to a very large extent were in agreement. Since the mean of 3.5845 with a SD of 1.2113 is higher than the composite mean of 3.1449 with a SD of 0.5615 it implies that subsidies are attractive investors hence influence the performance of PPP renewable energy projects. The higher item SD indicates a divergence in opinion regarding the influence of subsidies on performance of PPPs among the respondents

4.10.1 Correlation between Market Risks and Performance of Public Private Partnerships Renewable Energy Projects

This section explores the relationship between market risks factors and performance of public private partnerships renewable energy projects. The first part explores the correlation between risk factors and performance of public private partnerships renewable energy projects. This was done using Pearson Correlation Product Moment. The next part used regression analysis to determine the influence of market risks factors on the performance of public private

partnerships renewable energy projects, the hypothesis of the study was evaluated using regression analysis based on the composite market risks.

Corellational analysis was used to assess the relationship between, market risk factors and the performance of public private partnerships. The indicators of market risks were correlated with the dependent variable. Pearson product moment, r correlation was conducted assess the relationship between each market risk factors and performance of public private partnerships. The correlation coefficients, r, vary from 0 (no relationship) to 1(perfect linear relationship). When the coefficient is positive then a direct relationship is establish, this means that when there is an increase in one variable then the other also increases. A negative correlation means the relationship in inverse, an indication that when one variable increases the other decreases. The results are presented in Table 4.28

Table 4.28: Correlation analysis between Market Risks and Performance of Public Private Partnerships Renewable Energy Projects

Variables		**1**	**2**	**3**	**4**	**5**	**6**
Performance of PPP	Pearson correlation	1					
	Sig. (2-tailed)						
Price volatility	Pearson correlation	-0.628**	1				
	Sig. (2-tailed)	0.000					
Off taker default	Pearson correlation	-0.707**	0.770**	1			
	Sig. (2-tailed)	0.000	0.000				
Demand	Pearson correlation	-0.756**	0.754***	0.771**	1		
	Sig (2-tailed)	0.000	0.000	0.000			
Monopoly	Pearson correlation	-0.511**	0.725*	0.741**	0.605**	1	
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		
Government subsidies	Pearson correlation	0.417**	-0.211**	. -0.261**	. -0.269**	-0.147	1
	Sig. (2-tailed)	0.000	0.002	0.000	0.000	0.034	
n		**207**	**207**	**207**	**207**	**207**	

The results on Table 4.28 shows a strong relationship between price volatility and performance of public private partnerships (r= -0.628, n=207, p< 0.001). There was a strong relationship between off taker default and performance of public private partnerships renewable energy projects (r=-0.707 n=207, p<0.001).Similarly there was strong correlation between demand and performance of public private partnerships renewable energy projects, (r=-0.756, n=207, p< 0.001).The study also established a strong correlation between monopoly and performance of public private partnerships renewable energy projects(r=-0.511, n=207, p< 0.001). Correlation between monopoly and performance of renewable energy projects was also established by (Environics, 2010 and Government of Mali, 2012).They concur that monopolies creates price instability where the price is not reflective of the cost of production and market dynamics. This can impact on cost performance of the renewable energy projects.

Monopolies results to price instability, this where the prices seldom reflects the cost of production or the dynamics in the market which is detrimental to revenue streams hence discouragement to private investment (Pegels, 2009; European Union, 2009;Government of Mali, 2012).

Finally the study established a moderate correlation between government subsidies and performance of public private partnership renewable energy projects (0.417, n=207, P<0.001). Similarly, Sovacool (2008) established a correlation between subsidies and implementation of renewable energy projects and recommended for removal of subsidies to create fair competition. UNEP, (2012) observed that subsidization of fossil fuel is a major hindrance to deployment of renewable energy projects. The two studies also established a correlation between renewable energy projects and government subsidies. Similarly UNEP (2012) is in concurrence that transaction costs and subsidizing of fossil fuel is a major hindrance to deployment of renewable energy. They acknowledge major drivers of renewable energy deployment as profit and fair competition and that when electricity tariff scheme that is highly subsidized puts off private investment.

4.10.2 Market Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

In the quest to determine how market risks influence the performance of PPP renewable energy projects, multiple regression was performed. Indicators of market risks were used as the predictors. The results were presented in Table 429;

$Y=\beta_0+\beta_5X_51……..+ \beta_5X_55+\varepsilon$ for multiple regressions

Where

Y= Performance of public private partnership renewable energy projects

β_0=Constant

$X_5$1= Price volatility

$X_5$2= off taker default risks

$X_5$3= Demand

$X_5$4= Monopoly

$X_5$5= Government subsidies

ε = Error term

Table 4.29: Market risk factors and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.808[a]	0.653	0.645	0.16788

a. Predictors: (Constant), Government subsidies, Monopoly, Demand, Price volatility, Off taker default risks

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	10.675	5	2.135	75.749	0.000[b]
	Residual	5.665	201	0.028		
	Total	16.340	206			

a. Dependent Variable: Performance

b. Predictors: (Constant), Government subsidies, Monopoly, Demand, Price volatility, Off taker default risks

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.835	0.102		8.174	0.000		
	Price volatility	-0.011	0.024	-0.033	-0.440	0.660	0.299	3.340
	Off taker default risks	-0.095	0.025	-0.300	-3.737	0.000	0.267	3.747
	Demand	-0.160	0.024	-0.476	-6.658	0.000	0.337	2.966
	Monopoly	0.025	0.030	0.056	0.834	0.405	0.388	2.575
	Government subsidies	0.081	0.017	0.211	4.867	0.000	0.915	1.093

a. Dependent Variable: Performance

Price volatility (β= -0.11) is not significant (β = 0.660), the negative coefficient indicates an inverse relationship. This implies that an increase in price volatility would result to decreased performance of public private partnerships- which is what we would expect. The effect of off taker default risks (β =-0.095, p=0.00) is significant and the coefficient is negative indicating that when off-taker default the influence on the performance is negative meaning a decrease in performance. Demand uncertainty is highly related to performance of public private partnerships, (β = -0.160, p=0.000) thus demand uncertainty is associated with lower performance of public private partnerships. On monopoly, the study did not establish a

significant relationship, the values were (β =0.025, p =0.405). Pegels (2009) similarly established that market monopoly influenced renewable energy projects by impeding financial sustainability hence obstructing investments. Monopolies results to price instability, this where the prices seldom reflects the cost of production or the dynamics in the market which is detrimental to revenue streams hence discouraging private investment (European Union, 2009 and Environics, 2010).The study also established a strong positive relationship between government subsidies and performance of public private partnerships, (β = 0.081, p= 0.000).

From these results, the study concluded that, off taker default risk, and demand uncertainty are inversely related to performance of public private partnerships. Government subsidy had a positive significant relationship with the performance of public private partnership. Price volatility and monopoly were not significantly related to public private partnership and therefore did not contribute much to the regression model**.**

Finally the overall model statistic F (5,201) = 75.749, P<0.05 showed there is a significant influence of market risk factors on the performance of public private partnerships renewable energy projects. The study therefore concluded that market risks to a large extent influenced the performance of public private partnerships.

4.10.3 Test of hypothesis five

The fifth hypothesis tested the relationship between market risks and performance of public private partnership renewable energy projects in Kenya. Consequently regression was conducted to assess the influence of market risks on performance of PPP renewable energy projects. A composite mean for the indicators of market risks was used as the independent variable. The test was based on the following linear regression model;

The following linear regression model was used;

Performance of Public Private Partnerships $=\beta 0+\beta_5 X_5 + \varepsilon i$

$y=\beta_0+\beta_5 X_5$

y = Performance of Public Private Partnership Projects

β_0= Constant Term

β_5 = Beta Coefficients

X_5=Market risks

ε = Error Term

Table 4.30 presents regression results

Table 4.30: Market Risks and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.582[a]	0.339	0.336	0.22992

a. Predictors: (Constant), Market risks

b. Dependent Variable: Performance of public private partnerships

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	5.534	1	5.534	104.689	0.000[b]
	Residual	10.784	204	0.053		
	Total	16.318	205			

a. Dependent Variable: Performance of public private partnerships

b. Predictors: (Constant), Market risks

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.802	0.033		24.226	0.000		
	Market Risks	-0.589	0.058	-0.582	-10.232	0.000	1.000	1.000

a. Dependent Variable: Performance

The regression result presented in Table 4.30 show that the correlation r=0.582, this indicate a relatively strong influence of market risks on the Performance of PPP. The R-square value of 0.339 suggests that market risk explain 33.9% of the variation in the Performance of PPP. This implies that 66.1% of performance of PPP renewable energy projects is explained by other factors.

The F ratio was significant as F (1,204) =104.689, P=0.000< 0.05. This show that market risk had significant influence on the performance of public private partnership renewable energy projects. The result of the test provides adequate ground for the rejection of the null hypothesis. The alternate hypothesis was therefore adopted by the study. There is therefore a significant influence of market risks on the performance of performance of public private partnership renewable energy projects at 95% level of significance. This finding agreed with the findings

by UNEP (2012) that acknowledged the market as a major driver of renewable energy deployment since profit and fair competition attracted investors.

