FACTORS INFLUENCING THE USE OF CREDIT ENHANCEMENT INSTRUMENTS IN THE FINANCING OF INDEPENDENT POWER PROJECTS IN KENYA AND MALAWI

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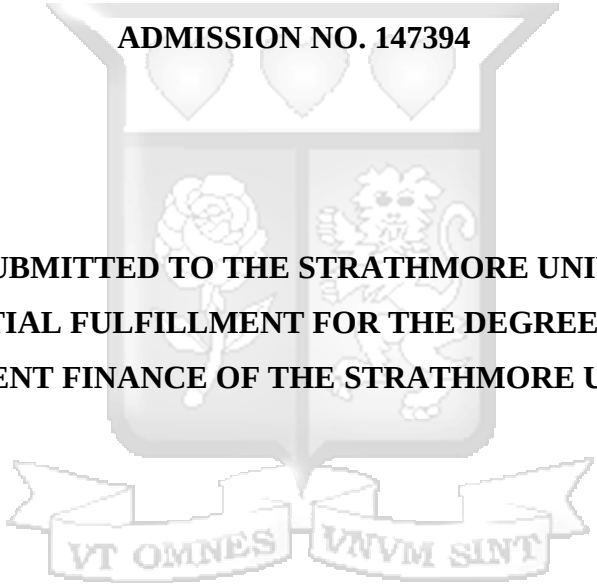

December, 2024

DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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ABSTRACT

To drive economic development in sub-Saharan Africa, investments in infrastructure, particularly energy access, are vital. However, fiscal constraints, exacerbated by high debt levels, limit African governments' capacity to fund such investments. This study examines how credit enhancement instruments can bridge the funding gap by attracting private sector financing for renewable energy projects. Grounded in the Market Failure and Financial Intermediation theories, the research explores four specific objectives: analysing the effects of credit enhancement instruments' availability; pricing; adequacy of cover; and claims history on their utilization by Independent Power Producers (IPPs) in Kenya and Malawi. A mixed-methods approach was used, incorporating quantitative and qualitative data. Data collection involved interviews with experts, questionnaires, database reviews, and analysis of publications. The study population included IPPs, financiers, policymakers, and insurers, with a sample of 68 respondents drawn from experts with experience in Kenya and Malawi. Case studies of renewable energy projects in these countries provided contextual insights. The findings reveal that credit enhancement instruments are pivotal for IPPs to obtain financing and achieve financial close; the availability of such instruments and the adequacy of cover provided being the influential factors. Conversely, factors like pricing, and the claims history are less significant. These findings extend existing literature by presenting case studies that highlight the nuanced applications of credit enhancement in climate financing. The research offers valuable insights for stakeholders, including governments, multilaterals, insurers, and investors, on strategies to attract foreign direct investment in sustainable projects. It emphasizes the importance of designing flexible credit enhancement instruments tailored to the unique challenges of climate financing in sub-Saharan Africa. The study's contributions have broader implications for fostering economic development, with potential applications beyond the energy sector to other critical infrastructure areas.

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
DFI	Development Finance Institution
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IEA	International Energy Agency
IFI	International Financial Institution
IPP	Independent Power Project (or Producer)
IRENA	International Renewable Energy Agency
MIGA	Multilateral Investment Guarantee Agency
MW	Mega Watts
NACOSTI	National Council of Science and Technology Innovation
PPP	Public Private Partnership
PRG	Partial Risk Guarantee
PRI	Political Risk Insurance
SDG	Sustainable Development Goal
UNEP	United Nations Economic Program

DEFINITION OF TERMS

Climate Change	An alteration in climate caused by human activities that modify the global atmosphere's composition, beyond the natural climate variability observed over similar time periods (UNFCCC, 1992)
Climate Finance	Funding from local, national, or international sources - including public, private, and alternative financing - aimed at supporting adaptation and mitigation efforts to combat climate change (UNFCCC, 2024)
Credit Enhancement	A risk-reduction strategy offering financial support to cover losses in adverse situations; applicable in project financing, public-private partnerships, and structured finance to help mitigate investor risks (Standard & Poor's, 2008)
Credit Enhancement Instruments	Financial tools that shift specific project risks to creditworthy third parties who are better equipped to manage them (IISD, 2023)
Energy Transition	The worldwide transition of the energy sector from fossil fuel-based systems to renewable energy sources (S&P Global, 2020)
Financial Close	The date on which the financing documents, entered into between lenders IPPs, for the project or a proposed number of projects have been executed, become effective, with all necessary conditions for accessing the financing fulfilled and the IPP or project gaining immediate access to such financing (Global Infrastructure Hub, 2024)
Human Development Index	A concise measure of overall achievement across three crucial aspects of human development: enjoying a lengthy and healthy life, acquiring knowledge, and maintaining a decent standard of living (UNDP, 2024)

Independent Power Project	An entity, whether a corporation, individual, agency, authority, or other legal entity, that owns or operates electricity generation facilities primarily for public use and is not classified as an electric utility (EIA, 2023)
Offtaker	A party that purchases the product generated by the project or utilizes the services offered by the project (such as electricity) (Thomson Reuters, 2023)
Political Risk Insurance	Financial security to investors, financial institutions, or businesses against non-commercial risks such as expropriation, currency transfer restrictions, political instability, and contract breaches (Hamdani et al. (2005))
Sustainable Development Goals	Call for action by all countries to advance prosperity while preserving the planet. The goals acknowledge that eliminating poverty must be accompanied by strategies that foster economic growth and address various social needs such as education, health, social protection, and job opportunities, while also addressing climate change and environmental conservation (UN, 2024)
SDG 7	One of the seventeen SDGs adopted by the United Nations General Assembly in 2015; it aims to achieve universal access to affordable, reliable, and modern energy by 2030 (UN, 2024)

CHAPTER ONE – INTRODUCTION

1.1. Background of the Study

It is estimated that nearly half the people living in sub-Saharan Africa lack access to electricity, according to the International Energy Agency (IEA et al., 2021); comprising three-quarters of the global population without such access. This huge deficit hampers businesses; limiting opportunities for growth, employment prospects for a young and growing population, as well as economic productivity across the continent and particularly in countries such as Kenya and Malawi where electrification rates remain low or uneven between urban and rural areas. Addressing this electricity access gap aligns with Sustainable Development Goal 7 (UN, 2024). As African governments work towards addressing this challenge by increasing electricity access, environmental impacts and possible contributions of new electricity generation projects towards climate change must be considered. This provides an opportunity for cost-effective renewable energy sources, whose negative impacts on the environment compared to alternative options are quite limited.

The United Nations (2024) underscores that while the world progresses towards sustainable energy targets, the current rate of improvement is not fast enough with about 660 million people without access to electricity, and close to 2 billion people expected to continue relying on polluting fuels and technologies for cooking, by 2030. Many of these people will likely be in underdeveloped regions such as sub-Saharan Africa. As a result, the African continent will lag even further behind other regions in terms of development as measured by the Human Development Index (HDI), as the availability of electricity is crucial for the advancement of healthcare, education, agriculture, business, transportation, and communication. The IEA estimates that approximately USD 3 trillion in annual global investments are needed in the energy sector to achieve SDG 7, which represents a substantial increase from current investment levels (IEA et al., 2021). For sub-Saharan Africa, it is estimated that USD 30 billion is required to meet SDG 7 targets; with Kenya and Malawi's respective shares of this goal projected at USD 2 to 4 billion; and USD 500 million to 1 billion, respectively (IEA, 2024).

Research by the World Economic Forum (2016) has shown the crucial link between high-quality infrastructure and global value chains, economic productivity, and improved living standards, highlighting the necessity for reliable transportation, stable power grids, information technology

networks, and access to clean water; all this being aligned with the United Nations SDGs and in particular SDG 7. Similar research by International Monetary Fund (IMF) staff, Abiad et al. (2014), estimates that a 1%-point increment in Gross Domestic Product (GDP) allocated to infrastructure investment results in an immediate 0.4% output increase, rising to 1.5% after four years. This further highlights the link that exists between improved infrastructure, such as access to electricity, and greater economic output and productivity.

While efforts are made to tackle the region's electricity access disparity, it's imperative to recognize that planet Earth is warming. In 2023, according to the United Nations World Meteorological Organization (2024), the average global temperature annually was approximately 1.5°C higher than levels before the Industrial Revolution. This is a high figure considering that the Paris Agreement on Climate Change (2015), aims to restrict the long-term temperature increase to a maximum of 1.5°C. In addition to melting ice caps in the north and south pole, as well as rising water levels, the warming of the planet is also responsible for other forms of climate change such as desertification and an uptick in severe weather events like hurricanes, floods, and fires. The disruption of climate patterns poses considerable risks, with some of the most severe impacts affecting people in sub-Saharan Africa, despite the region's historical contribution to carbon emissions being less than 5% (UNFCCC, 2024). The scientific community agrees, that these changes have been caused by human activities releasing greenhouse gases, particularly carbon dioxide from heavy industries such as coal and heavy fuel oil electricity generation, into the atmosphere (IPCC, 2021); (UN, 2024).

Whilst the contribution of sub-Saharan Africa towards such historical emissions of carbon dioxide is very low, consideration should be given to a just and equitable energy transition; worth noting that such a transition will involve the continued use of some fossil fuels as people are moved from no access to some form of access to electricity. Due to climate change and the global imperative to facilitate energy transition, climate financing has emerged, with the use of credit enhancement instruments gaining traction to attract private investment in climate-related projects, especially within the energy sector (IPCC, 2021); AfDB (2023); (Eberhard & Gratwick, 2010).

1.1.1. The Role of the Private Sector in Financing Energy Projects

In order to finance the energy transition, considerable financing will be required from both public and private sources. The AfDB (2021) notes that whilst recognizing the financing gaps and the helpful impact that such financing would have, African governments face challenges in leading the funding of additional power projects and general infrastructure due to inherent challenges in financing intricate projects like renewable energy power plants and fiscal challenges, marked by limited financial resources and high debt levels. Such factors that hinder African governments from prioritizing energy sector investments have been worsened by significant fiscal pressures following the post-COVID global economic downturn and frequent shocks like droughts impacting hydroelectricity production and food prices (World Bank et. al. (2021); Duma et. al., (2023)).

Political and institutional challenges further impede the effective mobilization of public funds for energy projects; with the AfDB (2023) providing a helpful summation that "the energy sector demands substantial upfront capital, often beyond the financial capacity of many African governments". Sustainable development, economic growth, and climate action are pivotal for Africa's future, demanding steadfast commitments to green growth pathways. Despite the urgency of green transitions, Africa's progress has been sluggish, ranking among the worst performers in achieving green growth targets between 2010 and 2021 (AfDB, 2023). To realize climate action ambitions, private sector involvement is indispensable.

Historically, public utilities in developing countries relied on income earned from end-users (which in most cases are not cost-reflective), public subsidies, and development assistance for the financing of electricity projects. However, the paradigm is shifting, with increased private sector participation in electricity generation, especially in Kenya, a regional leader exemplified by projects like the Lake Turkana and Kipeto wind projects (Power Africa, 2023). Achieving universal electricity access now requires a blend of public and private sector financing, addressing the unique risks through mechanisms like first-loss investments and performance guarantees becomes a central part of this theme according to the findings of Prasad et al. (2022).

Whilst private sector investments have surged, climate finance needs remain substantial, presenting uncertainties in mitigation and adaptation needs (Prasad et al. (2022)). Challenges in emerging markets and developing economies (EMDEs) include significant initial expenses, risks

in mitigation and adaptation, and multi-dimensional risks such as currency, regulatory, political, macroeconomic, and technical risks. In spite of the challenges, empirical studies have shown the growing role of the private sector in financing electricity generation projects. According to Eberhard and Gratwick (2010), this trend was influenced by several factors in the 1990s, such as inadequate public funding for new projects and underperformance by government-operated utilities. Consequently, African countries began to adopt a new model for their power systems, influenced by successful reforms implemented elsewhere in the world (Eberhard & Gratwick, 2010).

This growing body of literature on private funding for infrastructure traditionally considered public has arisen from the recognition that in many developing nations, public funds are insufficient to cover the necessary investments in power generation and transmission. Consequently, private sector financing, primarily through Independent Power Projects (IPPs), is essential to fill this financial shortfall, according to Eberhard et al. (2016). The additional benefits of project finance structures such as IPPs include the establishment of distinct Special Purpose Vehicles (SPVs) with their own legal identity, allowing the project sponsors to secure financing for a project without adding to the sponsor's debt burden (Finnerty, 2007). Such project financing structure shields financiers from potential financial distress of sponsors by isolating the project from financial risk contamination (Price Waterhouse Coopers, 2011). The limited recourse financing associated with such structures restricts the legal liability of sponsors if the underlying project fails (Finnerty, 2007) and that the project finance structure involves a complex web of contracts that regulate the actions of all parties participating in the project – these contracts are crucial for aligning incentives, coordinating activities, responsibilities, and managing risks effectively (Finnerty, 2007).

Other benefits of IPPs highlighted in literature are that they add much needed generation capacity where governments have been constrained to do so on their own (Besant-Jones, 2006); they enhance energy security by improving the diversity of the energy mix in the electricity market (Woodhouse, 2005); may result in a reduction in electricity prices due to efficiency gains from operation by private players compared to public utilities; lead to more efficient allocation of risks in the electricity sector; result in the easing of strain on domestic finances by attracting foreign capital (Gardiner & Montpelier, 2000); and help improve governments fiscal position through an increase in revenues such as taxes and elimination of subsidies that may have previously been

provided by the government as the sole generator (Harris, 2003). However, private investments are not without challenges, particularly in developing regions where risks such as political instability and regulatory uncertainty persist.

1.1.2. Risk Perceptions and the Role of Credit Enhancement Instruments

IPPs play a pivotal role in expanding energy access in developing countries, particularly in regions where public sector financing is constrained (IEA, 2019). Despite their potential, IPPs face challenges in securing private financing due to perceived and actual risks (UNEP (2017); Eberhard & Gratwick (2010)). Addressing these risks is essential for broader private sector involvement (Pollio, 1998); Duma et al., (2023). Risk mitigation tools like credit enhancement instruments enhance project creditworthiness by pooling resources and offering comprehensive risk coverage (Dhruba, 2018). Defined as mechanisms to improve a project's financial profile and reduce repayment risks (Chowdhury et al., (2015); (Dhruba, 2018), these tools are critical for greenfield projects like IPPs, which lack operational histories and are considered high-risk ventures (Finnerty, 2007); Eberhard et al. (2016).

IPPs in sub-Saharan Africa face unique risks due to subsidized energy tariffs, inefficient infrastructure, and financial instability among offtakers, often state-owned utilities (Frankfurt School (2016); Eberhard & Gratwick (2010). Additional challenges include client defaults and potential alterations to Power Purchase Agreements (PPAs), which deter investors and limit the financial sustainability of these projects (Frankfurt School (2016)). Global trends reflect similar struggles, as private finance for IPPs and climate initiatives remains insufficient to meet demand despite gradual growth (UNCTAD (2020)). Development Finance Institutions (DFIs) play a crucial role in bridging this gap by providing Official Development Assistance, risk mitigation instruments, and guarantees like Political Risk Insurance (PRI), which protect against government-related risks (MIGA, 2024); Griffith-Jones et al. (2020). These mechanisms have demonstrated their effectiveness in attracting private capital for energy infrastructure (Chowdhury et al., (2015); Callaghan (2023); Blended Finance Taskforce (2023).

The complexity of large-scale renewable energy projects, such as IPPs, poses additional challenges, including risk evaluations, coordination among stakeholders, and legal intricacies according to Aravamuthan et al. (2015) These projects typically require substantial upfront investments, involve multiple parties, and are closely monitored due to their societal importance

(Zunguze, 2016). Credit enhancement instruments, such as Partial Risk Guarantees (PRGs), have proven effective in mitigating these risks and attracting private sector funding (World Bank et. al. (2021); Duma et. al., (2023)). For instance, Kenya has successfully leveraged PRGs to support its renewable energy goals, creating a policy environment conducive to IPP investments (Power Africa, 2023). In contrast, Malawi, though facing energy supply deficits, has recognized the importance of IPPs and is gradually enhancing private sector participation (Power Africa, 2023).

Research by Duma et. al., (2023) highlights the adaptability of credit enhancement instruments, which can be tailored to provide robust protection in high-risk environments or scaled down where offtakers have stronger credit ratings. Their findings, based on case studies across Malawi, Mozambique, Namibia, and Zambia, demonstrate the critical role of risk mitigation tools in achieving financial closure for IPPs. Recommendations include debt relief measures accounting for climate investments, enhanced de-risking instruments for currency risks, and cost reductions for DFIs. Additional proposals include expanding DFI risk-sharing and pooling resources to establish specialized funding mechanisms for infrastructure projects (Duma et. al., (2023)). Building on the findings of Duma et al. (2023), this study extends the scope to include IPPs in Kenya, using a mixed-methods approach comprising qualitative and quantitative research. It evaluates the application and success of credit enhancement instruments in Kenya and Malawi, analysing their impact on climate finance and private sector participation. By addressing gaps in existing literature, this research aims to generalize findings and explore innovative solutions for improving the effectiveness of credit enhancement instruments in supporting energy infrastructure development.

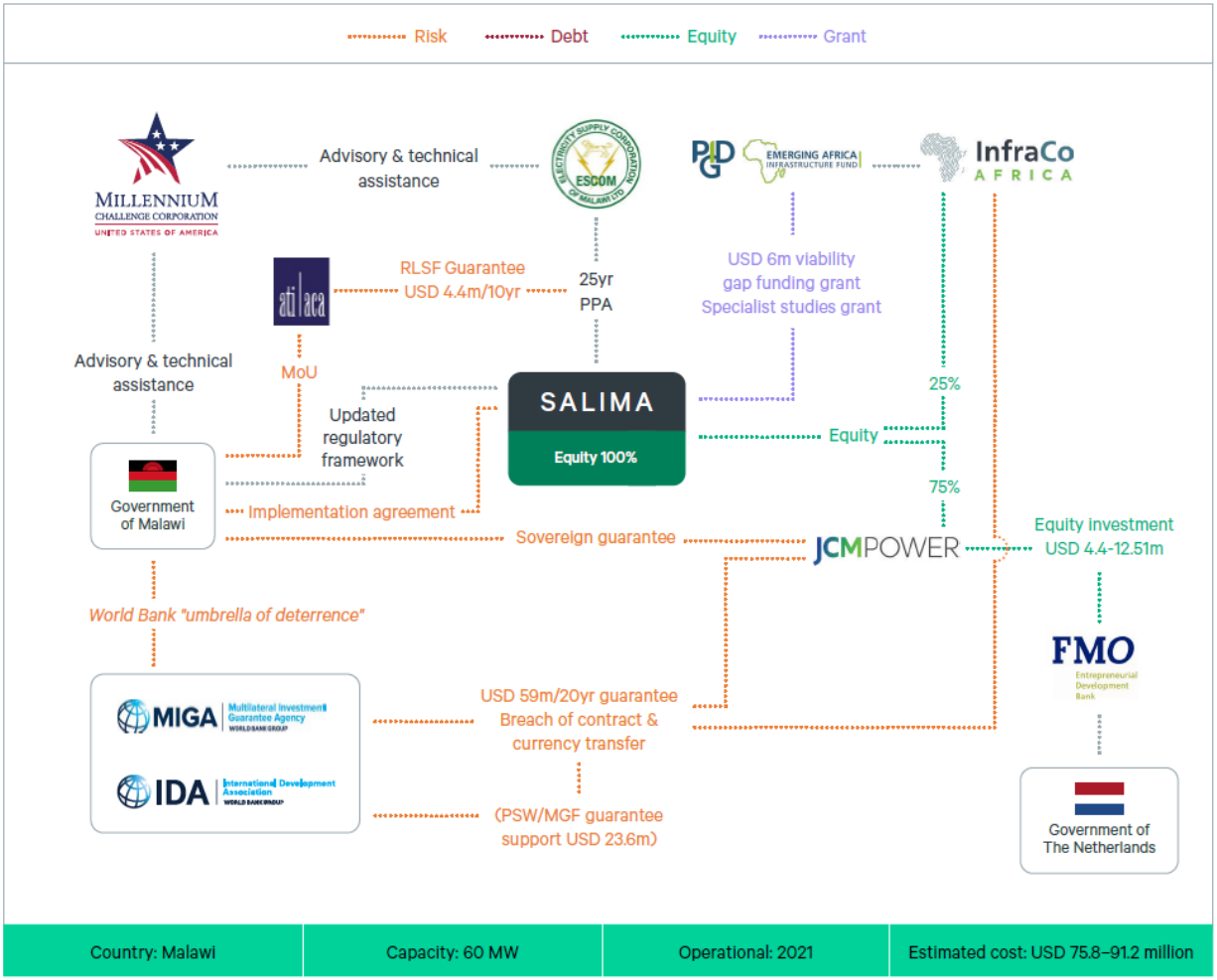

Figure 1.1: Illustration of the Salima Solar Project in Malawi
Source – Duma et. al (2023)

1.1.3. IPPs in Kenya and Malawi

Kenya and Malawi represent ideal case studies for analysing the impact of credit enhancement instruments on IPPs due to their distinct characteristics and shared commitment to energy sector reforms. Both countries demonstrate a high level of investment readiness according to publications by Power Africa (2023) and have unbundled power utilities to foster private sector participation. Compared to other East and Southern African countries, Kenya and Malawi stand out because of their contrasting development stages in energy access and renewable energy deployment, as well as their varying policy and institutional landscapes. Kenya's success in attracting private investment for renewable energy projects – achieving over 75% electrification, with innovative initiatives like the Lake Turkana Wind Project, Africa's largest onshore wind project – provides a model for regional replication. Conversely, Malawi's low electrification rate of 11%, reliance on

biomass, and limited private sector engagement underscore the potential for transformative change through strategic interventions (Power Africa, 2023). This contrast offers an opportunity to examine diverse approaches to addressing SDG 7 and the replicability of credit enhancement instruments in differing socio-economic and policy environments.