Qualitative accounts supported the fact that market risks influences performance of PPP One of the respondents observed that investors were concerned about customer concentration risk owing to a single off taker in Kenya whereby only Kenya Power and Lighting Corporation is the sole power transmitter and distributor. Another respondent observed that by the fact of a single off taker liquidity risk was difficult to rule out and was high and this could impact on the project in case of a cash crunch. Another respondent said that reliable revenue to investors is guaranteed since the government is single biggest shareholder in the company party to power purchase agreements, this enhanced performance of public private partnerships due to reliable revenue.

4.11 Combined Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

The sixth research objective sought to determine how combined risk factors influence performance of PPP renewable energy projects. First to establish the degree of relationship between the variables the study used correlation analysis. This enabled the researcher to have an idea about direction and degree of the relationship between the risks factors and performance of public private partnerships. Then multiple regression analysis was consequently conducted to determine how the combined risk factors influenced the performance of public private partnership renewable energy projects. To test the hypothesis that, regression analysis was done involving the risk factors and performance of PPP renewable energy projects in Kenya. Analysis of the null hypothesis was based on the F-test with P-Value considered at 95% level of confidence. The null hypothesis was either rejected at $p<0.05$ or adopted at $P>0.05$. Multicollineraity tests ensured compliance with statistical assumptions besides ensuring no overlap of the variables, this enabled distinction of explanatory factors from each other hence isolating their independent influence.

4.11.1 Correlation between Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Pearson correlation coefficient enabled the assessment of the relationship strength between the variables**.** Pearson's correlation coefficient is denoted by r and is defined by;

$$r=\frac{n\Sigma xy-(\Sigma x)(\Sigma Y)}{\sqrt{n\Sigma X2-(xy)2(N\Sigma y2-\Sigma xy2)}}$$

Σx= X distribution sum of scores

Σy= Y distribution sum of scores

Σx^2 =sum of squared scores in

Σy^2= x distribution sum of squared scores

Σxy=sum of the product of point x and y scores

n=the number of point x and y scores

The value of r lies between -1 to +1, a positive or direct correlation means Y increases when X increases. A negative or an inverse correlation means X increases when Y decreases. Negative or positive correlation is only used in the context of variation or proportionality.

Table 4.31: Correlation between Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Variables		1	2	3	4	5	6
Performance of PPP	Pearson correlation	1					
	Sig. (2-tailed)						
Political risks	Pearson correlation	-0.572**	1				
	Sig. (2-tailed)	0.000					
Policy risks	Pearson correlation	-0.627**	0.795**	1			
	Sig. (2-tailed)	0.000	0.000				
Macro-Economic Risks	Pearson correlation	-0.603**	0.450**	0.416**	1		
	Sig (2-tailed)	0.000	0.000	0.000			
Social acceptance risks	Pearson correlation	-0.565**	0.640**	0.616**	0.463**	1	
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		
Market risks	Pearson correlation	-0.582**	0.612**	0.495**	0.485**	0.803**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	

From the results on Table 4.31 there was the relationship between political risks and performance of public private partnerships was strong but inverse, ($r=-0.572^{**}$, $n=207$, $p<.01$) similarly policy risk and performance was also strong but inverse ($r=-0.627^{**}n=207$, $p<.01$).Correlation between macroeconomic risks and performance showed a strong inverse relationship, ($r=-0.603^{**}n=207$, $p<.01$). Social acceptance risks has a significant relationship with performance of public private partnerships, ($r=-0.565^{**}n=207$, $p<.01$).The relationship between market risks and performance of PPPs is also significant, ($r=-0.582^{**}n=207$, $p<.01$).

4.11.2 Test of Hypothesis Six

This hypothesis tested the relationship between combined risk factors and performance of performance of Public-Private Partnership renewable energy projects in Kenya. Consequently to meet the sixth objective of the study multiple linear regression was applied in order to determine how the risks combined influenced the performance of PPP renewable energy projects. This test was done at the level of $\alpha=0.05$ or 95% level of significance.

In multiple regressions, the regression model is of the form:

$$Y= \beta_0+ \beta_1X_1+ \beta_2X_2 +\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \beta_nX_n+E$$

Where Y-is the dependent variable

X_{1-n} -are the independent variables B0-is the constant

β_{1-n} –are the regression coefficients or change induced in Y by each X_n

ε- is the error

Source: Mugenda and Mugenda (1999)

The results for the multiple regression is presented in Table 4.32

Table 4.32: Regression analysis of combined Risk factors and Performance of Public Private Partnerships

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.757[a]	0.573	0.563	0.18655

a. Predictors: (Constant), Market risks, Macro Economic Risks, Policy risks, Political risks, Social acceptance risks

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	9.358	5	1.872	53.777	0.000[b]
	Residual	6.960	200	0.035		
	Total	16.318	205			

a. Dependent Variable: Performance of public private partnerships

b. Predictors: (Constant), Market risks, Macro Economic Risks, Policy risks, Political risks, Social acceptance risks

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.974	0.032		30.746	0.000		
	Political Risks	0.059	0.082	.061	0.723	0.470	0.303	3.296
	Policy risks	-0.407	0.078	-0.415	-5.194	0.000	0.334	2.990
	Macro-Economic Risks	-0.335	0.054	-0.341	-6.231	0.000	0.713	1.403
	Social Acceptance Risks	0.029	0.087	0.029	0.334	0.739	0.290	3.454
	Market risks	-0.275	0.083	-0.272	-3.314	0.001	0.317	3.153

a. Dependent Variable: Performance

The tests for multicollinearity indicated that the level of multicollinearity present was within the limit recommend (VIF=3.296 for political risks, 2.990=policy risks, 1.403= Macro-Economic Risks, 3.454= Social Acceptance Risks, 3.153= Market risks). None of the VIF was equal or greater than 5, hence the assumption of multicollinearity was not violated (King et al.,

1994). Taking all factors into account (political risks, policy risks, macroeconomic risks, social acceptance risks and market risks) constant, the performance of public private partnerships will be 0.974 units. The analysis shows that policy risks was the most important predictor of performance of public private partnership renewable energy projects (β= -0.415, t= -5.194, p< 0.01). This was followed by Macroeconomic risk factors, (β= -0.341, t=-6.231, p<0.001.), Market risk was the third most significant predictor, (β =-0.272, t=-3.314p<0.01). However, political risks, (β=0 .061, t=0.723, p>0.05) and social acceptance risks (β=0.029, t=0.334, p> 0.05). There was also an inverse significant relationship between policy, macroeconomic and market risks with the dependent variable. This implied that a unit increase or decrease in the independent variables would have an inverse corresponding effect on PPP renewable energy projects performance.

Overall regression model was significant with F (5,200) = 53.777, p =0.000< 0.05 showing there was a statistically significant influence of the combined risk factors on PPP renewable energy projects the performance. This means that combined risk factors significantly influence the performance of public private partnerships renewable energy projects in Kenya at 0.05 level of significant. The study therefore concluded that there was significant influence of combined risk factors on the performance of PPP renewable energy projects in Kenya. The Adjusted R square at 0.563 indicates that 56.3% of the variability in the performance of public private partnerships was explained by the model.

4.12 Contract Management, Risk Factors and Performance of Public Private Partnerships Renewable Energy projects

The seventh objective of the study sought to determine the moderating influence of contract management on the relationship between risk factors and performance of public private partnership renewable energy projects in Kenya. This subsection presents a descriptive analysis of contract management and how it moderates the relationship between risk factors and performance of PPP renewable energy projects in Kenya. Ten items were consequently developed in this study to measure the extent of this relationship between contract management, risk factors and performance of public private partnerships renewable energy projects. A likert scale of 1-5 was used to gauge the respondent's responses on the extent of their agreement with the provided statements**.** Contract management was measured by five indicators; risk management, contract performance and monitoring, contract change management, contract administration and compliance and contract partnership management were evaluated in the ten item questionnaire. The mean score of the individual item was

evaluated to assess the degree of agreements expressed in the questionnaire. The composite mean score was computed to assess the overall questionnaire response in relation to individual item responses. The results of the analysis are presented in Table 4.33

Table 4.33: Contract Management and Performance of Public Private Partnerships Renewable Energy Projects.

Statements	n	1	2	3	4	5	Mean	Std. Dev
1.There is a risk management plan for Public Private Partnership projects	207	0 (0.0%)	6 (2.9%)	106 (51.2%)	92 (44.4%)	3 (1.5%)	3.4444	0.5792
2.Risk allocation is agreeable among the contracting partners	207	1 (0.5%)	9 (4.3%)	77 (37.2%)	99 (47.9%)	21 (10.1%)	3.6280	0.7451
3.There is contract performance and monitoring plan	207	4 (1.9%)	21 (10.1%)	41 (19.8%)	126 (60.9%)	15 (7.3%)	3.6135	0.8392
4.Reports on performance and monitoring is consistently communicated to partners	207	1 (0.5%)	7 (3.4%)	28 (13.5%)	162 (78.3%)	9 (4.3%)	3.8261	0.5734
5.Contract change management is consultative	207	2 (1.0%)	12 (5.8%)	49 (23.6%)	118 (57.0%)	26 (12.6%)	3.7440	0.7865
6.Changes to the initial contract is communicated to the contracting parties	207	1 (0.5%)	6 (2.9%)	61 (29.4%)	62 (30.0%)	77 (37.1%)	4.0048	0.9111
7.Contract execution plan is clearly outlined to the contracting partners	207	0 (0.0%)	1 (0.5%)	22 (10.6%)	161 (77.8%)	23 (11.1%)	3.9952	0.4877
8.Contract compliance is ensured by contract administrators	207	2 (1.0%)	12 (5.8%)	28 (13.5%)	116 (56.0%)	49 (23.7%)	3.9565	0.8320
9. There is a contract relationship procedure outlined in the contract plan.	207	0 (0.0%)	1 (0.5%)	73 (35.2%)	121 (58.5%)	12 (5.8%)	3.6957	0.5822
10.Conflict resolution is structured in contract management plan	207	2 (1.0%)	9 (4.3%)	59 (28.6%)	122 (58.9%)	15 (7.2%)	3.6715	0.7162
Composite Mean and standard deviation							**3.7580**	**0.49563**

The first item sought to establish if there was a risk management plan for Public Private Partnership renewable energy projects, 0 (0.0%) none of the respondents indicated not at all, 6 (2.9%) respondents indicated they had agreed to a small extent, 106(51.2%) respondents moderately agreed, 92(44.4%) respondents were to a large extent in agreement while 3(1.5%)

respondents were in agreement to a very large extent. The mean was 3.4444 with 0.5792 as the corresponding standard deviation; this was an indication that the most of the respondents were to a large extent in agreement that there was a risk management plan. Compared to the mean of means which was 3.7580, with 0.49563 as the corresponding standard deviation, the item mean was lower. The item SD was however higher than the composite SD, this implied that the respondents had divergent responses as to whether there was a risk management plan for Public Private Partnership renewable energy projects.

The second item sought to establish whether the risk allocation was agreeable among the contracting partners in PPP arrangement. The statistic of the responses revealed , 1(0.5%) respondent indicated not at all, 9(4.3%) respondents indicated they were in agreement to a small extent, 77(37.2%) respondents were moderately in agreement, 99(47.9%) respondents to a large extent were in agreement while 21(10.1%) respondents indicated they were in agreement to a very large extent. Mean score for this item was 3.6280 with 0.7451 as the corresponding standard deviation. This implied was implicit that most respondents to a large extent were in agreement that risk allocation was agreeable. Comparatively, the Composite Mean of 3.7580, with a standard deviation of 0.49563 was higher than the item mean. Nevertheless, the item SD was higher than the composite SD this implies that in as much as risk allocation is a very important element of PPP, there were varying opinions among the respondents whether it was agreeable. Risk allocation is very important, a fact that was corroborated by one of the respondents who said it was a key aspect in the performance of PPP renewable energy projects. This due to the fact that investors were overly concerned about a risks and how they were distributed between the partners.

Item three determined if there was a contract performance and monitoring plan. Out of the 207 responses 4(1.9%) of the respondents indicated not at all, 21(10.1%) agreed to a small extent, 41(19.8%) agreed to a moderate extent, 126(60.9%) agreed to a large extent with 15(7.3%) agreed to a very large extent. Item mean was of 3.8261 with 0.8392 as the corresponding standard deviation. When compared, this mean was higher than the mean of means which was 3.7580, with 0.49563 as the standard deviation .This implies that contract performance and monitoring plan was used in PPP renewable energy projects, however the higher composite SD implies that the respondents had divergent opinion towards the issue of contract performance and monitoring plan.

The fourth item sought to establish reports on performance and monitoring was consistently communicated to partners. From the results 1 respondent (0.5%) indicated not at all, 7(3.4%) respondents agreed to a small extent, 28 (13.5%) respondents agreed to a moderate extent, 162(78.4%) respondents were largely in agreement while 9(4.3%) respondents indicated they were in agreement to a very large extent. Item mean was 3.8261 with 0.5734 as the corresponding standard deviation. This item mean was higher than the mean of means which was 3.7580 with 0.4956 as the standard deviation, implying in as much as monitoring and communication of performance had an influence on the performance of PPP projects there are divergent views among the respondents.

Fifth item sought to determine if contract change management was consultative, from the responses, a total of 2(1.0%) respondents indicated not at all meaning they did not agree with the statement totally, 12(5.8%) respondents agreed to a small extent, 49 (23.6%) respondents were moderately in agreement while 118(57.0%) respondents were in agreement to a large extent while 26(12.6%) agreed to a very large extent .This item mean was 3.7440 with 0.7865 as the standard deviation , based on this it the study construed that the respondents were in agreement to a large extent that contract change management was consultative. Comparatively, this mean was slightly lower than the mean of means of 3.7580, with 0.49563 as the corresponding standard deviation. This results revealed that contract change management influenced the performance of PPP projects.

The sixth item sought to determine if changes to the initial contract was communicated to the contracting parties. From the responses 1(0.5%) respondent of the respondents indicated not at all, 6(2.9%) respondents were in agreement to a small extent while 61(29.5%) respondents indicated they were moderately in agreement, 62(30.0%) respondents were largely in agreement 77 (37.1%) respondents were to a very large extent in agreement. This item had a mean score of 4.0048 with 0.9111 as the corresponding standard deviation. Majority of the respondents were to a very large extent in agreement that changes to the contract was communicated to the people. This item mean was higher compared to the mean of means which is 3.7580, with 0.49563 as standard deviation. Contract communication was therefore construed to influence performance of PPP projects.

The seventh item sought to determine if contract execution plan was clearly outlined to the contracting partners. From the responses 0(0.0%) respondent indicated not at all, 1(0.5%) respondent agreed to a small extent, 22(10.6%) respondents were moderately in agreement,

161(77.8) respondents largely agreed while 23(11.1%) respondents were in agreement to a very large extent. The item obtained 3.9952 as the mean with 0.4877 as the corresponding standard deviation. This indicates that majority of respondents agreed to a large extent that contract execution plan was clearly outlined to contract partners. The item mean was higher compared to mean of means which was 3.7580 with 0.49563 as the corresponding standard deviation. Most respondents therefore were of the opinion that by clearly outlining the contract execution plan to the partners, performance of PPP improves. His consequently influenced the performance of renewable energy projects procured through public private partnerships.

Item eight sought to assess whether contract compliance was ensured by contract administrators. From the analysis of the responses as portrayed in table: 4.35 2 (1.0%) respondents of the respondents indicated not at all, 12(5.8%) respondents were in agreement just to small extent, 28 (13.5%) respondents were moderately in agreement while 116(56.0%) respondents were in agreement to a large extent, and 49(23.7%) respondents to a very large extent were in agreement. This item mean was 3.9565 with 0.8320 as the corresponding standard deviation. From this it can be understood that most respondents were in agreement that contract compliance was ascertained by contract administrators. In comparison to the mean of means which is 3.7580, with 0.49563 as standard deviation, the item mean is higher. This implied that it contributed positively to the performance of public private partnership renewable energy projects. Contract compliance is an important aspect that ensures performance of public private partnerships.

The ninth item sought to establish if there was a contract relationship procedure outlined in the contract plan. The response showed that 0(0.0%) respondents of the respondents indicated not at all, 1(0.5%) respondent indicated to be in agreement a small extent, 73(35.2%) respondents were moderately in agreement, while 121(58.5%) respondents to a large extent were in agreement 12(5.8%) to a very large extent were in agreement with the statement. The mean score was 3.6957 with a standard deviation of 0.5822. Most of the respondents agreed to a large extent that contract relationship procedure outlined in the contract plan. This item mean was lower than the composite mean of 3.7580, with 0.49563 as the corresponding standard deviation. The study interpreted this that by outlining the contract relationship procedure the partners ensured harmonious relationship which had a positive impact on PPP performance. Contracting partners therefore need to work on contract relationship to improve performance of PPP renewable energy projects.

The last item of this questionnaire section sought to establish if conflict resolution is structured in contract management plan. Out of 207 respondents 2(1.0%) respondents indicated not at all, 9 (4.3%) respondents agreed to a small extent, 59 (28.6%) respondents were moderately in agreement while 122 (58.9%) respondents to a large extent were in agreement while 15(7.2%) respondents were in agreement to a very large extent. Item mean is 3.6715 with 0.7162 as the standard deviation. This mean proved that most respondents were largely in agreement that conflict resolution was structured in contract management plan. Item mean was lower compared to the mean of means which is 3.7580 with 0.49563 standard deviation hence there was an influence on PPP performance. Conflict resolution in public private partnership is a very important aspect; this should be looked at to enhance public private partnership performance.

4.12.1 Correlation Analysis of Contract Management and Performance of Public Private Partnerships Renewable Energy Projects

Correlational analysis was done to explore the strength and direction of the relationship between the moderating variable and dependent variable. Results were presented in table 4.34

Table 4.34: Correlation between Contract Management and Performance of Public Private Partnerships Renewable Energy Projects

Variables		**1**	**2**	**3**	**4**	**5**	**6**
Performance of PPP	Pearson correlation	1					
	Sig. (2-tailed)						
Risk management	Pearson correlation	0.783**	1				
	Sig. (2-tailed)	0.000					
Contract performance monitoring	Pearson correlation	0.803**	0.573**	1			
	Sig. (2-tailed)	0.000	0.000				
Contract change management	Pearson correlation	0.741**	0.645**	0720**	1		
	Sig (2-tailed)	0.000	0.000	0.000			
Administration and compliance	Pearson correlation	0.792**	0.460**	0.630**	0.594**	1	
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		
Contract partnership management	Pearson correlation	0.802**	0.759**	0.708**	0.730**	0.530**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
n		**207**	**207**	**207**	**207**	**207**	

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

The results indicate a strong positive relationship between, contract planning, contract change management, contract characteristics, contract administration, contract performance and performance of public private partnerships. The relationship between risk management and performance was r=0.783, n=207, p=<0.001this indicates a strong relationship. There was a strong correlation between Contract performance monitoring and performance of public private partnership renewable energy projects (r=0.803, n=207, p<0.001). Similarly contract change management was established to be strongly correlated with and performance of public private partnership renewable energy projects(r= 0.741, n=207, p =< 0.001). Likewise, Administration and compliance was found to be strongly correlated with performance of public private partnership renewable energy projects (r=0.792, n=207, p < 0.001). The last indicator, Contract partnership management is strongly correlated to performance of public private partnership renewable energy projects (r=0.802, n= 207, p=< 0.001)

These results indicate a strong correlation between contract management and performance of PPP renewable energy projects.