Both Kenya and Malawi exhibit characteristics making them suitable for examining credit enhancement instruments for IPPs. Kenya has leveraged its relatively advanced energy policies to attract substantial private-sector investment, employing instruments such as PRGs to mitigate perceived risks (Power Africa, 2023). Meanwhile, Malawi has begun adopting similar strategies to address energy deficits and attract private investment, despite limited resources and policy challenges (Power Africa, 2023). Compared to other nations in the region, such as South Africa, where private sector involvement is more mature (Hunter, 2017), or Tanzania, where policy uncertainty affects investor confidence (Peng & Poudineh, 2017), Kenya and Malawi offer a balance of opportunity and challenge that highlights the effectiveness of credit enhancement instruments in different stages of market development. This comparative approach also fills a research gap by extending the focus beyond Southern Africa, where much of the existing literature, such as Duma et al (2023), has concentrated on countries like Namibia, Mozambique, and Zambia.

A growing body of research emphasizes the critical role of credit enhancement instruments in enabling IPPs to achieve financial closure, particularly in challenging environments. Studies by Eberhard et al. (2018) and Eberhard & Gratwick (2010) identify key barriers for IPPs, including currency, repayment, and offtake risks, which credit enhancement instruments help mitigate. For instance, in Zimbabwe, Zunguze (2016) highlighted 38 essential factors for IPP success, with credit enhancement mechanisms addressing many of the most critical risks. Similarly, Atal et al. (2018) found in India that counterparty risk – driven by delays and defaults by state-owned utilities – led to increased debt costs for renewable energy projects. These findings emphasize the importance of de-risking instruments in improving IPPs' financial viability and attracting private investment. However, few studies provide detailed examinations of credit enhancement instruments specific to Kenya and Malawi, with much of the existing research either focusing on other countries or sub-Saharan Africa broadly. This study bridges this gap by providing updated insights and tailored recommendations for these two nations.

Electricity access remains a significant barrier to economic and social development in sub-Saharan Africa, where more than 50% of the population lacks reliable power (IEA, 2024). The absence of electricity negatively affects productivity, education, healthcare, and gender equality, disproportionately impacting rural and underserved populations (UN, 2024). Kenya and Malawi exemplify these challenges, albeit at different scales, providing a basis for evaluating how credit enhancement mechanisms can contribute to addressing energy poverty. Eberhard et al. (2018) demonstrated that credit enhancement tools were instrumental in enabling financial closure for IPPs, highlighting their role in mitigating risks and increasing investor confidence. This study builds on such findings whilst limiting its focus to renewable energy IPPs in Kenya and Malawi, incorporating updated data, and exploring the interplay between policy reforms and financial instruments in creating an enabling environment for private investment.

Addressing research gaps is central to this study's contribution. While Duma et al. (2023) and Zunguze (2016) have explored credit enhancement instruments in Southern Africa, their scope did not include Kenya or Malawi. Similarly, research by Eberhard et al. (2018) covered IPPs across sub-Saharan Africa but included non-renewable energy projects, leaving a gap in understanding how these instruments uniquely impact renewable energy initiatives. This study narrows the focus to renewable energy IPPs, adopting a mixed-methods approach informed by prior methodologies while incorporating additional case studies and stakeholder insights. By comparing Kenya's advanced policy environment and Malawi's nascent efforts, this research not only updates existing findings but also explores the potential for generalization across countries with varying levels of development. Ultimately, the study seeks to inform future credit enhancement product development and policy recommendations to unlock the full potential of IPPs in delivering sustainable energy solutions.

1.2. Statement of the Problem

Sub-Saharan Africa is confronted with a significant economic development challenge, marked by insufficient infrastructure and restricted electricity access; all this in an environment where financing is either expensive or not available (IEA et al., 2021). If countries in the region, such as Kenya and Malawi, are to successfully deliver on SDG7, there must be a rapid and substantial increase in the collective investments made, from both the public and private sectors. According to the *"Tracking SDG 7: The Energy Progress Report"* (IEA et al., 2021), it is estimated that an

average annual investment of around USD 3 trillion in the energy sector globally is needed to achieve SDG 7. This is a significant increase compared to current investment levels. Of this total global investment, the IEA estimates that sub-Saharan Africa needs around USD 30 billion annually to achieve SDG 7; with Kenya and Malawi's portion of this annual target estimated at USD 2 to 4 billion, and USD 500m to USD 1 billion, respectively (IEA, 2024).

Previous studies have shown that financial constraints, in particular high costs of financing, limited FDI flows towards the African continent, and the complexity of large-scale infrastructure projects are all contributing factors towards the low electricity access rates (Aravamuthan et al. (2015)). This view has also been observed in studies by Duma et. al. (2023) as well as Eberhard and Gratwick (2010) that equally highlight that the lack of investor appetite for the financing of power generation and transmission infrastructure as being key limitations that contribute towards the lack of electricity for many households. Governments across sub-Saharan Africa continue to grapple with fiscal constraints hindering public financing for essential projects; making private sector financing a sustainable alternative (AfDB, 2021). To catalyse economic growth which will result in improved livelihoods for those living on the continent, there is a need for innovation which may help spur such private sector finance; complimenting any available government led financing (AfDB, 2021). Credit enhancement instruments tailored for project finance structures are instrumental in facilitating private sector involvement in infrastructure development, according to the AfDB (2023), and Eberhard and Gratwick (2010).

IPPs play a pivotal role in contributing towards sustainable energy solutions as evidenced in their successful implementation in other parts of the world (IEA, 2019). However, their success in sub-Saharan Africa has been impeded by the high-risk perception of possible investors on the continent (Eberhard & Gratwick, 2010). Publications and reports, following literature review for the purpose of this study, have shown that there exists a significant gap in understanding the impact of credit enhancement instruments on the financing of such projects in sub-Saharan Africa. This knowledge gap impedes the formulation of effective strategies to attract private sector financing for much needed renewable energy projects.

Therefore, this study evaluates and compares the use of credit enhancement instruments in the funding of IPPs in Kenya and Malawi; focusing on the factors that influence the use of such instruments in the two countries with the aim of addressing information gaps and guiding future

sustainable energy initiatives in the region. Whilst existing literature highlights the significance of credit enhancement instruments in enabling private sector involvement in infrastructure projects in sub-Saharan Africa (AfDB (2023); OECD (2021); World Bank et al. (2021)), very few case studies have shown such successful implementation with renewable energy IPPs – particularly in Kenya and Malawi.

Whilst empirical studies have focussed on IPPs in sub-Saharan Africa (Amolo et al. (2020); Eberhard & Gratwick (2010); Duma et al. (2023); Zunguze (2016)), this research adds to the existing findings by introducing different methodologies and including additional case studies to jurisdictions that have had limited focus of similar literature. The study of IPPs in Kenya and Malawi offers an opportunity to explore and highlight insights into the role of credit enhancement instruments in two diverse socio-economic and political environments with potential application across the wider region; the findings may be extended to climate finance in general – well beyond the scope of IPP financing which is the focus of this study.

1.3. Research Objectives

1.3.1. General Objective

The study sought to examine the influence of identified factors in the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi.

1.3.2. Specific Objectives

1. To determine whether the availability of credit enhancement instruments influences their use in the financing of IPPs in Kenya and Malawi
2. To examine the extent to which pricing influences the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi
3. To investigate the extent to which the adequacy of cover provided by credit enhancement instruments influences their use in the financing of IPPs in Kenya and Malawi
4. To establish how the claims history influences the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi

1.3.3. Research Questions

The following research questions guided the study:

1. Does the availability of diverse credit enhancement instruments influence the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi?
2. What is the impact of pricing on the utilisation of credit enhancement instruments in the financing of IPPs in Kenya and Malawi?
3. To what extent does the adequacy of cover provided by credit enhancement instruments influence their use in the financing of IPPs in Kenya and Malawi?
4. How does the claims history influence the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi?

1.4. Scope of the Study

This study draws insights from the experiences of renewable energy IPPs in Kenya and Malawi, focusing on the application of credit enhancement instruments to facilitate private sector investments. The research leverages both primary and secondary data sources to examine the role of these instruments in de-risking investments. While the findings and recommendations are specific to Kenya and Malawi, they are generalized to inform policy and practice in other developing countries with similar macroeconomic conditions and energy sector dynamics.

The scope is limited to renewable energy IPPs as of 31 December 2023. Data collection was done during the months of July and August 2024; incorporating insights from expert stakeholders involved in the development, financing, and implementation of IPPs in Kenya and Malawi. The sample included six respondents during the qualitative phase and 62 respondents in the quantitative phase, ensuring a balanced representation of views across the two research methodologies.

This study does not aim to provide a comprehensive evaluation of all risk mitigation or credit enhancement instruments, nor does it attempt to analyse every factor influencing their adoption. Instead, it narrows its focus to the relationship between four key factors and the use of credit enhancement instruments addressing political risk for IPPs. This targeted approach provides actionable insights while maintaining a manageable research scope.

1.5. Significance of the Study

This study will benefit the following:

1.5.1. Project Developers

Project developers (or IPPs) advancing renewable energy projects will gain from the better understanding of successful practices and lessons learned from similar projects in Kenya and Malawi. This better understanding of credit enhancement mechanisms and potential benefits may contribute towards more efficient project development processes and increased investor appetite to develop projects in sub-Saharan Africa. Consequently, this study may aid in expanding the portfolio of renewable energy projects.

1.5.2. Insurance and Guarantee Providers

As sustainable infrastructure initiatives gain momentum, the creation of new credit enhancement instruments designed to bolster the financial viability of these projects will become increasingly critical according to the World Economic Forum (2016). The various institutions that provide credit enhancement instruments, via insurance products and guarantees, may identify opportunities for providing their risk mitigation products, and the possibility of expansion of the services provided to better suit the renewable energy and climate financing sectors. This study facilitates the identification of additional gaps in the market that can be studied further and subsequently inform product development.

1.5.3. Lenders and Institutional Investors

According to Kemp and Moslener (2017), the primary advantages of using risk mitigation and credit enhancement instruments for projects can be summarized in four ways: improving the project's risk profile can draw in more lenders, thereby boosting the share of debt in the project's overall capital composition; lenders may be more inclined to extend the project's loan duration; reducing the risk premium can result in a decrease in the project's overall interest rate; and equity investors may consider lowering their expectations for returns on their investments. With renewable energy IPPs being structured as project finance transactions in most instances, lenders play a key role in advancing these projects as the debt will typically constitute around 75% of the total project financing costs. The findings of this study may help unlock additional funding, including from commercial lenders that may not have been active supporters of IPPs in the past,

and potentially to unlock more favourable terms for loans to prospective projects under development.

Institutional investors play a substantial role in the global economy, with their influence steadily increasing (OECD, 2021). However, their investments in infrastructure have been limited in spite of the alignment between the long-term financing needs of the projects and capacity of institutional investors to match such long tenors. To address this disparity, it is crucial to foster greater collaboration between private entities and governmental bodies, including DFIs, to establish suitable tools and standards that facilitate the mobilisation of private capital for developing countries (OECD, 2021). This study contributes towards this existing research gap for the benefit of lenders and institutional investors.

1.5.4. Regulators and Power Utilities

Credit enhancement is highly valuable for infrastructure planners in developing countries. Policymakers in developing countries encounter a formidable task in project preparation and subsequent capital mobilisation. They contend with budgetary limitations while also navigating constraints like sovereign debt ceilings and limited access to capital markets. Their collective aspiration is to draw-in private investments, a goal that can be achieved through a synergy of effective project planning and the availability of innovative credit enhancement instruments. These key public institutions will be better placed to structure PPAs to be entered into with IPPs with a better risk sharing mechanism between the two parties – wherever possible, existing credit enhancement instruments available in the market will be considered to address any bankability gaps.

1.5.5. Governments

According to Aravamuthan et al. (2015), governments often lack awareness of available credit enhancement instruments when structuring transactions. A potential benefit of this study is that host governments in developing countries will be able to identify successful credit enhancement practices that can be adopted to attract more private investment in climate-related projects – in particular for Public Private Partnerships (PPPs). This could lead to greater potential for reaching national climate and development goals, alongside the formulation of coherent policies aimed at fostering conditions conducive to private sector involvement in sustainable development.

Increased participation from the private sector will also allow governments to direct their limited financial resources towards other sectors, such as healthcare and education.

In addition, governments oversee public assets and services. Without actively seeking effective risk mitigation services and asking pertinent questions of their advisors, the providers of credit enhancement instruments in the market cannot respond.

1.5.6. Development Finance Institutions

DFIs have a vital role in facilitating the financing of renewable energy IPPs by providing debt at concessional terms and also serving as providers of credit enhancement instruments. This study may help provide additional comfort and increase their risk appetite whilst highlighting gaps that DFIs may be well placed to address risks, such as the provision of additional credit enhancement instruments.

1.6. Summary of Chapter One

This opening chapter examines the pressing issues of inadequate infrastructure and limited electricity access in sub-Saharan Africa, emphasizing fiscal constraints hindering government-led financing and the necessity for innovative funding structures. Centred on IPPs, the study's general objective is to examine the influence of identified factors on the use of credit enhancement instruments in financing IPPs in Kenya and Malawi. By providing a comprehensive context, this chapter establishes the study's significance, objectives, and scope, setting the stage for discussions on innovative financing solutions to attract private investment and advance renewable energy development in the region.

CHAPTER TWO – LITERATURE REVIEW

2.1. Introduction

Literature review involves exploring a broad spectrum of information relevant to the study topic. This chapter is dedicated to examining a multitude of studies incorporating theories pertinent to the research topic, as well as evaluating empirical evidence concerning the application of credit enhancement instruments in facilitating FDI flows. The chapter ends by summarizing the identified research gaps that have been noted and those that have informed the objective of this study, as well as the conceptual framework.

2.2. Theoretical Review of Literature

The theoretical framework outlines the research direction and firmly establishes it within a theoretical framework; its main goal is to ensure that research findings are both meaningful and aligned with theoretical constructs in the field, making them applicable for generalisation (Adom et al. (2018)). Theoretical principles, constructs, concepts and tenants of a theory are what make up the theoretical framework (Adom et al. (2018)). While numerous theories and models pertinent to this study exist, the research was be guided by the Market Failure and the Financial Intermediation theories as they provide the most suitable concepts.

2.2.1. Market Failure Theory

The Market Failure Theory, foundational in economic discourse, originated from the works of Pigou (1920) and Samuelson (1948), who explored market inefficiencies caused by externalities and the under-provision of public goods. Pigou (1920) emphasized that certain economic activities generate external costs or benefits that are not reflected in market transactions, leading to inefficient resource allocation. He advocated for government interventions, such as taxes or subsidies, to correct these inefficiencies. Samuelson (1948) extended this discussion to public goods, highlighting challenges like free-rider problems where individuals benefit from goods like national defence without contributing to their costs, necessitating government provision. In this context, the theory is applicable to climate finance and renewable energy IPPs, where under-provision of clean energy investments and external costs of greenhouse gas emissions illustrate significant market failures.

Market failures occur when free markets fail to allocate resources efficiently or equitably, as noted by Cunningham (2011), who clarified that this does not mean markets are wholly dysfunctional but rather inefficient in producing societal-desired goods. Scholars like Akerlof (1970) further enriched the theory by addressing information asymmetry and adverse selection, emphasizing transparency as a tool to bridge gaps. Stiglitz (2016) explored market power and monopolies, highlighting their exploitative effects and the need for regulatory frameworks to ensure fair competition. These insights are pertinent to this study, as barriers like information asymmetry and monopolistic practices impede private sector participation in financing renewable energy projects in sub-Saharan Africa. Prasad et al. (2022) identified factors such as knowledge diffusion, risk perceptions, and technology adoption costs as obstacles to private climate finance, aligning with the theory's emphasis on addressing inefficiencies.

The application of the Market Failure Theory to renewable energy IPPs underscores its relevance for this study. McMillan (2002) identified elements critical for effective market functioning, such as transparent information flow, property rights, trustworthiness, mitigation of externalities, and competition promotion. However, in sub-Saharan Africa, two of these – information flow and trust in stakeholder commitments – are particularly deficient. These deficiencies lead to suboptimal investment levels and reduced commercial appeal for renewable energy compared to traditional energy sources (Kempa et al., (2017)). This disparity, compounded by the perception of electricity as a public good dominated by government monopolies (AfDB, 2023), reinforces the need for credit enhancement instruments to address risks and mobilize private sector investment. By framing renewable energy financing as a response to market failure, this theory provides a robust foundation for understanding and addressing the barriers to achieving equitable energy access and sustainable development in Kenya and Malawi.

The Market Failure Theory underscores inefficiencies that directly influence the specific objectives of this study. For instance, the unavailability of credit enhancement instruments in some markets can result from inadequate government support, weak institutional frameworks, or insufficient incentives for providers to participate. Similarly, inefficiencies such as monopolistic practices and limited competition may lead to higher pricing of these instruments, reducing their accessibility for IPPs. Furthermore, the lack of robust regulatory oversight and inadequate understanding of market needs can result in insufficient coverage, deterring the adoption of these

instruments. Additionally, weak enforcement of agreements and opaque processes may contribute to an increased likelihood of claims, escalating perceived risks and discouraging participation by both providers of credit enhancement instruments and IPPs. These barriers, shaped by market failures, highlight the need for targeted interventions to address inefficiencies and foster equitable access to renewable energy financing.

2.2.2. Financial Intermediation Theory

The Financial Intermediation Theory explores the crucial role of financial institutions in linking savers and borrowers, emphasizing how these intermediaries manage risks, address information asymmetries, and provide liquidity to enhance capital allocation efficiency. In project financing, intermediaries such as banks, insurers, and DFIs issue or facilitate credit enhancement instruments, addressing challenges like information gaps and adverse selection. These instruments are critical for enabling financing for IPPs where significant upfront capital is required. The theory aligns with this study by highlighting the flow of funds from savers to IPPs through financial institutions, underscoring their role in mobilizing capital for sustainable infrastructure projects.

The relevance of financial intermediation in supporting economic development has been extensively documented. Stiglitz & Weiss (1981) highlighted how financial institutions manage the risks of information asymmetry to allocate credit effectively, while Allen & Gale (1998) examined their role in mitigating adverse selection and moral hazard in large-scale infrastructure financing. Levine (1997) established a clear link between financial intermediation and economic growth, demonstrating the importance of a well-developed financial sector for infrastructure investments. Subsequent research by Demirgüç-Kunt & Levine (2008) and Calomiris & Haber (2014) emphasized the necessity of stable regulatory frameworks and institutional involvement in mobilizing capital for long-term projects, particularly in emerging economies. These findings illustrate how financial intermediaries foster regional economic growth by addressing barriers to investment.