4.12.2 Regression analysis of Contract Management and Performance of Public Private Partnerships Renewable Energy Projects

To assess the extent to which contract management predicted the performance of public private partnership renewable energy projects a linear regression analysis was conducted. Table 4.35 shows the results of the linear regression.

Table 4.35: Contract Management and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.952[a]	0.906	0.903	0.08761

a. Predictors: (Constant), contract partnership management, Contract Administration and compliance, Risk management , contract performance and monitoring, contract change management

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	14.797	5	2.959	385.587	0.000[b]
	Residual	1.543	201	0.008		
	Total	16.340	206			

a. Dependent Variable: Performance of public private partnerships

b. Predictors: (Constant), contract partnership management, Contract Administration and compliance, Risk management , contract performance and monitoring, contract change management

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	-1.612	0.051		-31.721	0.000		
	Risk management	0.161	0.016	0.339	9.977	0.000	0.406	2.461
	Contract performance and monitoring	0.113	0.016	0.252	7.050	0.000	0.367	2.724
	Contract change management	-0.009	0.016	-0.022	-0.605	0.546	0.354	2.824
	Contract Administration and compliance	0.207	0.015	0.400	13.830	0.000	0.560	1.785
	Contract partnership management	0.092	0.022	0.170	4.220	0.000	0.289	3.459

a. Dependent Variable: Performance

The regression model for the collective influence of contract management indicators, was significant at F (5,201) = 385.587, P< 0.001 with an R^2 of 0.906, this indicates that contract management explained 90.6 percent of the variation in performance of public private partnerships. The results also show a significant relationship between risk management and

performance of public private partnerships (β=0.339, p= 0.000). Contract performance and monitoring also had a statistically significant relationship with performance of public private partnerships (β=0.252, p= 0.00). The study did not establish a statistically significant relationship between Contract performance and monitoring and performance of public private partnerships (β=-0.022, p= 0.546) this indicated that this subcomponent did not contribute much to the model. Contract Administration and compliance was significantly related to performance of public private partnerships (β=0.400, p=0.00). Finally a strong link between Contract partnership management and performance of public private partnership was established, (β =170, p=0.00). These findings support the fact that contract management influence performance of public private partnerships.

Further regression analysis was done using the composite index for contract management was used to explore influence on performance of public private partnership renewable energy.

The following linear regression model was used;

Performance of Public Private Partnerships $=\beta 0+\beta_5 X_5 + \varepsilon i$

$y=\beta_0+\beta_5 X_m$

y = Performance of Public Private Partnership Projects

β_0= Constant Term

β_5 = Beta Coefficients

X_m=Contract Management

ε = Error Term

The results for the regression analysis was presented in Table 4.36

Table 4.36: Contract Management and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.929[a]	0.863	0.862	0.10447

a. Predictors: (Constant),Contract management

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	14.102	1	14.102	1292.249	0.000[b]
	Residual	2.237	205	011		
	Total	16.340	206			

a. Dependent Variable: Performance of public private partnerships

b. Predictors: (Constant), contract management

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	-1.479	0.056		-26.571	0.000		
	Contract management	0.528	0.015	0.929	35.948	0.000	1.000	1.000

a. Dependent Variable: Performance of public private partnerships

A linear regression analysis was conducted to examine the influence of contract management on the performance of public private partnership renewable energy projects. From the analysis the F ratio was significant F (1,205) = 1292.249, p=0.0005<0.05, this indicates that contract management strongly influence the performance of public private partnerships renewable energy projects. The study recorded a correlation coefficient of r=0.929 as shown in table 4.38. This result shows a strong positive linear relationship between contract management and performance of PPP renewable energy projects.

4.12.3 Regression Analysis of Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Regression analysis was performed to explore the strength of the relationship between contract management and risks factors. Regression analysis was consequently performed to test this hypothesis and results are in Table 4.37

Table 4.37: Regression Analysis of Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

Model summary

Model	R	R square	Adjusted R square	Std.Error of the Estimate
1	0.726[a]	0.527	0.524	0.19423

a. Predictors: (Constant), Risk factors

ANOVA

model		Sum of Squares	df	Mean square	F	Sig
1	Regression	8.606	1	8.606	228.115	0.000[b]
	Residual	7.734	205	0.038		
	Total	16.340	206			

a. Dependent Variable: Performance of public private partnerships

b. Predictors: (Constant), Risk factors

Coefficients

Model		Unstandardized coefficients		standardized coefficients	t	Sig	Collinearity Statistics	
		B	Std.Error	Beta			Tolerance	VIF
1	(Constant)	0.952	0.033		29.263	0.000		
	Risk factors	-0.882	0.058	-0.726	-15.103	0.000	1.000	1.000

a. Dependent Variable: Performance of public private partnerships

Accordingly, Table 4.38 shows that risk factors significantly related the performance of public private partnerships, F (1,205) = 228.115, P<0.05. The study recorded a correlation coefficient of r = -0.726 as indicated on the model summary section of Table 4.41.The analysis resulted to (R^2) =0.527 revealing that risk factors accounted for approximately 52.7 % of the variation in the performance of public private partnerships. The coefficients β=-0.726, p=0.000 indicated a significant inverse relationship between risk factors and performance of PPP renewable energy projects. Since F-ratio was (1,205) =228.115, p= 0.000<0.05, this implied that the combined risk factors had a significant influence on the performance of PPP renewable energy projects. Null hypothesis was accordingly rejected, the study therefore adopted the hypothesis that there is a significant influence of combined risk factors on performance of PPP renewable energy projects in Kenya.

4.12.4 Moderating influence of Contract Management on the relationship between Risk Factors and Performance of Public Private Partnerships Renewable Energy Projects

The seventh objective of the study investigated moderating influence of contract management on the relationship between risk factors and performance of public-private partnerships renewable energy projects. Similarly the seventh hypothesis sought to test the moderating influence of contract management on the relationship between risk factors and performance of PPP renewable energy projects. Basic moderator effect of contract management was represented as an interaction between a focal independent variable (the risk factors), in which case the risk factors considered were, political risks, policy risks, macro-economic risks and social acceptance risks. The following model was adopted for the analysis:

Performance of PPPs = $\beta_{0+}\beta_1 RF_{+}\beta_2 M_{+}\beta_3 RF*M+\varepsilon$

Where β_0,β_1,β_2 and β_3 are the correlation coefficients ,Performance of PPP renewable energy projects is the dependent variable, Risk Factor(RF) is the independent variable; M (Moderating variable); RF*M is the interaction factor between Risk Factor(RF) and Moderating variable(M); and ε is the error term. β_3 coefficient reflects the interaction of the predictor variable and the moderating variable only if the lower order terms, namely $\beta_1 RF$ and $\beta_2 M$ are included in the equation. By combining the independent variable with the moderating variable into the moderated multiple regression equation to model then a multicollinearity is introduced. This because the Risk factors and contract management are highly correlated with RF*M hence the standard errors of inflation coefficient become inflated creating unstable estimates.

To avoid high multicollinearity the variables of interest were therefore standardized before interaction term was created (Kromrey and Foster-Johnson, 1998; Aiken and West, 1991).In the equation, the interaction effect between risks factors and contract management measures the moderating effect. The study adopted the interpretation that in case the influence on the dependent variable is not significant from the interaction then the moderating influence is not supported.

4.12.5 Test of hypothesis seven

Hypothesis seven tested the moderating influence of contract management on the relationship between risk factors and performance of Public-Private Partnership renewable energy projects in Kenya. This hypothesis was consequently tested by use of stepwise regression. Table 4.38 shows the results.

Table 4.38: Summary of the model (Risk factors, Contract Management and Performance of Public Private Partnerships

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.726[a]	0.527	0.524	0.68965507	0.527	228.115	1	205	0.000
2	0.920[b]	0.846	0.844	0.39454203	0.319	422.370	1	204	0.000
3	0.920[c]	0.847	0.845	0.39386466	0.001	1.702	1	203	0.193

a. Predictors: (Constant), Risk factors

b. Predictors: (Constant), Contract management

c. Predictors: (Constant), Risk Factors * Contract management

Model 1: F (1,205) =228.115; $p<0.05$ significance level

Model 2: F (2,204) =422.370; $p<0.05$ significance level

Model 3: F (3,203) = 1.702; $p> 0.05$ significance level

$R^{2=}0.847$ $\Delta R^2=0.001$ F Change=1.702 df =1,203, $P> 0.05$

The first regression step composite risk factors was introduced, the output is captured in Model 1: F (1,205) =228.115 at $p<0.05$.This result show that the composite risk factors accounted for a statistically significant performance variation of the of PPPs renewable energy projects. In the next step the moderating variable, contract management was introduced in the model. This resulted to Model 2: F (2,204) =422.370 at $p<0.05$ significance level. This output indicated a significant variation in the performance of PPP renewable energy projects. Finally, at step three the interaction term was introduced in the model, the out was captured in Model 3: F (3,203) = 1.702 at $p> 0.05$ significance level. In this instance there was no statistically significant variation. Statistically the moderation output is $R^{2=}0.847$ $\Delta R^2=0.001$ F Change=1.702 df

=1,203, P> 0.05. Lack of significant variation in the performance of PPP renewable energy projects, the null hypothesis was adopted. The study therefore concluded that contract was not a moderator of the relationship between risk factors and performance of PPP renewable energy projects in Kenya.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter covers summaries of findings, draw conclusions based on data analysis, recommendations and areas for further studies and the study contribution to knowledge.

5.2 Summary of Findings

This section summarizes the findings thematically according to the study objectives. For the hypothesis tests, the study used Pearson's Product Moment correlation and Regression analysis. A total of six hypotheses were tested, one hypothesis was formulated to correspondent with each objective except for objective six whose hypothesis was formulated hence not tested. The levels of significance of F statistics and Pearson's Product Moment Correlation were factored as the relationship was linear. Wherever the $p< 0.05$, the alternate hypothesis was adopted and the null hypothesis rejected. The study consequently concluded that a correlation model existed which implied existence of a strong correlation between the study variables.

5.2.1 Political Risks and Performance of Public Private Partnerships Renewable Energy Projects

The extent to which political risks influence performance of PPP renewable energy projects was determined as significant. The linear regression political risks on performance of public private partnerships renewable energy projects was $F (1,205) = 99.771$, $p<.05$. The analysis also yielded $R = 0.572$ as the correlation coefficient, this was an indicator that a strong relationship existed between political risks and performance of public private partnerships renewable energy projects. The model obtained $R^2 = 0.327$, showing that approximately 33% of the variance in performance of PPP renewable energy projects which was accounted for by political risks.

5.2.2 Policy risks and Performance of Public Private Partnerships Renewable Energy Projects

The second objective of the study sought to establish the extent of policy risk influence on performance of PPP renewable energy projects. The regression model was significant at $F (1,205) =132.851$, $p< 0.001$. P-value of less than 0.05 indicated that the predictor and dependent variables were strongly predicted by the model. The correlation between policy risks and performance of public private partnerships renewable energy projects was a significant inverse

one as shown by the coefficient of -.614 (p-value 0.000). This indicated that an increase in policy risk would result to 0.614 decrease in performance of renewable energy projects under PPPs. The study predicted that policy risks had significant influence on performance of public private partnerships renewable energy projects. Policy risk explained 39.3 percent (R^2= 0.393) of the performance of PPP renewable energy projects with the remaining 60.7 percent being explained by other factors outside the scope of this study.

5.2.3 Macro-economic risks and Performance of Public Private Partnerships Renewable Energy Projects

The third objective assessed the extent to which macro-economic risks influenced performance of PPP renewable energy projects in Kenya. The study statistic, (1,205) = 117.416, P<0.01 shows there was a significant macroeconomic influence on performance of PPPs renewable energy projects. The model was considered statistically robust in predicting the relationship between macroeconomic risks and performance of PPPs. The R^2=0.364 shows that 36.4 percent of performance of public private partnerships is explained by macroeconomic risk factors. The correlation coefficient of r = -0.603, suggests a strong inverse linear correlation between macroeconomic risks and performance of PPP renewable energy project.

5.2.4 Social acceptance risks and Performance of Public Private Partnerships Renewable Energy Projects

The fourth objective assessed the extent to which performance of PPP renewable energy projects was influenced by social acceptance risks. Social acceptance risks were found to have significant relationship to performance of PPP renewable energy projects with F (1,205) = 96.135, p <0.05. The correlation coefficient of -0.565 a strong inverse linear relationship between social risks and performance of PPP renewable energy projects. With social risk explaining 31.9% (R^2= 0.319) performance variation in PPP renewable energy projects. This study therefore adopted the hypothesis that social risk significantly influence the performance of renewable energy projects initiated through public private partnerships.

5.2.5 Market risks and Performance of Public Private Partnerships Renewable Energy Projects

The study's fifth objective assessed the extent to which market risks influence performance of PPP projects in renewable energy. The study established that market risks significantly predicted the performance of public private partnerships. The statistic was F (1,204) = 104.689, P<0.05. The coefficient determination of (R^2) =0.339 implied that markets risks explained

33.9% of performance of PPP renewable energy projects. The assessment was that market risks influenced performance of PPP renewable energy projects to a large extent.

5.2.6 Combined risk factors and Performance of Public Private Partnerships Renewable Energy Projects

The correlation results reveals a strong relationship between risk factors and performance of public private partnerships (r=-0.726, n=207, p= 0.05). Accordingly, Table 4:41 shows that risk factors significantly related the performance of public private partnerships, F (1,205) = 228.115, P<0.05. The study recorded a correlation coefficient of r = -0.726, with (R^2) =0.527, hence risk factors accounted for approximately 52.7 % of the variation in the performance of PPP renewable energy projects. The coefficients β=-0.726, p=0.000 indicated a significant inverse relationship between risk factors and performance of PPP renewable energy projects in Kenya.

5.2.7 The moderating Influence of Contract Management on the Relationship between Contract Management and Performance of Public Private Partnerships Renewable Energy Projects

Hypothesis that contract management moderate how risk factors and performance of PPP renewable energy projects relate. Hence the study assumed contract management has influence on direction or strength of the relationship between the risk factors and PPP performance. It was determined that there is no moderation after a stepwise regression analysis involving the risk factors and each of the mediators and their interaction terms were all found to be insignificant with $R^{2=}0.847$ ΔR^2=0.001 F Change=1.702 df =1,203, P> 0.05. The study found from the analysis that all variables under consideration did not have any significant moderation on how risk factors and performance of public private partnerships related. Consequently, the hypothesis that there was a moderating influence of contract management on the relationship between market risks and performance of PPP renewable energy projects was rejected. The study therefore concluded that contract management do not moderate the relationship between risk factors and performance of PPP renewable energy projects in Kenya.

5.3 Summary of Hypothesis Test Results and Findings

The summary hypothesis of the test results for the entire study was presented in Table 5.1

Table 5.1: Summary of Hypotheses Test results and Findings

Objectives	Hypothesis	Test results	Interpretation
1.To determine the extent to which political risks influence performance of Public-Private Partnership	H_0 There is no significant relationship between political risks and performance of Public-Private Partnership renewable energy projects in Kenya.	F(1,205)=99.771,p<0.05 r=0.572 Adjusted R^2=0.327	The results indicate that the influence of political risk was significant at 5%level.The null hypothesis was therefore rejected and the alternate hypothesis adopted.
2. To establish the extent to which the Policy risk influence performance of Public-Private Partnership.	H_0There is no significant relationship between policy risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.	F(1,205)=132.851,p<0.05 r=0.627 Adjusted R^2=0.393	The results indicate that the influence of policy risk was significant at 5%level.The null hypothesis was therefore rejected and the alternate hypothesis adopted
3. To assess the extent to which macro-economic risk influences performance of Public-Private Partnership.	H_0There is no significant relationship between macro-economic risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.	F(1,205)=117.416,p<0.05 r=-0.603 Adjusted R^2=0.36.4	The results indicate that the influence of macro-economic risk was significant at 5%level.The null hypothesis was therefore rejected and the alternate hypothesis adopted
4. To assess the extent to which social acceptance risks influence performance of Public-Private Partnership.	H_0There is no significant relationship between social acceptance risks and performance of performance of Public-Private Partnership renewable energy projects in Kenya.	F(1,205)=96.135,p<0.05 r=0.565 Adjusted R^2=0.319	The results indicate that the influence of social acceptance risks was significant at 5%level.The null hypothesis was therefore rejected and the alternate hypothesis adopted
5. To assess the extent to which market risks influence performance of Public-Private Partnership.	H_0There is no significant relationship between market risks and performance of Public-Private Partnership renewable energy projects in Kenya.	F(1,204)=104.689,p<0.05 r=0.582 Adjusted R^2=0.339	The results indicate that the influence of market risks was significant at 5%level.The null hypothesis was therefore rejected and the alternate hypothesis adopted
6. To determine the moderating influence of contract management on the relationship between risk factors and	H_0There is no significant moderating influence of contract management on the relationship between	$R^{2=}$0.847 ΔR^2=0.001 F Change=1.702 df=1,203 P > 0.05	The result indicate the p > 0.05, hence insignificant moderation, the null hypothesis was therefore accepted and adopted.

performance of Public-Private Partnership.		risk factors and performance of performance of Public-Private Partnership renewable energy projects in Kenya.

Table 5.1 indicate that the influence of political risks ($p<0.05$), policy risk ($p<0.05$), macroeconomic risks ($p<0.05$), social acceptance risks ($p<0.05$) and market risk ($p<0.05$) on the performance of PPP renewable energy projects were all significant at 5% level of significance. Null hypotheses corresponding to each of the variables was thus rejected hence conclusion that it significantly influenced the performance of PPP renewable energy projects. The hypothesis which sought to determine how contract management moderated the relationship between risk factors and performance of public private partnership renewable energy projects was adopted by the study. This was because the test was statistically insignificant to justify the adoption of the alternate hypothesis. Consequently the study concluded no moderation effect of contract management.