Scholtens & Wensveen (2003) further highlight how intermediaries manage informational imbalances and reduce transaction costs in financial markets. While advancements in technology and market growth may reduce the significance of intermediaries over time, the value creation within the financial value chain – particularly through risk management – remains critical. This aligns with the role of providers of credit enhancement instruments in facilitating financing for

IPPs by bridging gaps between savers and investors. In sub-Saharan Africa, where data scarcity and limited financial access impede private sector participation, the Financial Intermediation Theory is particularly applicable. The AfDB (2023) underscores the importance of reducing information gaps to attract private investment in IPPs. By addressing these gaps and advancing the understanding of financial intermediation's role, this study contributes to the broader effort of mobilizing resources for renewable energy projects in Kenya and Malawi.

The Financial Intermediation Theory assumes intermediaries efficiently manage risks and reduce information asymmetry; however, inefficiencies such as high costs, limited institutional capacity, or regulatory constraints may increase pricing, limit credit enhancement instruments' availability, or hinder their effective application in financing IPPs – this variable relationship between this theory and the specific objectives being a key consideration in the study.

2.3. Empirical Review of Existing Literature

2.3.1. Credit Enhancement Instruments Available to IPPs

Chowdhury et al. (2015) explored the factors influencing the financing of IPPs in Asia and emerging markets, revealing that these projects face several challenges, including risks related to demand, payment, pricing, currency parity, and foreign exchange availability. To address these obstacles, stakeholders have developed risk mitigation and credit enhancement instruments that not only reduce risks but also enhance project credit ratings. These measures improve the investment profile of projects that might otherwise be classified as non-investment grade. Using a mixed-method approach, Chowdhury et al. (2015) reviewed literature, conducted case studies, and surveyed 51 IPP specialists from different Asian countries. Their findings concluded that credit enhancement instruments offered by host governments, MDBs, export credit agencies (ECAs), and other international DFIs had the most significant impact on IPP structures. A key gap in the study was its focus on Asia, leaving questions about whether these findings hold in sub-Saharan Africa. This research seeks to address that gap by replicating elements of Chowdhury et al.'s methodology while tailoring the analysis to the Kenyan and Malawian contexts.

Although research on credit enhancement instruments in Kenya’s energy sector is limited, Amolo et al. (2020) examined their impact on the performance of hydroelectric projects, offering valuable insights into Kenya's IPP financing landscape. Adopting a pragmatic paradigm and surveying 94 respondents, the study concluded that credit enhancement significantly influences project

performance by attracting investors and lowering financing costs. Amolo et al. (2020) recommended integrating appropriate credit enhancement tools into future procurement frameworks and called for policies to strengthen their use; the research also identified gaps related to understanding the factors influencing credit enhancement adoption among Kenyan IPPs, a key focus of this study. Moreover, this research extends the scope considered by Amolo et al. (2020) beyond hydroelectric projects to include diverse renewable energy sources while accounting for the evolving macroeconomic environment, including the COVID-19 pandemic and the fiscal challenges faced by African governments.

Further insights are drawn from Omoju (2020), who examined the role of credit enhancement instruments in renewable energy investments through case studies like the Africa Energy Guarantee Facility (AEGF). Omoju emphasized the need for African policymakers to establish enabling environments and regulatory frameworks to complement de-risking instruments. This aligns with the findings of Duma et al. (2023), who assessed the use of credit enhancement instruments in renewable energy IPPs in Malawi as part of a study focused on the Southern African Development Community (SADC). Duma et al.'s analysis, including case studies on the Salima and Golomoti solar projects in Malawi, demonstrated how credit enhancement instruments address financial risks and increase investor confidence. These findings informed this study by highlighting practical applications of credit enhancement in sub-Saharan Africa, particularly in Malawi's renewable energy sector, and provided case-specific insights into barriers and successes. Gaps related to this study include the use of additional case studies, a larger sample size, and updates given the passage of time where possible.

2.3.2. Pricing of Credit Enhancement Instruments in sub-Saharan Africa

Credit enhancement instruments available to IPPs in sub-Saharan Africa are often issued or backed by multilateral institutions, such as the World Bank Group's Multilateral Investment Guarantee Agency (MIGA) (2008). MIGA has introduced innovative financial mechanisms, including the Renewable Energy Catalyst Trust Fund (RECTF), to facilitate access to guarantees for high-risk projects that might otherwise struggle to secure credit enhancement support, in part due to the high cost of such instruments (MIGA, 2024). RECTF, launched in November 2021, focuses on renewable energy investments, including mini-grids, battery storage, and transmission systems, particularly in developing countries. The facility enables MIGA to offer extended and more

affordable guarantee coverage, crucial in high-risk environments, and also includes limited grant funding to unlock or enhance supported projects (MIGA, 2024).

Other notable blended finance initiatives include the African Trade and Investment Development Insurance's (ATIDI) Regional Liquidity Support Facility (RLSF), which addresses short-term payment risks faced by IPPs. ATIDI combines donor-funded first-loss capital with second-loss guarantees from its balance sheet to support project financing (ATIDI, 2024); this unique blended finance structure allows ATIDI to offer such cover in challenging jurisdictions and at lower pricing. Similarly, the Green Guarantee Company (GCC), backed by European governments, provides climate adaptation and mitigation guarantees aimed at fostering net-zero projects in developing countries (Norfund, 2024); (Green Guarantee Company, 2024). These instruments reduce project risk by transferring and mitigating potential losses, lowering the capital required to back guarantees and, consequently, reducing the cost of these instruments for beneficiaries (IEA et al., 2021).

Despite these advancements, the pricing of credit enhancement instruments remains a critical issue influencing their use by IPPs. The International Institute for Sustainable Development (2018) highlighted that infrastructure policymakers and project sponsors perceive these instruments as expensive, creating a barrier to their utilization by IPPs. High costs may deter IPPs, particularly those operating in resource-constrained environments like Kenya and Malawi, from incorporating these instruments into their financing strategies. This challenge underscores the need for further examination of pricing structures to determine whether adjustments could improve affordability and uptake by IPPs.

This study seeks to address gaps in the literature concerning the affordability and impact of pricing methodologies on credit enhancement instruments. By exploring the extent to which pricing affects the use of these instruments in Kenya and Malawi, the research aims to contribute actionable insights into optimizing credit enhancement instruments. Specifically, the study examines how current pricing structures influence IPPs' decision-making, balancing the cost-benefit equation of mitigating risks versus affordability constraints. These insights are expected to inform policy recommendations for enhancing the accessibility and appeal of credit enhancement instruments in developing energy markets.

Kiff et al. (2003) identify complexities in the pricing of credit risk transfer instruments, noting that pricing must account for credit, counterparty, documentation, and market risks. Basis risk, stemming from differences in price dynamics between credit enhancement instruments and underlying assets, further complicates accurate pricing. The study also highlights systemic issues, including asymmetrical information and weakened borrower screening by banks (Kiff et al. (2003). The study shows that at a macro level, the provision of such credit enhancement instruments can either increase credit availability or restrict access for lesser-known firms due to reduced bank monitoring and that the improved disclosure of pricing dynamics is essential for market stability and efficiency (Kiff et al. (2003). Gaps from this research that are addressed in this study include the application of the approach adopted towards IPPs, and to understand if the findings related to the effect of such pricing are similar in Kenya and Malawi whilst adopting a different research approach that includes both qualitative and quantitative data.

2.3.3. Adequacy of Cover Provided by Credit Enhancement Instruments

The adequacy of cover provided by credit enhancement instruments significantly influences their ability to mitigate risks and attract private sector participation in IPP financing (Chowdhury et al., (2015). In sub-Saharan Africa, where political instability, currency volatility, and regulatory uncertainties are prevalent, IPPs face considerable risks that deter private investment. Credit enhancement instruments aim to reduce these risks by offering financial security to investors and lenders. However, the extent to which these instruments adequately address the range of risks faced by IPPs plays a critical role in their adoption and utilization.

MIGA's RECTF exemplifies targeted instruments addressing the needs of renewable energy projects in developing countries as it provides longer-term and more affordable guarantees, particularly for high-risk investments (MIGA, 2024). Similarly, ATIDI's RLSF focuses on mitigating short-term payment risks for IPPs (ATIDI, 2024) in an effort to better address gaps not well covered by more traditional credit enhancement instruments. While these instruments improve investor confidence by reducing some risks, they often fall short of addressing longer-term uncertainties, such as political transitions or climate-related risks (Amolo et a. (2020); Duma et al., (2023)). The adequacy of these instruments' coverage significantly influences financing decisions, particularly in high-risk environments like Kenya and Malawi.

Existing literature highlights both the benefits and limitations of these instruments in addressing the risks associated with IPPs in developing countries. Amolo et al. (2020) found that while credit enhancement instruments improved the performance of hydroelectric projects in Kenya, they inadequately addressed challenges such as currency volatility and long-term political risks. Similarly, Duma et al. (2023) observed that in Malawi, credit enhancement instruments mitigated certain risks but often lacked comprehensive coverage for emerging issues, including climate adaptation and evolving regulatory frameworks. These findings underscore a persistent gap in the adequacy of cover provided by existing instruments, which could hinder their effectiveness in supporting sustainable energy infrastructure.

This study addresses these gaps by examining how the adequacy of coverage provided by credit enhancement instruments influences their utilization in IPP financing in Kenya and Malawi. By building on existing research, this study assesses whether the level of coverage offered by these instruments sufficiently addresses critical risks such as regulatory uncertainty, environmental challenges, and currency volatility. Additionally, it evaluates how perceived inadequacies in coverage impact investor confidence and the willingness of private sector actors to participate in IPP projects. By investigating these dynamics, this research aims to provide actionable insights into the design and implementation of more robust and comprehensive credit enhancement instruments whilst adopting different research approaches.

2.3.4. Claims History of Credit Enhancement Instruments

At the project inception and development phase, private investors hold the advantage during project negotiations as they possess the necessary capital, while the host government requires infrastructure but lacks the funds to build it. However, once the infrastructure is constructed and commissioned, this bargaining power held by the private stakeholders reduces as the government has achieved its objective of obtaining the infrastructure – possibly resulting in a change in the relationship between the two parties (Vernon (1977); Moran (1998); Woodhouse (2005)). This potential shift in the dynamics between investors and host governments raises the prospect that governments may cease to uphold their commitments, due to a reduced incentive to do so – particularly in instances where there has been a change of government or political leadership of a country. In the event that the government or power utilities were not to honour their obligations as

outlined in the project agreements, it could lead to claims being made under the credit enhancement instruments provided to IPPs.

There are limited publications on the claims paid out by the providers of credit enhancement instruments in support of renewable energy IPPs – a research gap this paper will contribute towards. According to the findings of Gratwick (2007), sovereign guarantees, political risk insurance policies, or partial risk guarantees have not been drawn to make claim settlements, including by IPPs that have encountered contractual changes. This study seeks to update these findings and establish if this trend may have changed since the publication by Gratwick (2007).

MIGA, one the leading providers of political risk insurance with over USD 70 billion worth of guarantees issued since its founding in 1988, has an exemplary claims record with only 11 payments having been made – most of these claims were as a result of war and civil disturbance and not a failure by governments or state-owned entities to honour their obligations to investors (MIGA (2015); Mathiasen & Aboneaaj (2023)). This track record is an indication that claims following defaults by public entities and host governments are not very common. The researcher builds on these publications by establishing if this is consistent with the realities of IPPs in Kenya and Malawi, and whether such claims history is an influential factor in how credit enhancement instruments are utilized within the two countries.

2.3.5. Critics and Shortcomings of Credit Enhancement Instruments and IPPs

Whilst a lot of literature has shown a positive correlation between the availability of credit enhancement instruments, successful financing of IPPs, and in turn increased access to electricity, some literature has found that this drive and initiative may not always lead to positive results. Arguments have been made that credit enhancement instruments may inadvertently weaken reform incentives within host countries as host governments may view such instruments, which are provided by third parties, as resolving any underlying challenges in the respective country's energy sector (Perera et al. (2018). Additional limitations associated with credit enhancement tools include the lack of standardisation and complementarity across risk products, conservative approaches in treating guarantees and loans, and concerns about their impact on investment patterns in host countries (World Economic Forum (2016); IISD (2023); Gordon (2008)). Where such credit enhancement instruments take the form of public sector guarantees, this may result in

moral hazard – undoing some of the gains on making such instruments available (Prasad et al. (2022)).

Concerns have also been noted about the balance of power between investors, more developed western governments, and multilateral institutions as the providers or issuers of credit enhancement instruments may be driven by different motivations relative to the host country (Gordon, 2008). Critiques of increased private sector participation further highlight power concentration among financial entities – moving away from historically publicly controlled sectors, potentially impacting accountability and transparency (Bracking & Leffel, 2021). IPPs have also been associated with debates, interruptions, and arguments regarding electricity costs according to Gratwick (2007). In numerous countries, IPPs have not led to rapid increase in access rates or inexpensive electricity. Instead, host countries that previously struggled with inadequate funds are now contending with significant challenges linked to affordability (Gratwick, 2007). Critics of IPPs, which require long term PPAs, have also argued that such agreements are rigid and do not encourage long-term efficiency improvements or foster competitive markets (Woolf & Halpern, 2002).

Arguments have also been made that the long-term PPAs required to facilitate private sector involvement, are increasingly exposing countries to substantial foreign exchange risk (Eberhard & Gratwick, 2010). Bayliss and Hall (2000) also note that many countries that have implemented IPPs have encountered challenges, including prolonged political; economic, and legal disputes; a perception of overly favourable terms being provided to IPPs; and financial strain on state entities due to substantial payments.

These multifaceted insights delve into the complex landscape of private sector roles, challenges, and impacts of credit enhancement instruments in project financing, emphasizing the need for a nuanced and adaptive approach across diverse contexts – this study, which incorporates the views of industry experts in Kenya and Malawi, contributes towards this pool of literature.

2.4. Summary of the Literature and Research Gap

Empirical literature shows that the private sector has an important part to play in the funding of climate friendly initiatives such as renewable energy projects and that the implementation of these projects can support economic growth and development. This study contributes towards this

literature by addressing some of the gaps observed. The research gaps mainly relate to a limited use of case studies in some of the literature reviewed and the restricted focus on Kenya and Malawi where such case studies have been presented.

Specifically, this proposed research builds on the findings of Eberhard and Gratwick (2010), Eberhard et al. (2018), Chowdhury et al. (2015), and Amolo et al. (2020) whose empirical research has led the understanding of key determinants that make IPP financing possible; and how projects have successfully been financed in sub-Saharan Africa. Some of the key research gaps through this study include adding to the pool of literature that in turn may allow for greater generalisation of the past findings; extending studies to include IPPs in Malawi – a country that has benefited from limited empirical research on the use of credit enhancement instruments in facilitating financing for IPPs; specific focus on the use of credit enhancement instruments compared to the more general findings on factors that enable IPP financing which go beyond the role and effect of such instruments; and wherever possible, provide updates given the passage of time since similar research was conducted. The gaps identified from the literature reviewed have been summarized in Table 2.1.

Table 2. 1: Literature Matrix

	Articles Title	Author(s), Year	Findings	Research Gaps
1	Risk Mitigation Considerations and the Impact on the Pricing of Renewable Energy Projects	Frankfurt School (2016)	The advantages of employing risk management tools significantly surpass their effects on a project's cash flow. Utilizing these instruments brings several benefits, such as enhancing the project's risk profile, which can attract greater interest from lenders, leading to higher debt levels in the project's capital structure. Lenders may also be more inclined to extend the project's loan term, and a lower risk margin can result in reduced interest rates overall. Additionally, equity investors might lower their return expectations.	Lack of case studies; Jurisdiction – the study addresses the topic in general with limited application towards IPPs in Kenya and Malawi
2	Climate Policy with the Chequebook – An Economic Analysis of Climate Investment Support	Kempa et al. (2017)	Financial tools can address the primary market flaws linked to clean energy investments. Public financial instruments for investment support have the ability to directly impact risk and capital costs, allowing for flexible design to offset situations where climate-related investments may seem less appealing to investors than	Limited focus on actual guarantee products; No case studies; Jurisdiction

			they should be, considering societal and economic factors.	
3	Investment Guarantees and Political Risk Insurance: Institutions, Incentives and Development	Gordon, (2008)	Both public and private entities offer investment guarantees. The presence of credit enhancement tools offered by domestic governments or multilateral financial institutions can act as a deterrent, benefiting investors. However, Political Risk Insurance has its limitations in reducing risk and attracting investments.	Limited focus on actual guarantee products; No case studies; Jurisdiction; Timing - this research was conducted and published in 2008.
4	Mobilizing Private Climate Financing in Emerging Market and Developing Economies	Prasad et al. (2022)	Urgent climate policy actions are necessary for global investments aimed at meeting the temperature and adaptation targets outlined in the Paris Agreement. These policies need to be backed by sufficient financial support to address the substantial financing gap worldwide, especially in emerging market and developing economies (EMDEs). The report explores potential methods for mobilizing private sector funds in climate finance, alongside climate-related policies.	Introduces risk mitigation as a general concept without any details on specific credit enhancement instruments; No case studies; Jurisdiction – the study does not focus on Kenyan and/ or Malawian IPPs
5	Credit Enhancement for Green Projects - Promoting credit-	Aravamuthan et al. (2015)	Highlights the various risk mitigation instruments available; Provides an analysis of case studies where such de-risking	Jurisdiction - only one case study was for a project in Africa

	enhanced financing from multilateral development banks for green infrastructure financing		instruments have been applied and the associated benefits	
6	Credit Enhancement for Sustainable Infrastructure	Perera et al. (2018)	Provides access to an inventory of Credit Enhancement Instruments available globally; institutions that provide credit enhancement instruments and the types of instruments offered; Highlights some existing gaps where additional innovation is required; notes the linkage between credit enhancement, infrastructure development and economic growth	Lack of case studies; Jurisdiction
7	Risk Mitigation Instruments in Infrastructure - Gap Assessment	World Economic Forum, (2016)	Suggests evaluating current tools to consolidate them into a small set of universally accessible, standardized products offered globally through local or regional partners. Proposes the development of a tradable infrastructure debt asset category by enhancing standardisation in the underlying debt instruments. Calls for the implementation of a unified dispute	Jurisdiction - study has a very wide global focus; No case studies are presented

			resolution mechanism. Also advocates for the establishment of a global or regional risk mitigation facility with or without direct involvement from international financial institutions	
8	Climate Finance Governance - Fit for Purpose	Bracking et al. (2021)	Addresses two key research questions: How is climate finance governed and How neoliberalism affects climate finance governance, including through its extended financialization processes	Focuses on climate finance in general - limited application of credit enhancement instruments; lack of case studies
9	Unlocking Climate Finance Potential and Policy Barriers - A Case of Renewable Energy and Energy Efficiency in sub-Saharan Africa	Mungai et al. (2022)	Evaluates the investment prospects and policy obstacles related to renewable energy and energy efficiency. It concludes that addressing institutional knowledge gaps and policy deficiencies is essential to unlocking financing opportunities in these sectors across Africa.	Lack of case studies; Does not focus on the application of guarantees and insurance instruments in support of renewable energy projects; Jurisdiction - focuses on regional trends without a country specific focus on Kenya and Malawi
10	Risk Mitigation and Transfer for Renewable Energy Investments: Case Studies in the Southern African	Duma et al. (2023)	Highlights the various credit enhancement instruments that are available in the SADC region; Studies the relevance of risk mitigation tools in the development phase and their effectiveness once projects are operational; Explores the replicability and	The study focuses on the Southern Africa region only – this research extends the scope of study to include Kenya; provide updates to the original findings wherever possible

	Development Community		scalability of the risk mitigation tools; studies the adequacy of risk mitigation tools; and the effects of risk mitigation tools on potential for moral hazard and host country finances	
11	Kenya Expansion of Sustainable Access to Electricity Program (KESAEP) - Project Information Document	World Bank, (2022)	Highlights ongoing reforms at KPLC; Provides insights on the role of IPPs going forward and their role in contributing towards a sustainable energy mix	Lack of case studies on the financing of IPPs and the role of guarantees; limited to Kenya only
12	Guarantees 2.0: Meeting climate finance needs in the Global South	Callaghan, (2023)	Notes the limitations of public financing to support electrification efforts in developing countries; Highlights that private investment flows to developing countries, particularly for the energy sector has been almost negligible; Highlights ongoing discussions about how to bridge the energy sector financing gap; Recommends guarantees as an effective way to increase private sector participation; Proposes the creation of the Emerging Markets Climate Investment Compact (EMCIC) - an initiative that will	Paper focuses on possible global application with limited Africa specific focus; The report does not provide any summary on the successful implementation of credit enhancement instruments i.e. no Case Studies

			look to provide USD 500 billion worth of guarantees in Emerging Markets and Developing Economies	
13	Credit Enhancement Factors for The Financing of Independent Power Producer (IPP) Projects in Asia	Chowdhury et al. (2015)	The notable challenges encountered by IPPs in Asia, and in developing nations in general, include risks such as demand fluctuation, payment uncertainties, price volatility, currency stability concerns, and FX uncertainties. Observes that credit enhancement instruments issued by host countries, multilaterals, and Export Credit Agencies (ECAs) play an important role in the structure of IPPs. Suggests that policymakers and other stakeholders involved in IPPs should redirect their emphasis from shareholder-based credit enhancement and prioritize host government credit enhancement, as well as credit enhancement from MDBs, ECAs, and other relevant parties. Analysis indicates that these two categories of factors are crucial in managing most of the risks associated with IPP projects.	The research focuses on IPPs in Asia – a different jurisdiction from the focus of this proposed study

14	IPPs in Sub-Saharan Africa: Determinants of Success	Eberhard and Gratwick (2010)	The research identifies the following as crucial factors for the success of IPPs at the country and project level	Timeline: the research was conducted in September, 2010. The electricity market in sub-Saharan Africa has changed considerably since then. The study was broad, without a specific focus on credit enhancement instruments and their utilisation.
15	Project Finance for Independent Power Producers in Developing Countries: The Paiton I Power Generation Project in Indonesia	Yuliyanti, (2001)	The study formulates a risk-sharing framework between IPPs and host countries. This framework offers instruments to address situations where the economic conditions initially projected become unfavourable. Several significant insights emerged from the case.	Timeline – the research was conducted in 2001 Jurisdiction – the study was applied on a project in Indonesia, which whilst a developing country, represents a very different risk profile compared to Kenya and Malawi The methodology applied focuses on a single case study with limited comparability to other projects/ IPPs; highlights

				risks faced by projects without a narrow focus on credit enhancement instruments
16	Credit Enhancement and Performance of Hydroelectric Energy Projects in Kenya	Amolo et al. (2020)	Evaluates how credit enhancement affects the performance of hydro projects in Kenya. Based on a pragmatic approach, the study determined that credit enhancement significantly impacts the performance of hydro projects within the country. Several recommendations are made to increase the effective use of such instruments in support of additional projects.	Scope: the study focuses on the impact on hydro-electric power projects and not the renewable energy sector broadly. Timeline: the research was conducted prior to the onset of COVID-19; unclear if the pandemic may have had an impact on the findings
17	Defying the odds: Understanding the critical success factors for financing independent powers producers in Zimbabwe	Zunguze, (2016)	Explores the critical success factors (CSFs) for financing IPPs in Zimbabwe. The study identified 40 success factors, of which 38 were rated as critical. Key risk factors were currency and transfer; repayment; and offtake/ payment risks – all of which can be mitigated via credit enhancement instruments	Jurisdiction: the study focuses on Zimbabwean IPPs only The factors identified and studied are broad i.e. the study does not provide a detailed assessment of the credit enhancement instruments available and their impact on project financing

18	Kenya’s Lessons from Two Decades of Experience with Independent Power Producers	Eberhard et al. (2018)	The paper delves into the lessons that can be gleaned from Kenya's encounter with IPPs and how these insights could be applied to other developing nations. The researchers consider how Kenya's IPPs compare with state-owned entities. Highlights the risk mitigation and contingencies that have been applied to ensure the success of IPPs. The study notes the benefit of DFIs stepping-in to provide Partial Risk Guarantees and that this may be a key factor in the future success of IPPs	Jurisdiction: the study is limited to Kenya only Timeline: the study was published in 2018

2.5. Conceptual Framework

A conceptual framework serves as a roadmap for researchers throughout the investigation of the studied problem. It outlines the interrelation of various ideas within the study, clarifying the problem under investigation and facilitating the analysis of concepts to be incorporated into the research (Adom et al. (2018)). Ravitch et al. (2017) further define the conceptual framework as a justification for the topic under study and the suitability and rigor of the proposed methods for studying it. Figure 2.2 below represents the conceptual framework that guided this study. It shows the relationship between the independent variables (being the availability of credit enhancement instruments; their pricing; the adequacy of the cover provided; and the claims history) and the dependent variable (the financing of IPPs in Kenya and Malawi).

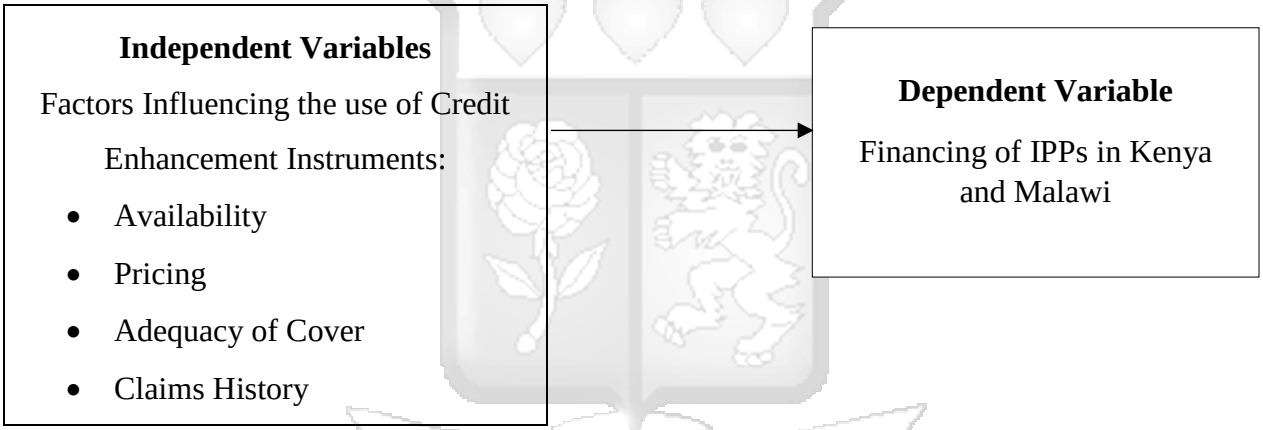

Figure 2. 1: Conceptual Framework

2.5.1. Operationalisation of the Study Variables

Operationalisation entails transforming variables into tangible, measurable factors. This process outlines ambiguous concepts, enabling them to be empirically and quantitatively measured. When operationalising variables, it's essential to establish a connection between theory and research. In addition, the researchers need to initially grasp the categories of variables that can aid in accurately discerning the impact and inspire future investigations (Tariq, 2015). In this study, key considerations in the issuance and utilisation of credit enhancement instruments have been categorised as measurable indicators. Similarly, the dependent variable has been broken into measurable aspects to analyse the data, as shown in Table 2.2.

Table 2. 2: Operationalisation of Study Variables

Variable	Measurement	Data Collection Tool	Data Analysis	Expected Relationship with Independent Variable	Supporting Literature
Availability of credit enhancement tools available to IPPs in Kenya and Malawi	Number and type of credit enhancement instruments available to IPPs in Kenya and Malawi Examples of credit enhancement instruments that have been used by IPPs in Kenya and Malawi	Primary and Secondary data Interviews, Questionnaire, and Database Review	Thematic Content Analysis Likert Scales	Positive relation with the financing of IPPs in Kenya and Malawi	(Amolo et al. (2020); Chowdhury et al. (2015); (Gordon, 2008); (Gratwick, 2007))
Pricing of credit enhancement instruments	Summary of the pricing estimates from guarantors/ insurers Perception of the pricing offered by IPPs, financiers, and other stakeholders	Primary and Secondary data Interviews and Questionnaire	Thematic Content Analysis Likert Scales Regression Analysis	Positive relation with the financing of IPPs in Kenya and Malawi	(MIGA, 2024); (IISD, 2023)
Adequacy of cover of the credit enhancement instruments available	Perception of the instruments available vis-à-vis the risk concerns of IPPs	Primary and Secondary data Interviews and Questionnaire	Thematic Content Analysis Likert Scales Regression Analysis	Positive relation with the financing of IPPs in Kenya and Malawi	(Zunguze, 2016); (IISD, 2023)

Claims History of the credit enhancement instruments issued in support of IPPs	Log of the claims paid by the providers of credit enhancement instruments	Primary and Secondary data Interviews, Questionnaire, Database review	Thematic Content Analysis Likert Scales Regression Analysis	Positive relation with the financing of IPPs in Kenya and Malawi	(Gratwick, 2007)
Financing of IPPs in Kenya and Malawi	Number of IPPs that have been successfully financed Perceptions of stakeholders on the link between credit enhancement instruments and IPPs achieving financial close	Primary and Secondary data Interviews and Questionnaire Database review	Thematic Content Analysis Likert Scales Regression Analysis	N/A	(IEA et al., 2021); (IEA, 2024);

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter outlines the research design, the population under study, sampling methods, data collection techniques, and procedures for data analysis. It also addresses aspects of reliability, validity, and ethical considerations pertinent to the study.

3.2. Research Philosophy

The pragmatic paradigm, which is suitable for research aiming to integrate mixed methods to achieve a thorough comprehension of the topic of study, is the optimal philosophical approach for this study. Pragmatism in research is a philosophy acknowledging the diversity of methods and recognizing the possibility of singular or multiple realities that can be explored through empirical investigation (Kaushik & Walsh, 2019). As the study involves social and economic factors that influence the use of credit enhancement instruments in climate finance, pragmatism allows the researcher to adopt a varied approach that draws on the strengths of both positivist and interpretivist methodologies.

The use of qualitative methods, such as interviews and document analysis, helped the researcher capture the nuanced perspectives and experiences of stakeholders involved in the energy sector in Kenya and Malawi. The qualitative methods enabled the researcher to identify the various credit enhancement tools available; receive direct feedback from stakeholders on their perception of the impact of credit enhancement tools in enhancing bankability of IPPs; as well as any general concerns around the manner in which credit enhancement tools are structured, priced, and any other general limitations. This approach sheds light on motivations and perceptions related to credit enhancement and climate financing.

Quantitative methods, specifically the findings from the survey questionnaire provide objective and measurable insights into the impact of credit enhancement on the financing and success of IPPs in Kenya and Malawi. By using a pragmatist research philosophy, the study strikes a balance between the depth of understanding provided by qualitative data and the generalisability and objectivity offered by quantitative data. This approach was adopted in similar empirical studies by Amolo et al. (2020) and Zunguze (2016).

3.3. Research Design

Research design is the glue that unifies all components within a research project (Akhtar, 2016). The possible research designs for conducting mixed methods research are the convergent parallel design; the explanatory sequential design; and the exploratory sequential design (Creswell, 2003). The explanatory sequential and exploratory sequential designs entail collecting data sequentially, where the results from one method are clarified, expanded upon, or elaborated using another method. Conversely, the convergent parallel design involves gathering qualitative and quantitative data simultaneously, then integrating them to offer a thorough analysis of the research issue (Creswell, 2003).

This study adopted the exploratory sequential design approach that involves data collection via qualitative means and validation of the initial findings using quantitative methods. This design allowed the researcher to understand the current state of credit enhancement practices in the context of IPPs and how they relate to financing outcomes. The primary benefit of this method is that it enabled the researcher to produce comprehensive and holistic study results; this is achieved by first gaining a deep contextual understanding of IPPs in Kenya and Malawi through qualitative analysis, followed by obtaining more broadly applicable and generalisable findings in the quantitative phase (Greene & Caracelli, 2003).

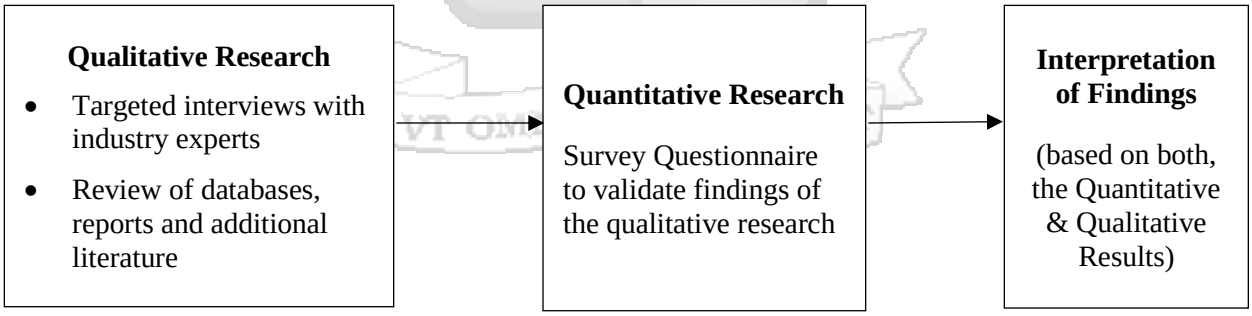

Figure 3. 1: Research Design

Further justification for the use of this mixed methods approach is that to address validity concerns associated with single-method approaches, researchers employ an alternative method to bolster the validity of their methods and study outcomes. This approach aims to gain a comprehensive perspective and deeper insight into the phenomenon being studied by integrating findings from both quantitative and qualitative methods (Johnson et. al (2007)).

3.4. Qualitative Sampling and Data Collection

This section outlines the sampling, data collection and data analysis methods used during the initial qualitative phase of the research. The primary aim of this first phase of the study was to enhance the researcher's understanding of the research context through a thorough review of the energy sectors in Kenya and Malawi. The qualitative study also enabled the researcher to gain insights into the credit enhancement instruments available to IPPs in the two countries, as well as understanding various stakeholders' perspectives on the advantages and challenges associated with the utilisation of such credit enhancement instruments. The key findings from this study informed the wording and final form of the questionnaire used in the second quantitative phase.

3.4.1. Qualitative Sampling

The target population for the study was all expert stakeholders involved in the development, implementation, and financing of IPPs in Kenya and Malawi. For the purpose of both the qualitative and quantitative phases of the study, expert is defined as individuals with known and demonstrable experience and expertise in IPP and energy infrastructure development in Kenya and Malawi. The following stakeholder groups were considered: Project Sponsors or IPPs; advisors (legal, technical, and financial); Commercial Banks; DFIs; Multilaterals; Power Utilities; Insurers and Guarantors; as well as government stakeholders involved in the energy sector.

The criteria used in sampling for the qualitative phase was criterion-based purposive sampling, a form of non-probability sampling, where participants are selected based on the specific objectives of a study as well as the research questions to be used, rather than at random (Tashakkori & Teddlie (2003); Teddlie & Yu (2007); Palys (2008)). Purposive sampling, also referred to as judgmental or selective sampling, is a method that involves selecting participants based on a characteristic or trait that varies within the population (Teddlie & Yu (2007); Palys (2008)). Moustakas (1994) underscores the importance of choosing participants who possess the necessary knowledge and experience relevant to the study's focus. To ensure this, interviews were carried out with senior representatives from the identified stakeholder groups; the respondents approached were chosen based on their roles within the organization and their extensive industry experience.

A sample of 6 respondents for the interviews was considered sufficient due to data saturation from the responses received during the interviews. Some respondents that were approached advised that they would need the researcher to sign a Non-Disclosure Agreement (NDA) for them to consider

participating in the interviews – these were requested to participate in the second quantitative phase instead. This sample size, though small, is consistent and aligned with the number of interviews conducted in other qualitative studies that were then complimented by quantitative studies. Guest et al. (2006) suggest that the number of interviews in a qualitative study can range between 6 to 12 participants; this recommendation is informed by their study findings that show that saturation – defined as the point at which no new information or themes are observed in the data – occurred within the first 12 interviews, although basic elements for meta-themes were present as early as 6 interviews.

To ensure that the sample is adequately representative of the population being studied and allows for findings to be generalisable or applicable to the wider population (Krefting, 1991), the researcher selected the interviewees from each stakeholder group. All the respondents had extensive experience in the energy sector; particularly, in advising or advancing IPPs in Kenya and Malawi.

3.4.2. Qualitative Data Collection

Semi structured interviews were the data collection method used to identify the stakeholder's appreciation of credit enhancement instruments and the role of such instruments in enabling the financing of renewable energy IPPs. The alternative forms of interviews that could have been considered by the researcher were structured, and open-ended interviews. In structured interviews, all questions are predetermined, standardized, and every respondent is asked the same set of questions. In contrast, unstructured interviews have no fixed format or predefined questions (Bryman & Bell, 2007). Semi-structured interviews were chosen for this study due to their efficiency compared to unstructured interviews, their flexibility compared to structured interviews, and their ability to facilitate comparison of responses across interviewees.

One notable critique of using interviews for data collection is the challenge of generalising results because they are derived from a limited number of individuals. In this study, the second quantitative phase addresses this concern by employing a larger sample size, thereby offering additional validation of the interview findings. An interview structure consisting of questions sourced from existing literature and adapted to align with the specific objectives of this study was utilised to steer the discussions; the interview framework used in the qualitative study is presented in Appendix 3. Test interviews were conducted with the researcher's colleagues prior to the actual

interview to refine questions and procedure to ensure effective use of time; the interview framework was also updated as the interviews were conducted to reflect improvements from the first few interviews conducted. All the interviews were conducted and recorded via Zoom.

Prior to the interviews, all prospective participants were sent a formal invitation to participate in the study along with an informed consent form via email that also explained the purpose of the study and how the findings would be used. The form also highlighted that each respondent was free to withdraw from the study at any time. Each respondent was assigned a number, in order to conceal their identity e.g. "*Respondent 1*". Any direct quotes from the participants are identified only by the assigned numbers without any reference to the participants individual profile.

The interviews were complimented by desktop studies by the researcher on the energy sectors in Kenya and Malawi, the role of IPPs in the two countries, and the credit enhancement instruments used in support of IPPs within the two countries. The outcome of this desktop review for Kenya and Malawi are presented in Appendices 5 and 6, respectively.

3.5. Quantitative Sampling and Data Collection

This section explains how the quantitative phase of the study was conducted; this phase relied on the use of a questionnaire via SurveyMonkey, an online platform that is widely used for similar research.

3.5.1. Quantitative Sampling

Similar to the first phase, the target population was all expert stakeholders involved in the development, implementation, and financing of IPPs in Kenya and Malawi, with expert defined as individuals with known and demonstrable experience and expertise in IPP and energy infrastructure development in Kenya and Malawi – consistent with the definition applied for the qualitative phase. To ensure validity during sampling, stakeholders involved in the initial phase of the study were deliberately excluded from this second phase. According to Creswell (2003), in exploratory sequential designs, a recommended approach is to draw samples for both phases from the same population while ensuring that individuals are not the same for each sample. This precaution prevents potential biases that could arise from surveying interview respondents who contributed to developing the survey instrument initially.

Consistent with the methodology employed in the initial qualitative phase, the sampling strategy employed for selecting survey participants was purposive sampling, aimed at achieving a large and representative sample. Teddlie et al. (2007) highlight that purposive sampling offers advantages when the objectives include obtaining a sample that closely represents the population and ensuring comparability across a specific dimension. Regarding sample size, Kent (1993) notes that the size of the sample relies on the research objectives and the attributes of the population.

With the Kenyan and Malawian energy sectors being nascent per the findings of the qualitative research, a target sample size of n equals 70 was chosen for this study; an equal representation of each stakeholder grouping was aimed at for representativeness and comparability. The researcher shared the digital questionnaire with 90 possible respondents of which 70 responded; from the responses, 8 were incomplete and excluded from the analysis – leaving 62 responses as the final sample size and an effective a response rate of 69%.