5.4 Conclusions

This study sought to validate or refute claims on influence of risk factors on performance of public private partnerships renewable energy projects in Kenya; as well as the moderating influence of contract management on the relationship between risk factors and performance of public private partnership renewable energy projects in Kenya. Public private partnership projects are influenced by a broad range risks compared to conventional procurement methods, approval of PPP projects depends on perceived risks. Identification and management of risks in PPP projects is therefore a necessary condition in ensuring intended out puts of PPPs renewable energy projects. These formed the bases for the study. Conclusions have accordingly been made in line with the study objectives and hypotheses of the study**.**

Objective one investigated how political risks influence performance of public private partnership renewable energy projects in Kenya. The study reveals that there is a moderate inverse linear relationship between political risks and performance of public private partnership renewable energy projects in Kenya. The regression model indicated that political risks accounted for a variance in performance of public private partnership renewable energy

projects in Kenya. The F-test confirmed the study hypothesis that there is significant influence of political risk on performance of public private partnership renewable energy projects in Kenya. The study therefore concluded that political risks as an independent variable was an important predictor of the dependent variable performance of public private partnerships. This gives credence to management of political risks in public private partnership renewable energy projects.

Objective two of the study sought to establish the extent to which policy risk influences performance of public private partnership renewable energy projects in Kenya. The study established that here is a negative linear relationship between policy risks and performance of public private partnerships renewable energy projects in Kenya. This implied that a decrease in policy risk factors would result into an increase in performance of public private partnerships renewable energy projects in Kenya. Results from the linear regression demonstrated that policy risk factors explained variation in performance of public private partnership renewable energy projects. The regression model was also statistically significant, hence the model established a significant relationship between policy risk and performance of public private partnership renewable energy projects. Policy risk was therefore considered an important predictor of performance of public private partnership renewable energy project in Kenya. This finding affirmed the hypothesis that there is significant influence of policy risks on the performance public private partnership renewable energy project in Kenya.

The third objective explored the extent to which macro-economic risks influences performance of public private partnership renewable energy projects in Kenya. The findings revealed that macroeconomic risk is significantly related to performance of public private partnership renewable energy projects in Kenya. This was corroborated by a corellational analysis between macroeconomic risk and performance of public private partnership renewable energy projects in Kenya. Similarly, the simple linear regression affirmed a significant influence of macro-economic risks on performance of public private partnership renewable energy projects in Kenya. This confirmed the hypothesis that there is significant influence of macroeconomic risk on performance of public private partnership renewable energy projects in Kenya. This finding show that management of macroeconomic risks would enhance performance of private partnership renewable energy projects in Kenya as macroeconomic risk accounted for the variation in performance. The study therefore concluded that there was a significant influence of macro-economic risks on performance of public private partnership renewable energy projects in Kenya.

In objective four the study hypothesized that social risks significantly influence performance of public private partnership renewable energy projects in Kenya. The research therefore sought to assess how social acceptance risks influences performance of PPP renewable energy projects in Kenya. Using a simple linear regression, the study established a moderate inverse linear relationship. The analysis of variance (ANOVA) indicated that social acceptance risks had significant influence on performance of PPP renewable energy projects in Kenya. The study therefore concluded that social acceptance risk significantly influenced the performance of PPP renewable energy projects in Kenya hence corroborating the alternate hypothesis.

Objective five of the study investigated the extent to which market risks influence PPP performance in renewable energy projects in Kenya. The study established a moderate linear relationship between market risks and performance of public private partnership renewable energy projects in Kenya. The inverse relationship implied that when market risks go up then performance of PPPs go down. The simple linear regression analysis of variance (ANOVA) revealed that market risk strongly predicted the performance of PPPs. The coefficient of determination shows that market risk accounted for approximately of the variance in the performance. The study therefore concluded that there is a significant influence of market risks on the performance of performance of public private partnership renewable energy projects in Kenya. This provided evidence for adoption of alternate hypothesis, the study therefore concluded that a significant influence of market risks on PPP performance under renewable energy.

Objective six of the study sought to determine how combined risk factors influence the performance of public private partnership renewable energy projects in Kenya. All factors political, policy, macroeconomic, social and market risks were therefore taken into consideration. Regression analysis was consequently used to investigate the influence of combined risk factors on the performance of PPP renewable energy projects in Kenya. The results of the regression showed significant variance that was accounted for by the model. Based on the overall model the study concluded that combined risk factors significantly influenced the performance of public private partnership renewable energy projects.

Objective seven assessed moderation of relationship between risk factors and performance of public private partnership renewable energy projects in Kenya by contract management. The hypothesis that contract management moderates relationship between risk factors and performance of PPP renewable energy projects in Kenya was rejected. Since, the analysis

revealed a statistically insignificant outcome after the stepwise regression using an interaction term. The null hypothesis was consequently rejected hence the conclusion that contract management did not moderate how risks related with performance of PPP renewable energy projects.

To conclude, the research reveals that the risk factors to a significant extent influenced the performance of PPP renewable energy projects. The study therefore supports risk management as a step that would increase performance of PPP renewable energy projects. The government therefore needs to put in various risk management measures to encourage private sector participation in PPP in the renewable energy sector. Though the measures in place may be considered sufficient, there is need for improvement and perhaps harmonization.

5.5 Recommendations

1. This study confirmed the ability of risk factors to influence the performance of PPP renewable energy projects in Kenya. Thus by working on reduction of risks such as political, policy, macroeconomic, social acceptance and market risks would contribute to a more enhanced performance of public private partnership renewable energy projects.
2.
3. The study established that policy risks were the most significant predictor of performance of public private partnership renewable energy projects. It is therefore imperative that supportive policies are put in place to ensure enhanced performance of private partnership renewable energy projects. Supportive policies are necessary for investment friendly environment which attracts private investors into partnership with the governments. Policies should be robust enough to sustain the project throughout the implementation phases. This study recommends for harmonization of PPP policies with other policies which can contribute to enhanced performance of private partnership renewable energy projects.
4.
5. The study also established the macroeconomic risk was a significant determiner of performance of private partnership renewable energy projects. This study recommends that the government should come up with ways to cushion private investors (concessionaires) against macro-economic factors that could militate against performance of public private partnerships renewable energy projects. Private investors should be cushioned against inflation rates this will enable them to avoid liquidity risk. The study therefore recommends appropriate adjustments for monetary and borrowing policies and other appropriate macroeconomic interventions to minimize macroeconomic risks. The study recommends for more fairer and

competitive market structure, this will eliminate market entry barriers for private investors. A good market environment will facilitate reasonable pricing enabling renewable energy to favorable compete against other conventional forms of energy.

6.

7. On political risks, the study recommends establishment of sustainable and accountable governance to reduce the risk of political instability. This will improve the risk profile enabling inflow of private finance into the renewable energy projects. The study also recommends for more community engagement and other appropriate social intervention in light of renewable energy projects. For instance, by informing the community on the advantages of the project, hence creating awareness. This will project to overcome obstacles mounted by local communities.

5.6 Suggestions for further research

1. The study delimited itself to the influence of risk factors on the performance of PPP renewable energy projects. A study can be carried out to establish the influence of other factors like risk management, risk allocation, or contract management as an independent variable. In addition further can research can explore PPP performance beyond the scope of renewable energy projects and consider other renewables like wind and tidal.

2. The primary data was collected solely from the employees of Kengen and it was assumed that they would be able provide accurate perspective of their experiences in PPPs. The limitations are that their perspective were biased to their experience in PPP and perhaps did not capture the government's view while responding to the questionnaire and interview questions. Though measures were undertaken to minimize the bias in the collection of data, to acquire a more holistic insight, the succeeding studies can attempt to capture the view as of wider Public Private Partnership stakeholders in other sectors of the government.

3. It is also suggested that a study should consider the risk interaction effects over the life cycle of a public private partnership projects. This will respond to the gap in the current study where risk factors were considered independently ignoring the interaction effects.

4. The causal relationships between the different risk factors and performance of public private partnership renewable energy projects need to be considered for further research. Clear distinction of interrelation of different risk factors will enhance how to manage risk factors in Public Private Partnership.

5.7 Contribution to the Body of Knowledge

This study sought to establish the extent to which risk factors influence performance of public private partnership renewable energy projects in Kenya. The study also sought to determine how contract management moderates the relationship between the risk factors and performance of PPP renewable energy projects. The findings of this study is therefore anticipated to provide contributions to the body of knowledge, the findings are listed below.

Table 5.2: Contributions to the Body of Knowledge

	OBJECTIVE	CONTRIBUTION TO THE BODY OF KNOWLEGDE
1.	To establish how political risks influences performance of public private partnership renewable energy projects in Kenya.	The study established a strong correlation and between political risks and performance of PPP renewable energy projects. Further that, there is significant influence of political risks on performance of public private partnership renewable energy.
2.	To establish the extent to which policy risks influences performance of public private partnership renewable energy projects in Kenya	Policy risks influence PPP renewable energy project performance in Kenya to a large extent.
3.	To assess the extent to which macro-economic risks influences performance of public private partnership renewable energy projects in Kenya.	This study found that there was influence of macroeconomic risks on how renewable energy projects under PPPs performed in Kenya to a large extent.
4.	To assess how social acceptance risks influences performance of public private partnership renewable energy projects in Kenya.	The study established a strong correlation and influence of social acceptance risks on how public private partnership renewable energy projects performed in Kenya.
5.	To assess the extent to which market risks influences performance of public private partnership renewable energy projects in Kenya.	The research established that performance of PPP renewable energy is influenced by market risks to a large extent. The current study contributes more knowledge as it focused on renewable energy projects under public private partnerships.