3.5.2. Quantitative Data Collection

A self-administered structured survey questionnaire was the research instrument used to collect data. This was done via SurveyMonkey, a widely used online platform for similar studies. Survey questionnaires are frequently used as data collection instruments in exploratory research (Clarke & Dawson, 1999) and have been used in the majority of studies that explore success factors for IPPs and the role of credit enhancement instruments in enabling private sector financing (Zunguze, 2016); Amolo et. al (2020). Survey questionnaires provide several advantages for the researcher, including being a cost-effective way to collect standardised information from a large number of people in a short period of time (Clarke & Dawson, 1999); reduced researcher bias when compared to interviews; anonymity and privacy of participants; and results that are easily quantified (Popper, 1959).

The use of a survey questionnaire was suitable in the context of this exploratory sequential research design to build upon the findings of the qualitative first phase (Creswell, 2003). The findings from the qualitative phase of research were used to develop the wording and categorisation of the survey questionnaire. The format of the questionnaire can be found in Appendix 4. In addition to asking general information about respondents' backgrounds, the questionnaire used a 5-point Likert Scale to capture respondents' perceptions regarding the effect of credit enhancement instruments in enabling the financing of renewable energy IPPs in Kenya and Malawi.

The questions within the questionnaire were structured to address each of the independent variables as they relate to credit enhancement instruments i.e. their availability; pricing; adequacy of cover, and claims history. The choice of using the 5-point Likert Scale over other scales with less or more items is because the 5-point scale is the most widely used form of Likert scales in applied social science research according to van der Eijk et al. (2015). In relation to similar studies on the effect of credit enhancement instruments, critical success factors for IPPs, and the role of the private sector in electricity generation, Likert scales have been used to inform the research (Amolo et al. (2020); Eberhard et al. (2010); (Zunguze, 2016)).

The survey questionnaire had the following sections: General Introduction; Demographic Information; Respondents' Perceptions of Credit Enhancement Instruments; Success Factors for the Utilization of Credit Enhancement Instruments in Kenya and Malawi; and Respondents' Perception on whether IPPs in Kenya and Malawi can achieve financial close without using any credit enhancement instruments.

Although questionnaires reduce the degree of research bias, weaknesses in questionnaire design and wording can introduce bias in the results and the possibility of misinterpretation of questions by participants (Meadows, 2003). The researcher mitigated this by testing the questionnaire with colleagues' and fellow students prior to administering it to respondents, to ensure clarity of meaning in the questions, non-ambiguity in wording and to assess the overall appearance of the questionnaire. The survey was also conducted in two phases: firstly, it was shared with 15 respondents to gauge the response rate as well as any general feedback; thereafter the survey was shared with the rest of the targeted population.

An email, that provides an explanation of the purpose of the study and an invitation to volunteer to complete the questionnaire, was sent alongside with a link to the survey questionnaire. Completion of the questionnaire via SurveyMonkey was considered informed consent by the participants.

3.6. Data Analysis

Data analysis is the process of organizing and interrogating data in ways that allow researchers to see patterns, identify themes, discover relationships, develop explanations, make interpretations,

mount critiques, or generate theories. In this research, the data analysis encompasses both qualitative and quantitative approaches across the outlined phases of the research.

Thematic analysis was applied following the interviews to identify patterns and themes in stakeholders' perspectives on credit enhancement and climate financing. Descriptive statistics were used to summarize the outcome of the survey questionnaire, while inferential statistics, particularly regression analysis, was employed to examine relationships between credit enhancement tools and bankability outcomes for IPPs. The integration of qualitative and quantitative data is a central aspect of the analysis. Triangulation was employed to compare and contrast findings from the two phases of the research, enhancing the study's validity.

The interview transcripts were analysed using thematic content analysis, using the five-step method developed by McCraken (1988) with the aid of NVivo that provides avenues for flexible and rigorous analysis of qualitative data. The five steps involved were: Reading and reviewing the interview transcripts with the primary goal of sifting out the important or pertinent material in the transcripts and making notes on their observations; Creation of preliminary categories or themes, descriptive and interpretive in the software program, based on the interview transcripts and literature review used to guide the research; Identification of patterns or connections within the preliminary categories or themes using the software program; Determining the key basic themes that are common across all or most of the interview responses by examining the pertinent material in the transcripts and researcher's notes that were inputted into the software program; and Examination of themes from all interviews across groupings, to delineate predominant themes contained in the data. These predominant themes then formed the basis for writing up the data.

In assessing the responses received via the Likert scales, the researcher adopted the following scale to arrive at the weighted average scores:

Table 3. 1: Likert Scales and the Likert Scale Method adopted for this study

Score	1	2	3	4	5
Degree of agreement with the various statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Ranking of the criticality of various factors	Not Critical	Less Critical	Critical	More Critical	Most Critical

Such weighted averages are used in Likert scales as they allow for the consideration of the importance or weight of each response category. By assigning different weights to the Likert scale options, the weighted average considers the varying degrees of agreement or disagreement expressed by respondents; this provides a more nuanced and accurate representation of the respondents' opinions or attitudes (Sack, 2020).

For the purpose of this study, statements that scored weighted averages higher than 3 were considered as having received positive responses (or "attitudes") from the participants i.e. "Agreed". Similarly, factors that scored higher than 3 were considered "More Critical", with respondents having shown positive attitudes towards these.

A multiple linear regression method was used to test the significance of the relationship between the independent and dependent variables. The regression model took the form of:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Climate Financing as evidenced by IPPs achieving Financial Close;

X_1 = Type of credit enhancement tools available to IPPs;

X_2 = Pricing of credit enhancement instruments;

X_3 = Adequacy of cover of the credit enhancement instruments available;

X_4 = Claims History of the credit enhancement instruments issued in support of IPPs;

ε is a term depicting error margin;

β_0 represents the constant; and

β_1 to β_4 are regression coefficients

The data analysis methods applied in this study are guided by the methods employed by Zunguze (2016) and were chosen based on which methods most appropriately fit this study, to answer the research questions, as well as to ensure the validity and reliability of the results. The statistical software package SPSS was used to aid the analysis.

3.6.1. Reliability Test – Cronbach's Alpha Coefficient

Prior to analysing the data, the reliability of the questionnaire was assessed by calculating Cronbach's Alpha for the survey data using SPSS; the results of which are presented in Chapter 5. Cronbach's alpha is a coefficient that measures the internal consistency of a questionnaire (Burns,

2000); it measures how reliable the set of variables used in the analysis measure a single construct. Whilst there is no consensus on what constitutes an acceptable value of alpha, an alpha range value in the range of 0.60 and 0.80 is often considered an acceptable level of reliability (Nunnally (1978); Pallant (2020)).

3.6.2. Multicollinearity Test

Multicollinearity occurs when independent variables in a regression model are correlated. Such correlation is a problem as independent variables should be independent in an effective study; when independent variables are highly correlated with each other, it can cause several problems, including unstable coefficients, reduced interpretability, and inflated standard errors. Collinearity is measured using Variance Inflation Factors (VIFs). VIFs start at 1 and have no upper limit. A value of 1 indicates that there is no correlation between this independent variable and any others. VIFs between 1 and 5 suggest that there is a moderate correlation, but it is not severe enough to warrant corrective measures. VIFs greater than 5 represent critical levels of multicollinearity where the coefficients are poorly estimated, and the p-values are questionable (Jim, 2020). The problem of multicollinearity is that it compromises the numerical stability of the regression coefficient estimate and may cause some serious problem in validation and interpretation of the model (Ullah et al., 2019).

3.6.3. Heteroskedasticity Test

A heteroskedasticity test measures whether the variance of the errors (or residuals) in a regression model is constant across all levels of the independent variables. Heteroskedasticity occurs when this variance is not constant, which violates one of the key assumptions of ordinary least squares (OLS) regression; the test measures whether residual variance is consistent across observations.

Pernecky (2016), asserts that heteroscedasticity can be problematic in regression analysis, as it may invalidate statistical tests that rely on the assumption of uncorrelated and normally distributed modelling errors. Ensuring homoskedasticity is crucial for reliable hypothesis testing and inference in regression analysis. To detect heteroscedasticity, this study applied the Breusch-Pagan test to evaluate potential issues in the regression mode.

3.6.4. Normality Test

A normality test is a statistical test used to determine if a dataset or residuals from a model follow a normal (Gaussian) distribution. In many statistical analyses, especially in classical regression models, the assumption of normality is important because it underpins the validity of significance tests and confidence intervals.

Normality tests enable the researcher to determine the modelling pattern of a normal distribution and to calculate the probability of a random variable governing the data set to be normally distributed (Ghauri et al. (2020)). In order to make inferences, from an analysis, assumption of normally distributed dependent variable is important. The research utilized the Shapiro – Wilk test for the purpose of the normality tests.

3.7. Ethical Issues in Research

3.7.1. Data Protection and Privacy

To safeguard the identities of the participants, the researcher excluded any identifiable corporate or individual information, such as names and reference numbers, from the dataset. Instead, unique identification numbers were assigned to the submissions, and were randomized to preserve their identification for the researcher while ensuring they remain anonymous to third parties. Additionally, all workbooks and databases have been password-protected to provide an extra layer of security for data protection.

3.7.2. Ethical Considerations of the Study

Authorization to conduct the study involving human participants was obtained from the Strathmore University Institutional Scientific Ethics Review Committee (SU-ISERC) prior to commencing the data collection, in order to ensure the ethical treatment and protection of participants; ensuring measures were in place to protect the privacy of personal data. Additionally, before starting the research, the researcher applied for a license from the National Council of Science and Technology Innovation (NACOSTI).

Throughout the research process, the researcher adhered to best practices to avoid any deception and manage privacy and integrity requirements. The research also strictly followed the guidelines outlined in the Data Protection Act 2019, regarding the collection, processing, and disposal of any sensitive or personal data obtained during the study. All sources of secondary information utilized

in the research have been appropriately acknowledged with references provided throughout this paper.

The analysis methods were chosen based on which methods most appropriately fit this study; firstly, to answer the research questions and secondly to ensure the validity and reliability of the results. The researcher conducted the entire research, with the support of one research assistant for the purpose of data analysis.

3.8. Summary

A mixed methods research strategy was chosen for this study because a combination of the qualitative and quantitative methods, more accurately addresses the research questions than either of the methods independently. This chapter has outlined and justified the study's two phase exploratory sequential research design, the data sources, sampling techniques, data collection and data analysis methods. Methods to maximise data reliability and validity have also been described and the limitations of the research clearly stated. The next chapter presents the findings of the study.

CHAPTER FOUR: PRESENTATION OF THE RESEARCH FINDINGS

4.1. Introduction

This chapter outlines the findings from the qualitative and quantitative studies on the effect of credit enhancement in facilitating the financing of renewable energy projects. The first section focuses on the outcome of the semi-structured interviews, the qualitative phase, whilst the second quantitative phase focuses on the trends observed following responses received from the survey questionnaire. The chapter concludes with a summary of the key findings on the critical factors that guide the rate of utilization of credit enhancement instruments in the financing of renewable energy IPPs in Kenya and Malawi.

4.2. Findings of the Qualitative Research

The researcher approached industry experts from the target population to participate in the study. Ten experts were approached to participate in the research interviews; six confirmed their availability to contribute to the study. The other four participants were then considered as part of the targeted sample for the quantitative phase. The primary objectives of the qualitative research were to "*To determine which credit enhancement instruments are available to IPPs in Kenya and Malawi, and the influence of such instruments in the financing of renewable energy IPPs in the two countries*", and to inform the final form of the survey instrument for the quantitative study, whilst addressing the other specific objectives. This approach was similar to the approach adopted by Amolo et. al. (2020), and Zunguze (2016).

4.2.1. Description of Participants

A total of six interviews were conducted virtually, via Zoom; all the interviews were recorded to make it easier for the researcher to prepare transcripts thereafter. The participants were selected from each of the key stakeholder groups in order to obtain balanced and representative findings. All but one of the respondents had more than 10 years of industry experience; two of the respondents have Bachelor's Degrees with the rest having Post-Graduate Qualifications; four of the respondents have worked on IPPs in both Kenya and Malawi, with one respondent having worked in Kenya only and one other respondent with experience working with IPPs in Malawi only. All the respondents hold Management roles in their respective organisations. A more detailed description of the respondent profiles is provided in Appendix 7.

4.2.2. Private Sector Participation and Level of Government Support for IPPs

There was unanimous agreement amongst the respondents that the level of private sector participation in Kenya's electricity generation sector was high and that this would likely continue going forward. In commenting on this, Respondent 2 stated that *"The extent of private sector involvement in Kenya's electricity generation sector is quite high. Kenya has a long track record of IPPs being developed, constructed and contributing towards the country's economic machinery. The Kenyan government's sustainability agenda – with the government committing to ensure a high contribution of renewables towards the country's energy mix – has encouraged private sector participation."*

Nearly all the participants noted that this historically high level of private sector participation has come under review in the recent past following changes in the level of government support and a lack of clarity in the Kenya government's energy sector policy. In commenting on the level of government support for IPPs in Kenya and the impact this may have on the level of private sector participation, Respondent 4 observed that *"I think the Government of Kenya is aware of what is required to provide sufficient support to IPPs; when they do not provide sufficient support, they understand the consequences: that they won't have new generation capacity coming online and presumably this will apply in the transmission and distributions sectors. One of the things that brought this to the forefront is during the COVID period when contracts were tested and found to have had sufficient support. The challenge going forward is that now that such contracts were tested, the level of support from the Government of Kenya will need to be maintained or increased because of the threat of cancellation or unilateral renegotiation of contracts which is a risk that wasn't there before… Overall, I think the Government of Kenya is aware of the type of support required, but does not always provide it."*

The close relationship between private sector participation in Kenya's electricity generation sector and the level of government support, as well as the recent evolution of this relationship was summed up well by Respondent 5 who noted that:

"From the beginning of the last decade [2010], Kenya made a lot of progress and as a result there was a lot of private sector participation in the energy sector, with country being one of the first in the region that offered fixed and attractive Feed-in-Tariffs for renewable energy projects; regulations were in place; and whilst there was no government guarantee provided for the benefit

of power projects, there was generally a lot of support from the government and the power utility, the Kenya Power and Lighting Company (KPLC) – with KPLC being listed on the stock exchange, prospective investors were given some additional comfort around governance issues.

Unfortunately, all of that started slipping towards the 2020s. Given the political nature of the power sector, some political decisions combined with the lack certainty on sector plans in the last few years has affected the attractiveness of the investment climate. From the projects we are involved in, we have seen a sector that was previously very bankable suddenly have issues and concerns to address following government decisions to review PPAs, and renegotiate project agreements which all eventually resulted in a moratorium on new PPAs. As a result of all these changes – mainly from the government actions – the energy sector moved from a situation where the structure and direction of travel was correct and was able to facilitate private sector financing, to the current environment which is marred with some uncertainty that discourages private sector involvement."

When asked to comment on the level of private sector involvement in Malawi's electricity generation sector, Respondent 2 observed that *"Relative to Kenya, it's a bit less but one would still say that at a country level, the private sector participation is still significant. Whilst I do not have the actual figures off-hand for the country's installed capacity, IPPs currently account for nearly 20% of the national grid's installed capacity. As such, I would say the private sector's role is quite significant."*

This observation was consistent with the view of Respondent 4 who further noted that whilst there have been some successes in enabling private sector participation in Malawi's energy sector, recent macroeconomic challenges have resulted in a slowdown:

"There is a clear case of successful examples albeit relatively new compared to a more mature market such as Kenya. Sometimes in Malawi, the private sector involvement is seen as having created a financial burden for the power utility and the government in spite of the projects providing electricity and addressing existing supply deficits within the country. I would say that there is clear interest in private sector participation; the first few IPPs were successful in deploying but some of the unforeseen challenges have created a narrative that the projects are expensive. As a result, the second wave of IPPs will take much longer to close – over time, I think that the private sector participation will continue to be a part of the solution provided stakeholders

are able to find a good balance with the risk sharing for both the IPPs and Government of Malawi."

When requested for input on the level of support provided by the Government of Malawi to IPPs, Respondent 1 noted that *"Yes, the Government of Malawi does provide support to IPPs; they are one of the more receptive governments in the region in creating an enabling environment for the advancement of IPPs. However, whilst there is a lot of goodwill from the government, there are some macro-economic issues that limit the possible advancement of IPPs; particularly, the limited availability of foreign exchange (FX)."*

Evidently, all the respondents confirmed that there was a high level of private sector participation in the two countries energy sector – with such private sector participation leading the roll out of renewable energy projects in Kenya and Malawi. This high level of private participation was also observed by the researcher as evidenced by the findings from the review of complimentary data observed in appendices 5 and 6.

4.2.3. Risk Faced by IPPs in Kenya and Malawi

The respondents that had experience in working with IPPs in Kenya consistently highlighted the following as being the main challenges they face as they work towards achieving financial close: the lack of policy certainty which may result in lengthy project development timelines; concerns on the availability of foreign exchange; and the instability of the national transmission network which creates concerns on the ease with which additional projects can be added going forward.

These concerns were particularly noted in responses from Respondents 4 and 5 who observed that:

"I would say the inconsistency of the project development and approval process – the timelines for approval from the different government agencies have been problematic as obtaining the much-needed approvals and permits at the same time and for a sufficient duration to obtain financing has been challenging. The lack of consistency over a number of years and having Feed-in-Tariffs that are supported by all stakeholders have made it difficult for projects to advance, though there have been some exceptions mainly for larger projects or projects that fall within a particular political window.

The second risk relates to land acquisition – more so in Kenya than other countries in the region due to the unique nature of Kenya's land ownership processes. The third risk relates to

underinvestment in the transmission network, which has resulted in an inability for the utility to maximize its income and may result in outages that can be problematic for both the offtaker and IPPs." (Respondent 4).

"The first and biggest risk in our view is the uncertainty in the political climate. Recently, there have been lots of questions around the PPA tariffs and a lack of understanding from politicians on how these tariffs are set, as well as unhelpful comparisons between IPPs and Kenya Electricity Generating Company (KenGen) around the cost of electricity. As a result, all that has happened in the last few years has set the sector back quite a lot – as a prospective investor, I would be looking for some assurance that the government is keen to have private sector participation and that there is some political will not to continuously reopen and seek to renegotiate signed contracts.

The other risks are not so Kenya-specific as they relate to climate change risks such as heavy rainfall and droughts that are happening with greater frequency and will continue to do so in the short to medium term. Other than this, we know that there have been FX liquidity issues in the last 12 months in Kenya but are generally comfortable that this will be adequately resolved going forward." (Respondent 5).

In Malawi, there was greater consensus with respondents unanimously noting that the limited availability of foreign exchange was the single biggest challenge affecting the advancement of IPPs and any other form of Foreign Direct Investment (FDI) in general; other risks were also observed albeit to a lesser degree in terms of their impact on financing success. This was noted in feedback from all the respondents that had worked in Malawi as noted in the following extracts from the interview transcripts:

"The first risk is the availability of Foreign Exchange (FX) with there simply not being enough FX in the country. IPPs need to explore what will be done in the event of FX shortages; this needs to be done during the early planning and development stage – introducing a major risk at an early stage. As an example, operational IPPs in Malawi are being paid in good time, but there isn't enough FX to facilitate conversion to hard currencies and repatriation of the funds, once converted, outside of the country.

The second risk in Malawi relates to the effects of climate change on weather patterns with parts of the country being affected by hurricanes and floods. A lot of project developers are only now starting to consider this risk as this is relatively new and would not have been a key consideration in the past e.g. high frequency of floods in areas where flooding was a "1 in 100 years event". The third risk relates to the country's national grid which is small and unstable; making it difficult to accommodate additional electricity generation projects." (Respondent 1)

"The access to USD to service offshore capital – both debt and equity – is missing from the market. Until this is solved it will remain the number one risk for future development. The second is that there are similar grid interconnections issues to other countries in the region such as Kenya and there are very few reliable generation assets providing consistent baseload power which makes it difficult to connect additional intermittent renewables such as solar and wind projects. This increases the need for large scale baseload projects such as the proposed 358 MW Mpatamanga Hydro Project which would make such IPPs, providing intermittent energy, possible.

The third one is related to the consistency of policy and tariffs, the switch from a single buyer entity, Electricity Supply Corporation of Malawi (ESCOM) to Power Markets Limited (PML)) and then the reversal of this – return of the single buyer mandate to ESCOM following the sudden dissolution of PML – as well as wider government reshuffles have created risks that you could be engaging personnel and teams that may change very quickly." (Respondent 4).

Respondent 5, a DFI, further added that "*Because of limited USD being available in Malawi, payment risk sits at the top for us as an international hard currency lender knowing that the country has very little FX reserves. The second risk relates to the lack of proper demonstration and track record that you can get from some operational IPPs. If anything, in Malawi this track record hasn't been positive as the very first set of IPPs are struggling to repatriate their earnings outside of the country which makes it quite discouraging for other investors to consider projects in the country.*

The other issue in Malawi is the weak transmission infrastructure or national grid. When one of the large hydros was not available, the power utility, ESCOM, had to make payments to the operational solar IPPs for Deemed Generated Energy, putting huge additional financial costs on ESCOM. With the change in hydrology patterns, there is need to consider alternative sources of baseload electricity."

Whilst other risks were noted as contributing factors, all the respondents highlighted the risk related to the availability of Foreign Exchange (FX) as being the most challenging to resolve for IPPs in Malawi. The next section explores which of these risks can be addressed via existing credit enhancement instruments and which gaps, if any, exist in the provision of such instruments to IPPs.

4.2.4. Factors that may Affect the Utilisation of Credit Enhancement Instruments

4.2.4.1. Availability of Credit Enhancement Instruments

All of the respondents confirmed that they have interacted with various credit enhancement instruments in Kenya and Malawi. The following extracts provide some insights on the type of instruments that are offered in the two countries:

"We've seen the use of Political Risk Insurance cover, which we as a private insurer can provide, and Partial Risk Guarantees (PRGs) in the Kenyan market with one out of every three projects we've supported in Kenya having had a PRG in place. Having said that, one form of indirect risk mitigation that we see quite often is the involvement in the projects of public agencies and DFIs on the debt side of the projects – in such instances, we would be looking to provide PRI cover for the equity alongside the public agency debt. The other form is the availability of debt servicing accounts that are typically required in such projects – though this is not a form of third-party credit enhancement instrument." (Respondent 6)

"Yes. The instruments interacted with in Kenya and Malawi covered the following risks: Expropriation; Foreign Exchange; and Delayed Payments from the offtaker." (Respondent 1)

4.2.4.2. Adequacy of Cover provided by Credit Enhancement Instruments

The respondents showed general comfort and content with the credit enhancement instruments available to IPPs in Kenya and Malawi. However, there was a split with some respondents highlighting that some further expansion in the scope of cover provided would be helpful whilst others were of the opinion that the available instruments were sufficient in ensuring that IPPs in Kenya and Malawi may achieve financial close.

The need to enhance the coverage was noted by Respondent 1 who observed that *"I think the existing instruments need to be expanded. For example, you have instruments that cover FX risk but may not adequately respond in instances where there is no FX in a country. In addition, you*

may find that these instruments were designed for a specific time when a market was structured in a particular way. Over a number of years as the electricity markets evolve, the available instruments need to evolve and expanded to address new risks that may not have been considered in the past."

In contrast, Respondent 3 observed that *"Yes, I think that the instruments available are sufficient as they address the concerns of IPPs. This is evidenced by the huge appetite from IPPs in ensuring that their projects benefit from such support."*

This contrast in opinion on the adequacy of cover provided by the available credit enhancement instrument was well captured in this response from Respondent 2:

"Yes, I would say that the instruments available to IPPs in the two countries do provide some level of comfort for the lenders and project sponsors who may be looking to equity finance projects. With governments being "more difficult" on how they guarantee or commit to obligations related to payments to IPPs, such third-party instruments which are designed to take the load off the government may not fully be helpful as the final point of call will always be the government given the relationships that DFIs and multilaterals have with them.

The is quite interesting as governments are now coming to terms with the reality that the IPP sector that they oversee may not necessarily be bankable. This coupled with a slow-down in economic growth and public expenditure across the African continent has forced host governments to review what their role should be in helping projects achieve bankability. To address the question directly, I would say that existing instruments are 60% sufficient relative to project needs, but this isn't a function of the providers lack of flexibility but instead a reflection of the challenging and nascent jurisdictions in which such products are being used."

4.2.4.3. Pricing of Credit Enhancement Instruments

Most of the respondents advised that they were quite comfortable with the pricing of the available instruments and that the current pricing was not necessarily a deterrent in the utilization of these products. Respondent 3 noted that whilst the upfront fees charged for such instruments may be acceptable for the IPPs, some available products introduce some hidden costs:

"For the instruments I've interacted with I find that the premium and pricing structure is okay – whenever we, as a government entity, have mentioned these products to IPPs, they had tremendous

interest to take up the option for such facilities. However, some instruments offered by multilateral institutions can have additional hidden costs – making them expensive – as they may require the government to provide a sovereign guarantee or counter indemnity. In my experience, I found that instruments which did not require similar counter guarantees beyond the payment of the annual premium were well priced."

Respondents 1 and 5 further noted that the nature of the entity providing the credit enhancement instrument may also have a bearing on the final pricing offered:

"I think they are adequately priced at the moment; this also depends on the market considerations as this may vary from country to country. However, there is a difference in the pricing offered by DFIs and the private sector – such as via the Lloyds insurance market – with the former being well priced whilst some private sector solutions can be expensive. Such high prices for credit enhancement instruments can further reduce the targeted Internal Rate of Return (IRR) for investors." (Respondent 1)

"I think that the products are well structured and well-priced. As the products are mainly provided by multilateral financial institutions which have a developmental mandate, we usually see more modest pricing compared to how commercial entities would price for similar cover. What we don't see enough of is whether lenders to IPPs are able to pass on some of the savings that may come from having de-risking instruments available to projects." (Respondent 5)

Respondent 4 had a slightly different view and noted that IPPs occasionally struggle to fully recover the costs of such credit enhancement instruments from their revenue during the project life time: *"Depends on the perspective… I think the challenge in these markets is that the pricing is unfortunately something that comes out of the pocket of the project sponsors as such products will usually be required by the lenders providing debt financing to IPPs. In most cases when such products are required, some of the project factors such as the PPA tariff have already been set or there is a cap on the economics of the project. You have a situation where you are working towards finalising your negotiations with the government and then having to add the cost of credit enhancement instruments or insurance which is usually a requirement of development finance institutions; this seems expensive and, in some cases, unnecessary but this is the nature of the infrastructure market in the region.*

The other challenge is that there is not always a great correlation between the risk and pricing e.g. the cost of obtaining such cover from a private insurer may be much higher than the cost of similar cover from multilaterals or US government backed guarantees; you then have to balance this with other considerations such as the timelines the private sector would take to make such cover available and timelines for due diligence relative to multilaterals which are usually much slower. In summary, I would say that the pricing is inconsistent, and the cost of obtaining a commercial instrument is expensive especially in instances where this can't be included in the project economics though there are cheaper alternatives – but this comes with other considerations from the various providers of such instruments."

4.2.4.4. Claims History

The respondents unanimously noted that they were not aware of any claim settlements made by the providers of credit enhancement instruments to IPPs in Kenya and Malawi. They further observed that a provider's history in making claim settlements to similar projects may not necessarily be a key consideration in whether they made use of the credit enhancement instruments offered:

"I am not aware of any instruments that have been called or paid out though I am aware of instances where projects have pursued arbitration with the offtakers and such arbitration (or similar engagements) resulting in an acceptable solution for the various parties. This [the claims history] is not a key consideration in whether an IPP will opt to use such instruments. Developers usually take some comfort that the providers of such instruments have sufficient liquidity to meet payment obligations that may arise under the insurance cover or guarantees." (Respondent 1)

In contrast, the leverage that organisations may have with the host governments – particularly multilaterals – in resolving any potential claims before the need to make final settlements was noted as a key consideration by Respondent 2:

"On the second point (the history of the organisation in settling claims), yes this is an important consideration for any project as we look to purchase insurance cover. If they don't pay claims you then need to understand why and if this is beneficial to the project – could this be as a result of the provider having a halo effect and helping resolve the potential claims?

However, I do not know of any actual examples where claims have been paid by the providers of credit enhancement instruments to IPPs. One possible example is for a project in Malawi where the IPP notified the provider of the possibility of making a claim under the policy; following this notification, the insurer – which happens to be a multilateral institution – was able to engage the host government to prioritise the provision of any available FX to the IPP to avoid having to pay out a claim under the policy for currency inconvertibility/ transfer restrictions."

4.2.5. Link Between Credit Enhancement Instruments and Financing of IPPs in Kenya and Malawi

When asked if they were of the view that IPPs in Kenya and Malawi could be successfully be financed – as reflected by such projects achieving financial close – without the use of credit enhancement instruments, the respondents observed that this would be difficult but possible for some projects in Kenya; in Malawi, the respondents were of the opinion that IPPs would not advance towards financial close without the use of a number of credit enhancement instruments.

"Our view is that the risks in Kenya can be addressed via structuring at the project development stage and restructuring of the contracts and financing agreements where challenges arise, without the need for credit enhancement instruments. In Malawi, for the foreseeable future, it's very difficult to foresee that projects can advance without a form of credit enhancement." (Respondent 5)

"It is my theory that it is possible for smaller projects, say 10MW or less, to reach financial close in Kenya without using credit enhancement instruments – some liquidity cover may be helpful but projects may advance without having such products in place. I don't think it would be possible to get larger projects done mainly because of the market precedence. For Malawi, I think it is not possible for projects to achieve financial close without the use of several credit enhancement instruments. This is due to a combination of market precedence; ESCOM's limited capacity to provide alternative options given the lack of precedence; and its limited track record in paying operational IPPs; the higher political risk; and FX concerns." (Respondent 4)

4.2.6. Recommendations by Respondents to Increase the Use of Credit Enhancement Instruments by IPPs in Kenya and Malawi

The respondents observed that some changes should be considered by the providers of credit enhancement instruments – possibly working alongside the Governments of Kenya and Malawi –

to increase the uptake of these products. A key theme across the recommendations made was the need for greater flexibility and innovation.

"My general comment is that we need to see how these instruments can be enhanced e.g. the instruments are quite broad and need to be tailored to country specific requirements – they shouldn't be blanket instruments across all countries; try and tweak them on a market to market basis depending on the key risks faced in a country" (Respondent 1); and

"The only comment is that the market has changed dramatically over the last few years. The outcome of similar research may vary depending on the country being considered as the markets may have evolved considerably compared to Kenya and Malawi, where the risk factors have remained relatively steady over the last few years. In summary, the products as they are designed in their current form work in part as once you have such instruments in place, there is a strong incentive for governments to meet their obligations though in practice the possibility of developers submitting a claim, the product provider settling the claim, and being able to recoup the funds will vary from one country to another." (Respondent 2).

Working for an organisation that provides such credit enhancement instruments, Respondent 6 called for access to information and greater transparency on the financial standing of offtakers as this would make it easier to consider and underwrite such transactions: *"One of the things that we see as a concern and limitation in our ability to provide cover relates to transparency on the financial performance of utilities – this is not especially a big concern for KPLC but for utilities in the region more generally. You usually don't have much visibility on how utilities make payments to IPPs and this means you are ultimately conducting your credit risk assessment on the basis of proxies which give an indication of creditworthiness without being able to really understand with full transparency what's happening at the utility. The question on how payments are being made by the utility, how this varies from project to project and over time would be very valuable.*

Our approach generally is to support the best projects in any given country as this can give us some degree of protection but then this can be difficult to achieve as we often find that without a guarantee from the Ministry of Finance it becomes difficult to offer insurance cover as you don't have sufficient visibility on the financial standing and performance of the utility; such greater transparency would help unlock additional investments."

A summary of the findings from the survey interviews is provided within Appendix 7; this followed a thematic content analysis of the interview transcripts.

4.2.7. Development of the Survey Instrument

The feedback from the respondents in the interviews was used to revise and update the survey instrument developed at the research proposal stage. The key themes observed following the thematic analysis were considered and questions adjusted to ensure that the survey could (i) confirm and build on the findings from the interviews; and (ii) allow for generalisation of the findings given the much higher number of participants in this second phase.

The survey instrument, which was administered via SurveyMonkey, had the following sections: Demographic information from the respondents; Respondents' perceptions of credit enhancement instruments; Success factors for the utilisation of credit enhancement instruments; and Respondents' view on whether IPPs in Kenya or Malawi could achieve financial close without the use of credit enhancement instruments. Five-point Likert Scales were used for most of the sections of the survey; the detailed survey questionnaire is attached as Appendix 4. The covering email shared with the respondents, inviting them to complete the survey, requested for their consent to take part in this research, and for the information collected via the survey to be stored for future data analysis. Completion of the survey was considered as consent.

4.3. Findings of the Quantitative Research

4.3.1. Questionnaire Response Rate

A total of 90 questionnaires were sent to targeted respondents; this was split between an initial pilot phase where 15 questionnaires were circulated, with the balance of 75 questionnaires shared thereafter. The second batch of questionnaires were shared once a few initial responses had been received to assess the responsiveness, average time taken, and to address any shortcomings from the survey questionnaire. A total of 70 responses were received via SurveyMonkey; of these, there were 8 incomplete responses which were deleted from the analysis. This yielded 62 duly completed questionnaires and an effective response rate of 69%.

The response rate was considered adequate for analysis and in line with the recommendations of Mugenda and Mugenda (2003) who observed that a response rate of 50% is adequate, and that a response rate greater than 70% is very good. The sample size was much higher than those used in

similar studies by Zunguze (2016) and Chowdhury et al. (2015), that had 36 and 51 completed responses, respectively, in similar quantitative studies. The questionnaire took the respondents an average of 12 minutes and 15 seconds to complete.

4.3.2. Participant Demographics

Before completing the survey, respondents were requested for information that would allow the researcher to identify their demographic characteristics. The key characteristics relevant in the context of this study were obtained and are noted in the sub-sections that follow. As the questionnaire was anonymous, no personal details were requested for. Similarly, details related to the age and gender of the respondents, not considered relevant in the context of this study, were not requested for.

4.3.2.1. Type of Organisation

Of the 62 respondents, 26% were Project Sponsors/ IPPs; the highest proportion of the respondents. The next two groups with the highest representation amongst the respondents were DFIs and Insurer/ Guarantors, who constituted 23% and 19% of the respondents, respectively. Advisors, comprising of legal, financial, technical, and insurance service providers accounted for 16% of the respondents with the balance split amongst the other groups as noted in figure 4.1.

Evidently, there was a good balance in the representation with four different stakeholder groups accounting for more 15% of the respondents and no single group accounting for higher than 26% of the respondents.

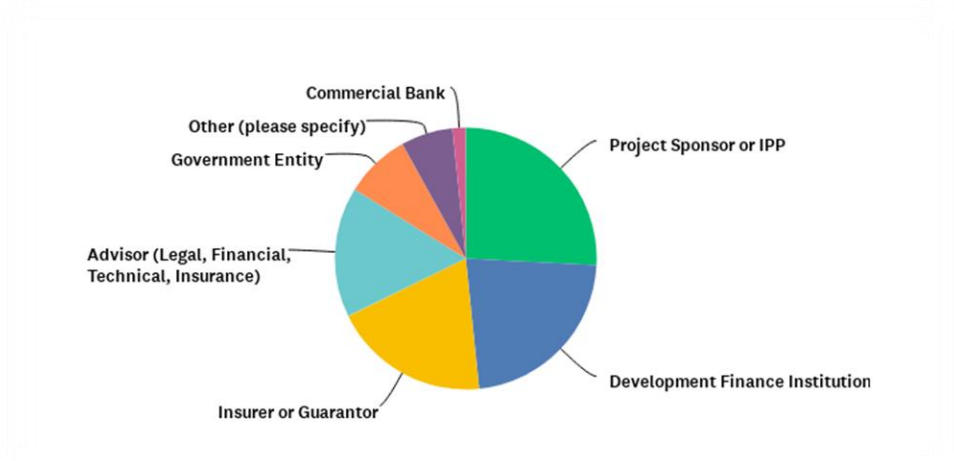

Figure 4. 1: Breakdown of the respondents based on the type of organisation they work for

4.3.2.2. Position in the Organisation

39% of the respondents serve in Senior Management, with those serving in Officer or Junior Management, and Executive Management accounting for the second and third highest representation at 27% and 23%, respectively. As shown in Figure 4.2 below, those that serve in Analyst or Associate roles accounted for the smallest group amongst the respondents at 11%.

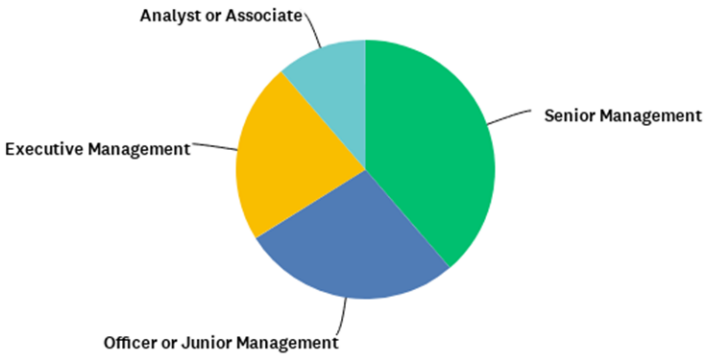

Figure 4. 2: Breakdown of the respondents based on their positions in the organization

4.3.2.3. Years of Industry Experience

The majority of the respondents – 82% – have more than 10 years' experience, with the next highest representation being those with industry experience of between 5 to 10 years, at 13%. Respondents with less than 5 years' experience accounted for 5% of the sample. Read alongside their respective positions in their organisations, refer to section 4.3.2.2, this shows that the respondents have tremendous and relevant experience in the field of study, making them ideal participants in this research topic.

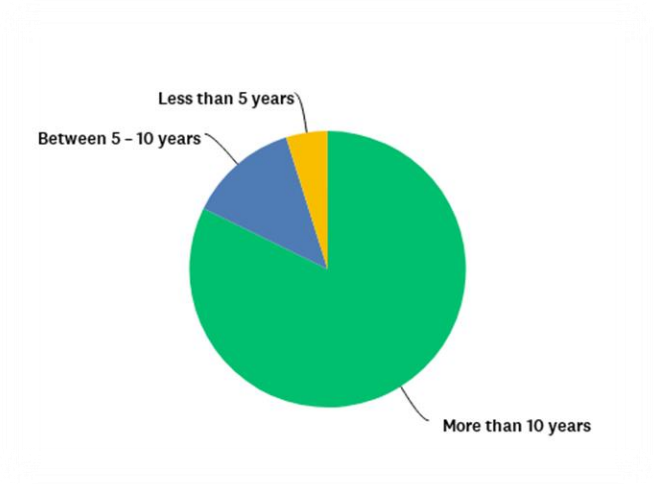

Figure 4. 3: Breakdown of the respondents based on their years of industry experience

4.3.2.4. Level of Education

76% of the respondents have post-graduate qualifications, with 21% and 3%, having Bachelor-s degrees and diplomas, respectively. This shows that the respondents have received higher education; with the majority of respondents having post-graduate qualifications. This indicates that respondents would have likely interacted with some form of research as part of their studies; ensuring a greater degree of reliability in understanding the survey questionnaire and in turn reducing the likelihood of errors and omissions that may affect the quality of the responses given.

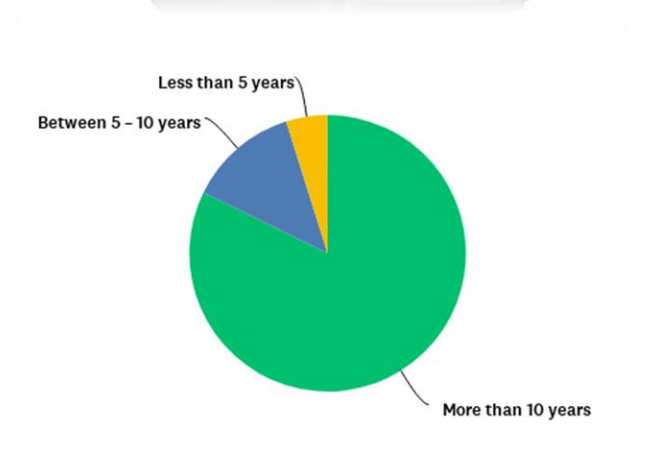

Figure 4. 4: Breakdown of the respondents based on their level of education

4.3.2.5. Experience in Kenya and Malawi

As the research topic focuses on IPPs in Kenya and Malawi, it was important that the majority of respondents have practical experience in working with IPPs in the two countries. This ensures that

the responses received are not "academic" but representative of practical and professional experiences of the various respondents. With 92% of the respondents having worked in either Kenya or Malawi – of which 47% have worked in both countries – the sample size provides a good representation of ideal respondents for this study.