6.	To determine how combined risk factors influences performance of public private partnership renewable energy projects in Kenya.	There is significant influence of the combined risk factors on the performance of PPP renewable energy projects.
7.	To determine the moderating influence of contract management on the relationship between risk factors and performance of public private partnership renewable energy projects in Kenya	There is no moderating influence of contract management on the relationship between risk factors and performance of public private partnership renewable energy projects.

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APPENDICES

Appendix I: Letter of Authorization

Date……

To

Managing Director

Kenya Electricity Generating Company Limited (KenGen)

P.O. Box

NAIROBI

Dear Sir,

REQUEST FOR DATA: INFLUENCE OF RISK FACTORS ON PERFOMANCE OF PUBLIC PRIVATE PARTNERSHIPS: THE CASE OF GEOTHERMAL RENEWABLE ENERGY PROJECTS IN KENYA.

I am a student pursuing a Doctorate Degree in Project Planning and Management- Project Financing Option at The University of Nairobi. I' am required to undertake a research thesis as partial fulfillment for the award of this higher degree. My research topic is stated above and I am kindly requesting for your assistance in making my research a success.

This purpose of this letter is to request you to grant me permission to collect relevant data from your organization from selected respondents among your management staff. The information collected will be treated with utmost confidentiality and will be used for the purposes on this research only. For your information, the output of this research will add value to financing of renewable energy Kenya and possibly contribute to new power generation capacity envisaged in the vision 2030.

Yours Sincerely

Odhiambo, Kenneth Otieno

ADM- L83/98547/2015

Appendix II: Transmittal letter

Odhiambo Kenneth Otieno

P.O .Box 154-Pap Onditi

Dear Respondent,

I am a student of the University of Nairobi pursuing a PhD degree in project planning and management. I am conducting an academic research on INFLUENCE OF RISK FACTORS ON PERFOMANCE OF PUBLIC PRIVATE PARTNERSHIPS: THE CASE OF GEOTHERMAL RENEWABLE ENERGY PROJECTS IN KENYA.

I am kindly requesting for your assistance in responding honestly to all items in the questionnaire. All information given will be treated with utmost confidentiality and will be used only for the intended purpose .Your cooperation and assistance will be highly appreciated.

Thank you.

Yours faithfully,

Odhiambo Kenneth Otieno

Appendix: III Interview guide for Middle and Senior Managers

Introduction

The purpose for this interview is to collect information on risk factors and performance of Public Private Partnership. The information collected will be used for academic purposes only and it is expected that the findings from this study will make a significant contribution towards enhancing of renewable energy exploitation in Kenya. The information collected will be handled with confidentiality and with academic professionalism. Kindly assist with the interview.

Section A: Demographic Information

Highest Level of Education

……

What is your level of management in the company?

……..

How long have you worked in this level of management?

…….

How long have you worked for the Geothermal Development Company?

……

Section B: Specific Information

1. In what ways has political risks influenced the performance of Public- Private Partnership in the energy sector?

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2. How does the above risk impact on your efforts to mobilize private investors for geothermal projects?

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3. How does policy influence on the performance of public private partnerships?

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4. Are there suitable measures that can be implemented to improve policy to ensure adequate performance of public private partnerships?

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5. How would you describe the influence of macroeconomic environment in relation to performance of public private partnerships?

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6. Which macroeconomic variable concerns private investors more and what measures can be done to make it easy for private partnerships?

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7. What is the influence of social risks on the performance of public private partnerships?

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8. Briefly describe how community engagement has influenced the performance of public private partnerships?

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9. Briefly explain how market risks influence the performance of public private partnerships?

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10. How can the market risks be addressed to enhance performance of Public Private Partnerships?

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11. What is the influence of contract management of the performance of public private partnerships?

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12. Propose suitable measures that could be used to address the combined risk factors so as to enhance the performance of Pubic Private Partnerships

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Thank you

Appendix IV: Research Questionnaire for KENGEN Employees

This questionnaire is developed to collect data on influence of risk factors on performance of public private partnerships. The data collected shall be used for academic purposes only and will be treated with strict confidence. I therefore urge you to freely answer the questions as only the researcher will have access to the raw data and development of the final report. Your participation in facilitating this study is highly appreciated.

Section A: Demographic Information

Please tick appropriately (√) in the space provided on the right.

Gender {Please tick one (√)} Male ☐ Female ☐

Age Bracket{Please tick one (√) }

21 – 25 Years ☐ 26 – 30 years ☐ 31 – 35 years ☐

36 – 40 years ☐ 41 – 45 Years ☐ 50 years ☐

51 – 55 years ☐ Over 55 years ☐

Highest Level of Education {Please tick one (√) }

High School ☐ Certificate Diploma ☐

Bachelors Degree ☐ Post Graduate Degree ☐

Other (specify…….....

.....

4) How long have you worked in this Company?

NUMBER OF YEARS WORKED	TICK
1-5	
5-10	
10-15	
15-20	
20-24	
Over 25 years	

1) Please indicate the category of management in which you fall. Tick as appropriate in the right column

Management level	Tick
Senior level Management	
Middle level Management	
Lower level Management	

Section B: Performance of Public Private Partnership Renewable Energy Projects

One concept of this study is the performance of public private partnership renewable energy projects. This consists of aspects and issues that revolve around success of public private partnerships. On this basis, kindly state the extent to which you agree with the following statements. Kindly use the key provided to TICK as appropriate:

Key: 1-Not at all; 2 - Small extent; 3 - Moderate extent; 4- Large extent; 5- Very large extent

Statements	**1**	**2**	**3**	**4**	**5**
As a stakeholder you are satisfied with the performance of PPP renewable energy projects.					
You are satisfied with the cost performance of PPP renewable energy projects.					
Project milestones are consistently achieved under public private partnerships. renewable energy projects					
Public private partnerships have resulted to better project completion time.					
Cost overrun has been minimized with the adoption of public private partnership projects.					
Public Private partnerships have resulted to reduction of project cost.					
Public Private partnerships have ensured improved quality of project outcomes.					
Issues of project quality have been minimized under Public Private Partnerships					
Under Public Private partnerships the government has realized her development objectives.					
Project objectives are better realized under Public private partnership arrangements.					

Section c: Political Risks and Performance of Public Private Partnerships Renewable Energy Projects

Another concept is Political risks and performance of Public Private Partnerships renewable energy projects, kindly state the extent to which you think the following parameters have influenced the performance of public private partnerships. Kindly use the key provided to TICK as appropriate:

Key: 1-Not at all; 2 - Small extent; 3 - Moderate extent; 4- Large extent; 5- Very large extent

Statements	**1**	**2**	**3**	**4**	**5**
Cases of political violence has made it difficult to meet PPP objectives					
Political instability has impacted on the cost and quality of public private partnership projects					
Contractual disputes have impacted on cost and time performance of public private partnerships renewable energy projects.					
Failure to honor contractual obligations has discouraged private investors from PPPs					
Corruption in procurement of PPPs impacted on the quality of projects delivered,					
Bureaucracy has contributed to unsatisfactory outcomes of public private partnership renewable energy projects.					
Agitation by NGOs has contributed to delays and cost overruns of PPP renewable energy projects					
Satisfactory performance of public private partnership projects can be attributed to collaboration with Non-governmental action groups.					
Possibility of illegal takeover of private partner's assets has influenced the performance of public private partnerships renewable energy projects					
Cases of political expropriation of investment assets in the region have influenced the performance of public private partnerships in Kenya					

Section D: Policy Risks and Performance of Public Private Partnerships Renewable Energy Projects

Another concept is Policy risks and performance of Public Private Partnerships renewable energy projects, kindly state the extent to which you think the following parameters have influenced the performance of public private partnerships. Kindly use the key provided to TICK as appropriate:

Key: 1-Not at all; 2 - Small extent; 3 - Moderate extent; 4- Large extent; 5- Very large extent

Statements	**1**	**2**	**3**	**4**	**5**
There is an established and appropriate public private partnership policy frame work.					
Sudden changes in policy have had negative impact on public private partnerships renewable energy projects					
Removal of feed in tariffs would affect the performance of PPP renewable energy projects					
Unilateral adjustments to feed in tariffs has impacted on the overall performance of PPP renewable energy projects					
Lack of commitment to policy has affected the performance of public private partnerships.					
Poor performance of public private partnerships is due to minimal commitment of policy.					
Changes of import tariff can influence cost and time performance of PPP projects					
Import tariff management has impacted on the performance of public private partnerships renewable energy projects					
Unfair taxation has led to decrease in PPP investments in renewable energy projects					
Taxation has influenced the performance of public private partnerships renewable energy projects					

Section E: Macro-Economic Risks and Performance of Public Private Partnerships Renewable Energy Projects