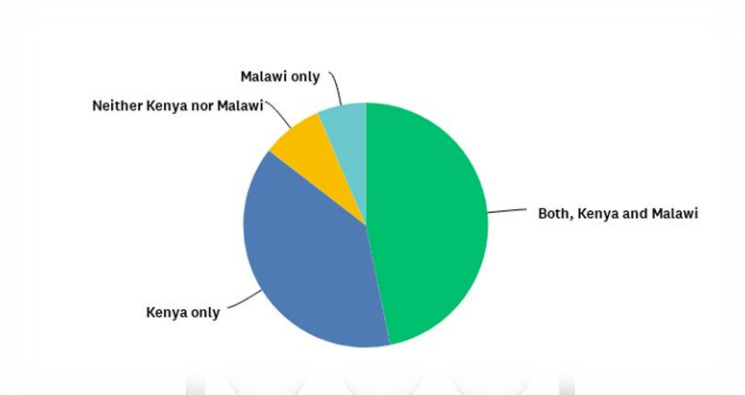

Figure 4. 5: Breakdown of the respondents based on their experience in Kenya and/ or Malawi

4.3.3. Descriptive Analysis

4.3.3.1. Respondents' Perceptions about the Effects of Credit Enhancement Instruments

In the first part of the survey, respondents were asked to indicate their level of agreement or disagreement with eight statements on credit enhancement instruments. The statements captured some of the perceptions about the impact that credit enhancement instruments may have on the financing of IPPs. The objective of this set of questions was to examine whether the perceptions held by the interviewees engaged in the first qualitative phase of the study could be generalised to the broader IPP stakeholder community.

A summary of the weighted average scores for each of the responses is given in Table 4.1 below:

Table 4. 1: Summary of Respondents perceptions on Credit Enhancement Instruments

Statement: "Credit Enhancement instruments…"	**Weighted Average**
Mitigate offtaker non-payment risks faced by IPPs	4.53
Enable expanded access to debt	4.44
Have a strong influence on the IPPs ability to achieve financial close	4.39
Serve as a form of security by protecting underlying loans from default	4.10
Attract new sources of financing for IPPs	4.08

Lower the cost of capital by reducing the interest rate charged by lenders	3.65
Facilitate favourable debt repayment by extending the maturity of debt	3.48
Lead to lower PPA tariffs	3.08

As Table 4.1 shows, respondents held positive attitudes towards each of the statements as measured using the Likert weighted average with all statements receiving scores above "3". Whilst positive attitudes were observed, there was some varying degrees of agreement with the statements "*Mitigate offtaker non-payment risks faced by IPPs"* and *"Enable expanded access to debt"* scoring the highest weighted averages of 4.53 and 4.44, respectively, indicating that respondents are of the view that credit enhancements have a strong bearing on these factors.

In evaluating whether *"Credit enhancement instruments have a strong influence on the IPPs ability to achieve financial close"*, respondents showed agreement with this statement with a score of 4.39, indicating that most respondents viewed credit enhancement instruments as being helpful in facilitating the financing of IPPs. Other statements that scored high weighted average scores above "4" were that credit enhancement instruments *"Serve as a form of security by protecting underlying loans from default"* and *"Attract new sources of financing for IPPs"*. These two observations are noteworthy as they show a positive correlation between IPPs having access to credit enhancement instruments and providing options to access financing from new financers (e.g. DFIs that are new to a particular market, commercial banks that may have little risk appetite for such infrastructure projects in the past, etc.) and for existing financiers to use such credit enhancement as security, potentially replacing other more expensive alternatives such as cash collateral, and extensive Debt Service Reserve Accounts.

A statement that generated split responses from the respondents is the impact that credit enhancement instruments may have in *"leading to lower PPA tariffs"* with splits of 32%, 29%, and 39% percent, respectively, between those that disagreed, were neutral, and agreed. This shows that some stakeholders view such instruments as having a material impact in the total financing costs and in turn the tariffs to be agreed in the PPAs entered into between IPPs and state-owned utilities whilst others are of the view that such an impact, if any, as being minimal. Read alongside the statement on *"Lower the cost of capital by reducing the interest rate charged by lenders"* which scored 3.65 on the Likert Scale, this shows some of the limitations of credit enhancement instruments in lowering the financing costs and allowing for cheaper electricity to be procured

from IPPs; implying that credit enhancement instruments may be required to make financing possible, but where such financing is available, such instruments may not necessarily have an impact on the final cost of financing and in turn the tariffs to be agreed. This – the tariffs – being the most common way in which the competitiveness of IPPs is measured.

All in all, the first part of the survey showed that respondents held positive attitudes towards credit enhancement instruments and the impact of such instruments in enabling the financing of IPPs, setting the tone for the rest of the survey that drilled down into the various factors that may affect whether such credit enhancement instruments are used by IPPs; this next section being more closely aligned with the specific objectives of the study.

4.3.3.2. Factors Influencing the use of Credit Enhancement Instruments

4.3.3.2.1. Availability of Credit Enhancement Instruments

95% of respondents had a positive response to the question *"Have you interacted with any of the credit enhancement instruments available to IPPs in Kenya and/ or Malawi?"*, indicating that the majority of respondents had some experience and familiarity with the credit enhancement instruments available to IPPs in the two countries. This high response rate also confirms that credit enhancement instruments are available to IPPs in Kenya and Malawi.

Respondents had the following perceptions on other factors associated with the availability of credit enhancement instruments:

Table 4. 2: Respondents' rating of the criticality of factors related to the availability of credit enhancement instruments

	Weighted Average
The credit rating of the provider of the credit enhancement instruments	4.27
The providers of credit enhancement instruments being flexible with their pricing, underwriting processes, policy wording, etc.	4.05
The nature of the organization providing the credit enhancement instrument i.e. are they a multilateral, host government, commercial bank, do they benefit from a preferred creditor status, etc.	3.92
The IPP having a variety of credit enhancement instruments to choose from	3.16

With weighted average scores all above 3, positive attitudes were observed from the respondents for each of the statements related to the availability of credit enhancement instruments. *"The credit*

rating of the provider of the credit enhancement instruments" had the highest weighted average score indicating that this was a key factor as IPPs assessed they type of instruments available to them in Kenya and Malawi. With high credit requirements such as the need for a minimal rating of "A" from one of the reputable rating agencies, particularly required by lenders and financiers to IPPs for various reasons including potential capital relief courtesy of insurance/ guarantees purchased from such institutions. This requirement excludes the possibility for such instruments being provided by local financial institutions as their credit ratings will be capped at the rating of the sovereign. With neither Kenya nor Malawi having investment grade credit ratings issued by international credit rating agencies, credit enhancement instruments likely to be used by IPPs in the two countries need to be purchased from non-African institutions, multilateral financial institutions, or guarantors backed by highly rated governments in developed countries.

A high weighted average score of 4.05 was also observed for *"The providers of credit enhancement instruments being flexible with their pricing, underwriting processes, policy wording, etc."* indicating that IPPs preferred to purchase credit enhancement instruments that allowed for some degree of consideration and customization i.e. such instruments should not simply be purchased off the shelf and offered to prospective beneficiaries. This observation is consistent with the fact that IPPs are project financed transactions which are subject of complex contractual structures, involving multiple stakeholders all of whom may need to have visibility on the instruments made available as well as how any rights on available security, subrogation and recovery rights are addressed.

With a weighted average score of 3.16, *"The IPP having a variety of credit enhancement instruments to choose from"* was not considered as being as critical a factor relative to the other three statements, that may affect the likely utilisation of credit enhancement instruments in the two countries. This shows that having a handful of effectively structured credit enhancement instruments would likely be sufficient to enable projects achieve financial close.

4.3.3.2.2. Pricing of Credit Enhancement Instruments

Table 4. 3: Respondents' rating of the criticality of factors related to the Pricing of Credit Enhancement Instruments

	Weighted Average
The pricing of the available credit enhancement instruments	4.06
The ability to fully recover the cost of the premium paid through the PPA tariff	3.90
Transparency on the pricing methodology of the provider of the credit enhancement instrument	3.48
The availability of payment plans to settle the premium payable e.g. payable quarterly or annually for the duration of the PPA	3.21

"The pricing of the available credit enhancement instruments" was considered the most critical amongst the statements on pricing with a weighted average score of 4.06, showing that IPPs had some degree of sensitivity towards the cost to be paid to access credit enhancement instruments; this was consistent with the findings from the interviews conducted during the qualitative phase. *"The ability to fully recover the cost of the premium paid through the PPA tariff"* scored 3.90 – the second highest of the four statements showing that credit enhancement instruments would likely be used where IPPs believe that such instruments will not create an additional financial burden on the project. This is consistent with observations from the qualitative phase where it was observed that project sponsors viewed credit enhancement instruments as expensive in instances where PPA tariffs had already been agreed by the parties, and there was no direct route to recover such additional costs – with the only option being to have this knocked off from the IPPs expected rate of return.

Though positive attitudes were observed towards *"Transparency on the pricing methodology of the provider of the credit enhancement instrument"* and *"The availability of payment plans to settle the premium payable e.g. payable quarterly or annually for the duration of the PPA"*, these were not considered as being as critical by respondents, with weighted average scores under 3.50.

4.3.3.2.3. Adequacy of Cover provided by Credit Enhancement Instruments

In response to the question *"In your opinion, do the existing credit enhancement instruments available in Kenya and Malawi effectively address the risks faced by IPPs in the two countries?"*,

there was a nearly an even split from respondents. 56% of respondents were of the opinion that the instruments did not address the concerns of IPPs, with 44% responding positively to the question.

Table 4. 4: Respondents' rating of the criticality of factors related to the Adequacy of Cover provided by Credit Enhancement Instruments

	Weighted Average
The type of risks covered by the credit enhancement instrument i.e. non-payment, political, climate or other risks	4.56
The duration of cover (i.e. number of years)	4.18
Approval of the IPPs' lenders that the credit enhancement instrument is useful	4.15
The attractiveness of the credit enhancement instrument to non-traditional financiers of IPPs e.g. local commercial banks and pension funds	3.31

"The type of risks covered by the credit enhancement instrument i.e. non-payment, political, climate or other risks" scored the highest weighted average score with 4.56, showing that IPPs would likely purchase or obtain credit enhancement instruments to address particular risks such as non-payment or termination of the agreements. *"The duration of cover (i.e. number of years)"* and *"Approval of the IPPs' lenders that the credit enhancement instrument is useful"* scored nearly identical scores of 4.18 and 4.15, respectively, showing that IPPs would want to have credit enhancement instruments in place for as long as possible (to likely match the long tenors of PPAs that typically are entered into for durations of 20 to 25 years), and that the sign-off of lenders to IPPs – who would usually provide 70 to 80% of the financing requirements of such IPPs via project finance structures – was important.

"The attractiveness of the credit enhancement instrument to non-traditional financiers of IPPs e.g. local commercial banks and pension funds" had the lowest score of 3.31 which likely points towards the limited involvement of such financiers in supporting infrastructure projects and the possibility that existing pools of funding, particularly from DFIs, may be sufficient for IPPs in instances where acceptable credit enhancement instruments are available to compliment such financing.

4.3.3.2.4. Claims History

The majority of respondents, 82%, are not aware of any claims that have been settled by the providers of credit enhancement instruments to IPPs in Kenya and Malawi. Whilst consistent with observations from the initial qualitative phase, that 18% of respondents are aware of some claim payments following defaults by host governments and offtakers to IPPs in the two countries points towards some history of claim settlements that may not have been publicised by the parties involved; possibly owing to the confidentiality of agreements entered into with host governments and public utilities.

In respect of wider considerations related to claims history, the observations of the respondents are noted in the following table:

Table 4. 5: Respondents' rating of the criticality of factors related to the Claims History of the providers of Credit Enhancement Instruments

	Weighted Average
The possibility of a cross default within the country that would trigger a greater sense of urgency for the host government to resolve the default	4.06
Likelihood of a recovery following a claim payment and reinstatement of the credit enhancement instrument without the need for a new application	3.98
The track record of the provider of credit enhancement instruments in paying claims i.e. their Claims History	3.97
The simplicity of the claims process (limited paperwork, clear timelines for claim payment, etc.)	3.68

Respondents agreed with the statement that *"The possibility of a cross default within the country that would trigger a greater sense of urgency for the host government to resolve the default"* was a critical factor in the likelihood of obtaining credit enhancement instruments from a particular entity. This observation, which scored the highest weighted average score of 4.06 was consistent with the findings from the qualitative phase and similar research reviewed by the researcher.

The *"Likelihood of a recovery following a claim payment and reinstatement of the credit enhancement instrument without the need for a new application"* and *"The track record of the provider of credit enhancement instruments in paying claims i.e. their Claims History"* scored nearly identical scores of 3.98 and 3.97, respectively. The track record of insurers and guarantors in settling claims, provides comfort that claims will be met and that the provider has both the

willingness and financial capacity to meet such claim payments when due. The likelihood of credit enhancement instruments being reinstated points towards a preference by various stakeholders for such facilities to automatically revolve – this would provide comfort that credit enhancement will remain available following any initial calls or claim settlements compared to the common practice where such instruments are seen as being catastrophic in nature and only responding in the worst-case scenarios when all other remedies available to the IPP have been exhausted.

A positive attitude was also observed towards the statement *"The simplicity of the claims process (limited paperwork, clear timelines for claim payment, etc.)"* which had a weighted average score of 3.68.

4.3.3.3. Relationship between the Financing of IPPs and the use of Credit Enhancement Instruments

To close out the survey, respondents were asked if in their opinion *"IPPs in Kenya and Malawi can achieve financial close without the use of any credit enhancement instruments?"*. The feedback received is noted in the table below:

Table 4. 6: Respondents' perception on whether IPPs in Kenya and Malawi can achieve Financial Close Without using Credit Enhancement Instruments

	Weighted Average
IPPs in Kenya can achieve financial close without using any credit enhancement instruments	2.90
IPPs in Malawi can achieve financial close without using any credit enhancement instruments	1.76

Respondents showed a strong disagreement with the two statements with scores of 2.90 and 1.76 obtained in Kenya and Malawi, respectively. This is consistent with the outcome from the first qualitative phase where some respondents were of the view that smaller projects, with an installed electricity generation capacity under 10MW, may be able to advance in Kenya with the limited use of credit enhancement instruments. The very low weighted average score of 1.76 in Malawi is a strong indication of various stakeholders' perception of the elevated risks faced by IPPs in the country – particularly the challenges related to the availability of foreign exchange.

That the weighted average scores in both countries were lower than 3 is an indication that respondents view the use of credit enhancement instruments as being very important for IPPs

looking to advance their projects and obtain financing in either country. This statement, whether IPPs in Kenya and Malawi can achieve financial close without the use of any credit enhancement instruments, was the dependent variable for the purpose of the inferential analysis.

4.3.4. Correlation Matrix

The study employed the use of Karl Pearson's coefficient of correlation (r) and probability value (p – value) analysis in examining the correlation between each of the independent variables and the dependent variable as suggested by Cavallo (2020). The findings in Table 4.7 below point towards the existence of a potent significant correlation between the independent variables and the dependent variable with the results showing that there exists significant correlation between the financing of IPPs and the following: Availability of credit enhancement instruments ($r = 0.299$; $p = 0.018$); and the Adequacy of Cover ($r = 0.386$; $p = 0.002$).

An insignificant negative correlation was observed for the Claims History ($r = -0.036$; $p = 0.779$); similarly, an insignificant positive correlation between the dependent variable and the pricing of credit enhancement instruments ($r = 0.125$; $p = 0.334$).

Table 4. 7: Correlation Matrix

		Availability	Pricing	Adequacy of the Cover	Claims History	Financing of IPPs
Availability	Pearson Correlation	1				
	Sig. (2-tailed)					
Pricing	Pearson Correlation	.433**	1			
	Sig. (2-tailed)	0.000				
Adequacy of the Cover	Pearson Correlation	.646**	.502**	1		
	Sig. (2-tailed)	0.000	0.000			
Claims History	Pearson Correlation	-0.239	-.255*	-0.239	1	
	Sig. (2-tailed)	0.062	0.045	0.061		
Financing of IPPs	Pearson Correlation	**.299***	**0.125**	**.386****	**-0.036**	1
	Sig. (2-tailed)	**0.018**	**0.334**	**0.002**	**0.779**	

**. Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed)*

4.3.5. Diagnostic Analysis

4.3.5.1. Validity and Reliability of the Survey Questionnaire

The research instrument – the survey questionnaire – was tested for validity and reliability. The validity of the instrument pertains to how accurately the research measures what it is intended to measure and the veracity of the research results (Field, 2005). To assess if the research instrument's content aligns with the study's conceptual framework, content validity check, face validity, and internal validity tests were conducted.

The survey was shared with five participants familiar with the research proposal who shared their feedback. Questions that were deemed as being vague or ambiguous were removed to ensure that the survey was easy to follow for respondents. The changes were also made to consider adjustments recommended by the researcher's supervisor.

The reliability of the instrument was assessed by applying the Cronbach alpha test. The value of Cronbach's alpha for the collected survey data is 0.756. This is greater than the conventional acceptable range of values for alpha of between 0.6 and 0.8; indicating that the questionnaire for this study is reliable and internally consistent (Pallant, 2020).

4.3.5.2. Multicollinearity Test

The multicollinearity test has shown that there was no correlation with the independent variables as the VIF values for each of the variables were within the range of 1 to 2.1; showing that there is no multicollinearity between the variables.

4.3.5.3. Heteroskedasticity Test

When the variance of the errors varies across the observations, heteroscedasticity is said to have occurred. This study used Breusch-Pagan to test for Heteroscedasticity. The findings obtained are presented in Table 4.8 below:

Table 4. 8: Breusch-Pagan Test for Heteroskedasticity

Chi-Square	df	Sig.
0.165	1	0.684

The above table shows that there is no problem of Heteroskedasticity as the significance is greater than 0.05.

4.3.5.4. Normality Test

The Shapiro-Wilk Test, which is considered appropriate for small sample sizes (<50) but can also handle sample sizes as large as 2,000, was considered for assessing normality. If the Sig. value of the Shapiro-Wilk Test is greater than 0.05, the data is considered normal; should the Sig. value be less than 0.05, the data significantly deviates from a normal distribution.

Table 4. 9: Shapiro-Wilk Test of Normality

	Statistic	df	Sig.
Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?	0.874	62	0.122

The above table shows that the data follows a normal distribution.

In order to determine normality graphically, we can use the output of a normal Q-Q Plot; if the data are normally distributed, the data points will be close to the diagonal line – this is the case for the data collected as noted in Figure 4.6 below, where each of the four independent variables lies close to the diagonal line:

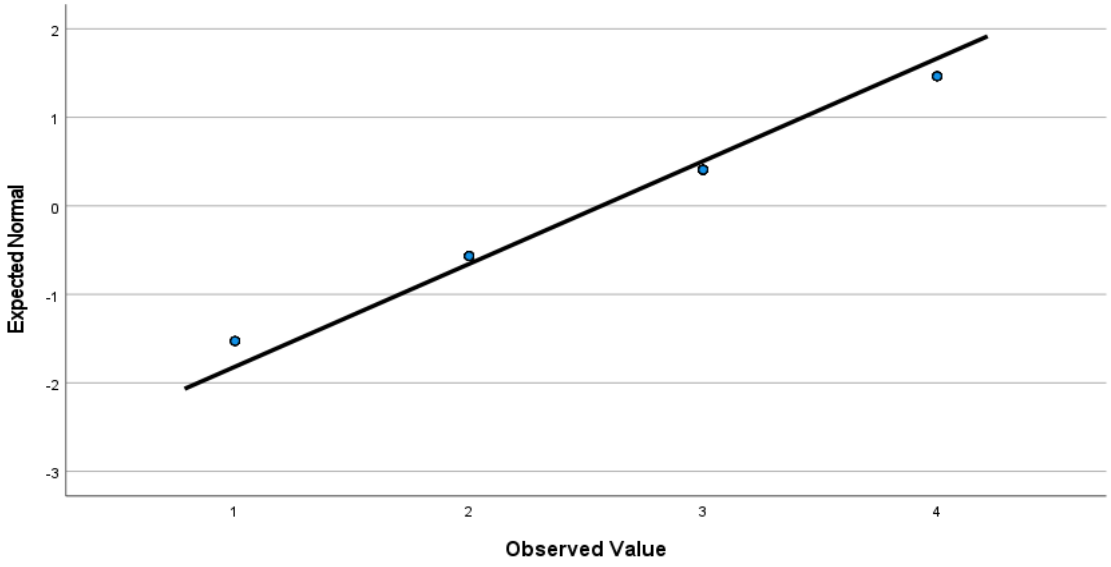

Figure 4. 6: Graphic Representation of the Normality Test

4.3.6. Inferential Analysis

Building on the Descriptive Analysis in section 4.3.3, inferential analysis was conducted to draw wider conclusions and allow for greater predictions based on the outcome of the quantitative study. The methods of analysis used were the test of association using the Chi-square, and regression analysis.