Another concept is Macro-economic risks and performance of Public Private Partnership renewable energy projects, kindly state the extent to which you think the following parameters have influenced the performance of public private partnerships. Kindly use the key provided to TICK as appropriate:

Key: 1-Not at all; 2 - Small extent; 3 - Moderate extent; 4- Large extent; 5- Very large extent

Statements	**1**	**2**	**3**	**4**	**5**
Inflation rate has impacted on project costs					
The rate of inflation has influenced the financing of public private partnerships renewable energy projects					
Interest rate has influence on financing decisions of PPP renewable energy projects					
High interest rate has influenced private partner participation in public projects renewable energy projects					
Foreign exchange rate influences financing of public private partnerships projects renewable energy projects					
Foreign exchange fluctuation has impacted on PPP project timeline					
National debt has influenced financing of public private partnerships projects.					
Investors prefer low debt to gross domestic product ratio (GDP).					
The level of Development expenditure has influenced investment decisions into public private partnerships					
Investors in PPPs are influenced by development expenditure					

Section F: Social Acceptance Risks and Performance of Public Private Partnerships Renewable Energy Projects

Another concept is Social acceptance risks and performance of Public Private Partnership's renewable energy projects, kindly state the extent to which you think the following parameters have influenced the performance of public private partnerships. Kindly use the key provided to TICK as appropriate:

Key: 1-Not at all; 2 - Small extent; 3 - Moderate extent; 4- large extent; 5- Very large extent

Statements	**1**	**2**	**3**	**4**	**5**
Socioeconomic position or status of the society has contributed to embracing of the PPP projects					
Education status of the project hosting community has contributed to social support of the renewable energy projects					
Low level of project awareness has led to rejection of projects by host community members.					
Indifference of community towards the projects can be attributed to low level of renewable energy projects awareness					
Project acceptance depends on level of community participation					
Lack of community participation has led to rejection of projects by the project host community					
Environmental pollution is normally a source of conflict with the community hosting the renewable energy projects					
Agitation by local environmental action groups has led to delay of renewable energy projects					
Compensation issues by displaced community members usually take a long time to solve.					
There are no issues regarding compensation of displaced community members					

Section G: Market risks and Performance of Public Private Partnerships Renewable Energy Projects

Another concept is Market risks and performance of Public Private Partnerships renewable energy projects, kindly state the extent to which you think the following parameters have influenced the performance of public private partnerships. Kindly use the key provided to TICK as appropriate:

Key: 1-Not at all; 2 - Small extent; 3 - Moderate extent; 4- Large extent; 5- Very large extent

Statements	**1**	**2**	**3**	**4**	**5**
Price volatility has influenced the performance of public private partnerships renewable energy projects					
Cost performance of PPP renewable energy projects is impacted by price changes					
The possibility of power off-taker default has influenced the cost performance of public private renewable energy projects					
Power off take agreements has improved financing of PPP projects.					
Demand influence the performance of public private partnerships					
Demand risk has influenced financing of public private partnership renewable energy projects					
Monopoly has complicated formation of public private partnerships					
Monopoly has influence on financing of public private partnerships					
Government subsidies influence investment decisions in public private partnerships renewable energy projects					
Subsidies are attractive to private investors in renewable energy projects					

Section H: Contract management and performance of Public Private Partnerships Renewable Energy Projects

Another concept is Contract management and performance of Public Private Partnerships renewable energy projects, kindly state the extent to which you think the following parameters have influenced the performance of public private partnerships. Kindly use the key provided to TICK as appropriate:

Key: 1-Not at all; 2 - Small extent; 3 - Moderate extent; 4- Large extent; 5- Very large extent

Statements	**1**	**2**	**3**	**4**	**5**
There is a risk management plan for Public Private Partnership renewable energy projects					
Risk allocation is agreeable among the contracting partners					
There is contract performance and monitoring plan					
Reports on performance and monitoring is consistently communicated to partners					
Contract change management is consultative					
Changes to the initial contract is communicated to the contracting parties					
Contract execution plan is clearly outlined to the contracting partners					
Contract compliance is ensured by contract administrators					
There is a contract relationship procedure outlined in the contract plan.					
Conflict resolution is structured in contract management plan					

Appendix V: Letter of introduction to NACOSTI

UNIVERSITY OF NAIROBI
OPEN, DISTANCE AND e-LEARNING CAMPUS
SCHOOL OF OPEN & DISTANCE LEARNING
DEPARTMENT OF OPEN LEARNING
KISUMU LEARNING CENTRE

The Secretary
National Council for Science and Technology
P.O Box 30623-00100
NAIROBI, KENYA

9th April, 2018

Dear Sir/Madam,

RE: KENNETH OTIENO ODHIAMBO - REG NO: L83/98547/2015

This is to inform you that **Kenneth Otieno Odhiambo**_named above is a student in the University of Nairobi, Open, Distance and e-learning centre, School of Open and Distance learning, Kisumu Campus.

The purpose of this letter is to inform you that **Kenneth** has successfully completed his course work and Examinations in the programme, has developed Research Proposal and submitted before the School Board of Examiners which he successfully defended and made corrections as required by the School Board of Examiners.

The research title approved by the School Board of Examiners is*: "Influence of Risk Factors on performance of Public Private Partnerships: The case of Geothermal Renewable Energy Projects in Kenya".*

The Project is part of the pre-requisite of the course and therefore, we would appreciate if the student is issued with a research permit to enable him collect data and write a report. Research project reflect integration of practice and demonstrate writing skills and publishing ability. It also demonstrates the learners' readiness to advance knowledge and practice in the world of business.

We hope to receive positive response so that the student can move to the field to collect data as soon as he gets the permit.

Yours Faithfully

CO-ORDINATOR
SCDE – KISUMU CAMPUS
09 APR 2018
P.O. Box 825 – 40100,
KISUMU

Dr. Stephen Okelo, PhD
COORDINATOR OLP
KISUMU CAMPUS

ISO 9001: 2008 CERTIFIED
The Fountain of Knowledge Providing Leadership in Academic Excellence

Appendix VI: Letter of Research Authorization by NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471, 2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/18/3687/22250**

Date: **12th April, 2018**

Kenneth Otieno Odhiambo
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Influence of risk factors on performance of public private partnerships: The case of geothermal renewable energy projects,"*** I am pleased to inform you that you have been authorized to undertake research in **Nakuru County** for the period ending **12th April, 2019.**

You are advised to report to **the County Commissioner and the County Director of Education, Nakuru County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

DR. STEPHEN K. KIBIRU, PhD.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nakuru County.

The County Director of Education
Nakuru County.

Appendix VII: Research permit

THIS IS TO CERTIFY THAT:
MR. KENNETH OTIENO ODHIAMBO
of UNIVERSITY OF NAIROBI, 0-4969 Pap Onditi,has been permitted to conduct research in *Nakuru County*

on the topic: *INFLUENCE OF RISK FACTORS ON PERFORMANCE OF PUBLIC PRIVATE PARTNERSHIPS:THE CASE OF GEOTHERMAL RENEWABLE ENERGY PROJECTS*

for the period ending:
12th April,2019

.....
Applicant's Signature

Permit No : NACOSTI/P/18/3687/22250
Date Of Issue : 12th April,2018
Fee Recieved :Ksh 2000

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

CONDITIONS

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

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No.A 18220

CONDITIONS: see back page

Appendix VIII: Research authorization by Education Department

MINISTRY OF EDUCATION

STATE DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION

Telegrams: "**EDUCATION**",
Telephone: **051-2216917**
When replying please quote

Ref.CDE/NKU/GEN/4/21/VOL.V/38

COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY
P. O. BOX 259,
NAKURU.

23rd April, 2018

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION –KENETH OTIENO ODHIAMBO
PERMIT NO. NACOSTI/P/18/3687/22250

Reference is made to letter NACOSTI/P/18/3687/22250
dated 12th April, 2018

Authority is hereby granted to the above named to carry out research on "***Influence of risk factors on performance of public private partnerships: The case of geothermal renewable energy projects***" for a period ending ***12th April 2019.***

Kindly accord him the necessary assistance.

For: COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY

G.N. KIMANI
FOR: COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY

Copy to:

- University of Nairobi
  P.O Box 30197-00100
  NAIROBI

Appendix IX: Approval to conduct research

KenGen
Kenya Electricity
Generating Company Ltd.
Kengen Pension Plaza, Kolobot Rd, Parklands
P.O. Box 47936 - 00100, Nairobi, Kenya
Telephone: +254-20-3666000
Website: www.kengen.co.ke

Our Ref: Staff / 32 /BK /am

Date: 03rd May, 2018

Kenneth Otieno Odhiambo
University of Nairobi
P.O Box 30197-00100
NAIROBI

Dear Kenneth,

RE: APPROVAL TO CONDUCT A RESEARCH

Reference is made to your letter dated 24th April, 2018

This is to confirm that you have been granted an approval to conduct an academic research in our Company on "Influence of risk factors on performance of public private partnerships'.

The data collected is strictly for the intended purposes only and should be treated in strict confidence. You are expected to share your research findings with KenGen after the research.

You will be accorded all the necessary assistance in your research.

Yours faithfully,
FOR: KENYA ELECTRICITY GENERATING COMPANY LIMITED:

BEATRICE KANDIE (Mrs.)
PERFORMANCE & TRAINING MANAGER

Appendix X: Map of Kenya