4.3.6.1. Chi Square

The Chi-square test of independence (also referred to as the Pearson Chi-square test) is one of the most useful statistics for testing hypotheses when variables are nominal. The test measures the relationship between two categorical variables. The Chi-square test was done to measure the degree of independence between the perceptions of respondents towards credit enhancement instruments, each of the independent variables, and the dependent variable.

The results in Table 4.10 below show that the following perceptions had a strong association with the use of credit enhancement instruments by IPPs in Kenya and Malawi to achieve financial close: that credit enhancement instruments enable expanded access to debt; attract new sources of financing for IPPs; mitigate off taker non-payments risks faced by IPPs; lead to lower PPA tariffs; and that such instruments have a strong influence on the IPPs' ability to achieve financial close.

Table 4. 10: Association between the perceptions of respondents towards credit enhancement instruments and the use of Credit Enhancement Instruments by IPPs in Kenya and Malawi to achieve Financial Close

	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?
Credit Enhancement Instrument enable expanded access to debt	χ^2 = 17.594, df = 9, p = **0.040***
Credit Enhancement Instrument attract new sources of financing for IPPs	χ^2 = 22.922, df = 12, p = **0.028***
Credit Enhancement Instruments mitigate off taker non-payments risks faced by IPPs	χ^2= 17.593, df = 9, p = **0.036***
Credit Enhancement Instruments serve as a form of security by protecting underlying loans from default	χ^2= 14.292, df = 12, p = 0.282
Credit Enhancement Instruments lower the cost of capital by reducing the interest rate charged by lenders	χ^2= 17.612, df =12, p = 0.128
Credit Enhancement Instruments facilitate favourable debt repayment by extending the maturity of debt	χ^2= 11.475, df =12, p = 0.489
Credit Enhancement Instruments lead to lower PPA tariffs	χ^2= 21.644, df =12, p = **0.042***
Credit Enhancement Instruments have a strong influence on the IPPs' ability to achieve financial close	χ^2= 27.734, df = 9, p = **0.001****

*Note: **, *** indicates significance at the 95%, and 99% level, respectively*
Source: Survey Data (2024)

When similar tests of association were done for each of the independent variables, significant association was observed for attributes related to the Adequacy of Cover, where strong correlation was noted for "The type of risks covered by the credit enhancement instrument i.e. non-payment, political, climate or other risks" and "Approval of the IPPs' lenders that the credit enhancement instrument is useful".

Table 4. 11: Association between the statements related to Adequacy of the Cover Provided by Credit Enhancement Instruments and the use of Credit Enhancement Instruments by IPPs in Kenya and Malawi to achieve Financial Close

	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?
The type of risks covered by the credit enhancement instrument i.e. non-payment, political, climate or other risks	χ^2= 12.866, df = 6, p = **0.045***
The duration of cover (i.e. number of years)	χ^2= 11.126, df = 9, p = 0.267
Approval of the IPPs' lenders that the credit enhancement instrument is useful	χ^2= 37.704, df =12, p = **0.002****
The attractiveness of the credit enhancement instrument to non-traditional financiers of IPPs e.g. local commercial banks and pension funds	χ^2= 9.928, df = 12, p = 0.622

*Note: **, *** indicates significance at the 95%, and 99% level, respectively*
Source: Survey Data (2024)

There was no significant association observed with the other specific objectives following the Chi-Square test, as none of the statements associated with these independent variables had $p < 0.05$. The detailed analysis for each of the independent variables is provided in Appendix 8.

4.3.6.2. Linear Regression

Mishra and Min (2010) explain that regression analysis is widely used in social sciences to predict the dependent variable from the known value of the independent variable(s). This approach was applied in the study to identify the relationship between credit enhancement instruments and the financing of IPPs in Kenya and Malawi.

4.3.6.2.1. Regression Analysis – Respondents' Perceptions towards Credit Enhancement Instruments

Table 4.12 shows the regression results for the perceptions of respondents towards credit enhancement instruments. The analysis shows that the perceptions of respondents ($F = 6.091$; $p <$

0.05) significantly drive the use of credit enhancement instruments by IPPs in Kenya and Malawi. The variation in the dependent variable can be accounted for by 9.2%.

Table 4. 12: Regression Analysis – Respondents' Perceptions towards Credit Enhancement Instruments

Attribute	Regression Results
Constant	1.541 (0.775)
Respondents' Perceptions towards Credit Enhancement Instruments	0.478** (0.194)
F (Model)	6.091**
R squared	0.092
No. Observations	62

*Note: Standard errors are reported in parentheses. ** indicates significance at the 95%,*
Source: Survey Data (2024)

4.3.6.2.2. Regression Analysis – Availability of Credit Enhancement Instruments

The analysis of the first independent variable, the Availability of Credit Enhancement Instruments to IPPs, shows that this significantly drives the dependent variable ($F = 5.889$; $p < 0.05$). The variation in the use of credit enhancement by IPPs in Kenya and Malawi to achieve financial close can be accounted for by 8.9% as noted in Table 4.13 below.

Table 4. 13: Regression Analysis – Availability of Credit Enhancement Instruments

Attribute	Regression Results
Constant	1.662 (0.738)
Availability of Credit Enhancement Instruments	0.461** (0.190)
F (Model)	5.889**
R squared	0.089
No. Observations	62

*Note: Standard errors are reported in parentheses. ** indicates significance at the 95%,*
Source: Survey Data (2024)

4.3.6.2.3. Regression Analysis – Pricing of Credit Enhancement Instruments

The factors related to the pricing of credit enhancement instruments insignificantly drove the use of credit enhancement instruments by IPPs in Kenya and Malawi as evidenced in Table 4.14 below ($F = 0.948$; $p > 0.05$). The variation in the use of credit enhancement by IPPs in Kenya and Malawi to achieve financial close, as a result of factors related to pricing, can be accounted for by 1.6%.

Table 4. 14: Regression Analysis – Pricing of Credit Enhancement Instruments

Attribute	Regression Results
Constant	2.867 (0.594)
Pricing of Credit Enhancement Instruments	0.115 (0.159)
F (Model)	0.948
R squared	0.016
No. Observations	62

Source: Survey Data (2024)

4.3.6.2.4. Regression Analysis – Adequacy of the Cover provided by Credit Enhancement Instruments

The regression analysis has shown that the adequacy of cover provided by credit enhancement instruments significantly drives the dependent variable, the use of credit enhancement instruments by IPPs in Kenya and Malawi ($F = 10.532$; $p < 0.01$). The variation in the use of credit enhancement instruments by IPPs in the two countries can be accounted for by 14.9% as observed in Table 4.15 below.

Table 4. 15: Regression Analysis - Adequacy of the Cover provided by Credit Enhancement Instruments

Attribute	Regression Results
Constant	1.020 (0.751)
Adequacy of the Cover provided by Credit Enhancement Instruments	0.596*** (0.184)
F (Model)	10.532***
R squared	0.149
No. Observations	62

*Note: Standard errors are reported in parentheses. *** indicates significance at the 99%,*
Source: Survey Data (2024)

4.3.6.2.5. Regression Analysis – Claims History

The Claims History of the providers of credit enhancement instruments does not significantly drive the dependent variable ($F = 0.948$; $p > 0.05$). The variation in IPPs in Kenya and Malawi achieving financial close can be accounted for by 1%.

Table 4. 16: Regression Analysis – Claims History

Attribute	Regression Results
Constant	3.526 (0.340)
Claims History	-0.030 (0.105)
F (Model)	0.080
R squared	0.001
No. Observations	62

Source: Survey Data (2024)

4.3.7. Triangulation of Qualitative and Quantitative Results

Based on the findings from the qualitative and quantitative studies presented within this chapter, there was some consistency on the positive attitudes of respondents towards the impact that credit enhancement instruments have on the financing of IPPs. Respondents across the two phases of the study were of the view that such financing would not be possible in Kenya and Malawi without the application of credit enhancement instruments to address various risks.

Regarding the factors that may influence the likely use of such credit enhancement instruments by IPPs, being the specific objectives of the study, similar consensus was achieved as noted in the table below.

Table 4. 17: Triangulation of the Qualitative and Quantitative Results

Factors that may Affect the Utilisation of Credit Enhancement Instruments	**Qualitative Findings**	**Quantitative Findings**	**Level of consistency between Qualitative and Quantitative Data Results**
Availability of Credit Enhancement Instruments	Significant	Significant	Consistent
Pricing of Credit Enhancement Instruments	Insignificant	Insignificant	Consistent
Adequacy of Cover provided by Credit Enhancement Instruments	Significant	Significant	Consistent
Claims History	Insignificant	Insignificant	Consistent

4.4. Summary

This chapter has presented the study's findings and results using tables, charts, and the researcher's interpretations where possible. Diagnostic tests have been presented as well as the Descriptive and

Inferential Analysis following input from respondents across the qualitative and quantitative phases of the study. The findings of the qualitative and quantitative studies have largely been consistent and allow for generalization.

CHAPTER FIVE: SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The main objective of this study was to examine the effect of credit enhancement instruments in the financing of renewable energy IPPs in Kenya and Malawi; with a particular focus on the following specific objectives: the availability and pricing of credit enhancement instruments; the adequacy of cover provided by such instruments; and the influence – if any – of the claims history of the providers of credit enhancement instruments. Aligned with these objectives, this chapter reviews the results of the study, draws conclusions, and proposes potential areas for further research. Wherever possible, the chapter compares the findings with extant literature, to validate the significance of the outcomes.

5.2. Summary of the Main Findings

The study has found that credit enhancement instruments are critical for IPPs in Kenya and Malawi looking to obtain financing for their projects and achieve financial close. Such instruments available to IPPs in the two countries are provided by the private sector, multilateral financial institutions, and government-backed guarantors. Without having such credit enhancement instruments in place – which will address different risks depending on the profile of the underwriter and requirements of the IPP and its lenders – projects in Kenya and Malawi are unlikely to succeed.

Amongst the factors that may have an effect on whether such credit enhancements are utilised, the availability of instruments from relevant and well rated financial institutions; as well as the adequacy of cover provided are considered the most influential per the findings of this study. Other factors studied as part of the research – being the pricing of such credit enhancement instruments and the claims history – were not considered as being critical in the likely utilisation of credit enhancement instruments by IPPs in Kenya and Malawi. The findings converge with reviewed literature; leading to the conclusion that whilst the use of credit enhancement instruments is influential for the successful financing of climate friendly infrastructure, such as renewable energy projects, various factors have differing degrees of influence.

The study has unveiled possible areas of improvement in the provision of such credit enhancement instruments in Kenya and Malawi; with such recommendations being applicable across the sub-Saharan Africa region, other emerging markets, and climate finance in general.

5.3. Findings Related to the Specific Objectives

In respect of each of the specific objectives of the study, the research has shown the following:

5.3.1. Effect of the availability of credit enhancement instruments on the use of such instruments in the financing of IPPs in Kenya and Malawi

The study has found that the use of credit enhancement instruments by IPPs in Kenya and Malawi is influential in the likelihood of renewable energy projects achieving financial close. This is evidenced by the consistent views shared by respondents during the interviews; the positive attitudes held by respondents regarding the impact that such credit enhancement instruments may have on the successful financing of projects; as well as the strong association and correlation observed following the inferential analysis.

This finding is consistent with the outcomes of similar studies by Amolo et al. (2020) and Duma et al. (2023) whose research showed that credit enhancement instruments were necessary for IPPs in Kenya and Malawi to achieve financial close at competitive terms.

The researcher observed that there was some variation in how stakeholders viewed the influence of credit enhancement instruments in facilitating the financing of IPPs in the two countries, with IPPs in Kenya having the option to potentially achieve financial close without such additional support. A research finding that was consistent with initial observations during the interviews. The credit enhancement instruments available to IPPs in the two countries include partial risk guarantees from multilateral financial institutions, short-term liquidity guarantees, and political risk insurance offered by multilaterals and private insurers.

5.3.2. Effect of pricing on the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi

The study has shown that respondents are of the view that IPPs can be sensitive to the pricing of credit enhancement as they see the fees paid for such instruments – if utilised – as having a negative impact on the project owner's expected rate of return. However, given that credit enhancement instruments are seen as being key by lenders who provide most of the financing required for IPPs,

the reservations of some investors are offset by the need to ensure that the cover and benefits provided by credit enhancement instruments are in place. As a result, whilst variations in pricing were observed, this had no significant effect on the likelihood of credit enhancement instruments being used as observed by responses received during the qualitative analysis; along with the lack of any significant association or correlation between pricing and the dependent variable following the inferential analysis.

The reservations of project sponsors on the pricing of credit enhancement instruments – particularly those provided by private insurers and/ or guarantors is consistent with similar research findings of the IISD (2023) who observed that some stakeholders were of the opinion that such products can be costly for IPPs. Given the limited literature on this specific objective, that pricing in itself has a limited impact on whether IPPs in Kenya and Malawi utilise credit enhancement instruments, is a contribution towards existing research gaps.

5.3.3. The effect of the adequacy of cover on the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi

The study has shown that existing credit enhancement instruments that are available to IPPs in the two countries are considered adequate by stakeholders as they effectively address risks faced by IPPs. This is particularly the case for political and non-payment risks faced by the IPPs.

The study has also shown that there has been some recent evolution with the risks being faced by IPPs in Kenya and Malawi, as risks that were not factored into project development in the past such as those related to extensive changes in weather patterns evidenced by increased flooding that has damaged equipment in some countries as well as the limited availability of foreign exchange (particularly in Malawi). This presents an opportunity for further product development by insurers and guarantors as the frequency of financial losses likely to be faced by IPPs from such climate risks is expected to increase going forward.

Respondents have consistently advised that whether the available credit enhancement instrument are seen as effectively addressing the risks faced is a key consideration in the utilisation of such instruments. A research finding that shows that this is a material factor in the utilisation of credit enhancement instruments by IPPs. This is consistent with observations from Omoju (2020) who noted that existing credit enhancement instruments were adequate and beneficial whilst noting a

need for policy makers to create an enabling environment and appropriate regulatory and institutional framework that would complement such instruments.

5.3.4. The effect of the claims history on the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi

The study has found that very few claims have been paid out following defaults by the contracting entities or Governments of Kenya and Malawi. Where such claims have been made, there is limited information available in public. This low default rate faced by IPPs is consistent with the research findings of Gratwick (2007) and publications of Mathiasen and Aboneaaj (2023) on the claims history of institutions such as MIGA that provide guarantees to IPPs.

In addition, the study findings have shown that this history of claim payments by the providers of credit enhancement instruments in Kenya and Malawi is not a key consideration in whether such instruments will be utilised by IPPs. This – the lack of any significant association or correlation between the claims history and the use of credit enhancement instruments – was consistently noted throughout the two phases of the study.

5.4. Findings related to the Theories

5.4.1. Market Failure Theory

The Market Failure Theory explains the necessity of credit enhancement instruments as solutions to market inefficiencies, such as high political and financial risks, which hinder renewable energy IPPs from having access to financing and achieving financial close. Findings related to the availability of credit enhancement instruments align with this theory, showing that these tools address specific risks – such as political instability and payment defaults – critical to mobilizing investments in Kenya and Malawi. However, the theory falls short in addressing the varying perspectives observed among stakeholders, particularly the possibility of smaller projects in Kenya reaching financial close without such instruments. This highlights the need for a more nuanced application of the theory to account for market-specific dynamics and evolving risks, such as climate-induced losses and foreign exchange shortages, which demand continuous innovation in credit enhancement instruments available in the market.

5.4.2. Financial Intermediation Theory

The Financial Intermediation Theory emphasizes the role of institutions like multilaterals in bridging gaps between investors and borrowers, ensuring risk mitigation and efficient capital allocation. This is consistent with findings on some of the specific objectives, such as the adequacy of cover provided by credit enhancement instruments, which are seen as critical by stakeholders in addressing risks like non-payment and political instability. However, the limited sensitivity to pricing and claims history among IPPs indicates potential gaps in the theory's assumptions about stakeholder behaviour. The theory's reliance on the intermediary's risk management capabilities may overlook the nuanced considerations of IPPs, such as the need for tailored products and a proactive alignment between insurers, guarantors, and project sponsors to adapt to emerging market conditions.

5.5. Conclusion

The study approach has enabled the researcher to thoroughly engage with industry experts in evaluating the influence of various factors on the use of credit enhancement instruments in the financing of renewable energy IPPs in Kenya and Malawi. In respect of each of the specific objectives, clear and consistent findings have been observed across both the qualitative and quantitative phase – this justifies the researcher's choice of the exploratory sequential research design as the ideal approach for this research topic.

The study has unveiled possible areas of improvement in the provision of such credit enhancement instruments in Kenya and Malawi; with such recommendations being applicable across the sub-Saharan Africa region, other emerging markets, and climate finance in general.

5.6. Research Limitations

One limitation of this study is the small sample size used for the interviews. This was mainly due time constraints on the part of the researcher and respondents; that some respondents requested for Non-Disclosure Agreements (NDAs) prior to participating in the interviews; and that the timing of the data collection (in July and August 2024) coincided with a period when most respondents typically take their holidays. The sample size for the survey questionnaire, though much higher at 62, was also restricted due to challenges in determining the exact number of IPP experts and the need to convince busy practitioners to take part in the study. Larger sample sizes, for both the

qualitative and quantitative phases, would be more representative and could enhance the quality of the research findings.

Another limitation of the study is the reliability of the data given by experts in interviews. While they have the necessary experience and qualifications to discuss the use of credit enhancement instruments in support of the financing of IPPs, their opinions and responses cannot be verified independently and must be accepted as presented; respondents may distort or selectively recall and convey specific information related to the investigation, potentially biasing the research outcomes.

The other limitations faced by the researcher related to access to relevant information as some respondents may view some of the requests as being in breach of existing confidentiality agreements; and that whilst positive progress has been made in Kenya and Malawi, the two countries have very few operational renewable energy IPPs for consideration as case studies.

5.7. Recommendations

5.7.1. Recommendations for Academia

The use of credit enhancement instruments is relatively low compared to the potential that such instruments have in enabling the flow of funds, particularly from the private sector, towards key infrastructure in emerging markets such as sub-Saharan Africa. As a result, the findings of this research should be enhanced to ensure that greater improvements on the use of such instruments and an improved understanding of their value addition is obtained. In particular, further research should be considered on the impact of incentives that will increasingly be available to IPPs going forward and similar improvements that address increasing climate related risks – not only to IPPs in Kenya and Malawi, but across the region.

5.7.2. Recommendations for Practice

Evidently, IPPs view credit enhancement instruments in high regard and as crucial elements in the development of their projects. However, there is a limited understanding by some stakeholders on how valuable the use of these instruments can be. In addition, factors that some underwriters may consider quite highly such as their claims history, the incentives offered to beneficiaries of credit enhancement instruments, and pricing, may not be as influential in whether IPPs take up such products.

As a result of these findings, insurers and guarantors should consider the following: explore how the recently introduced incentives are being perceived by the market and adopt changes that may result in such incentives having a significant impact on the use of credit enhancement instruments by IPPs; with the low default rates as evidenced by the positive claims history from the operational IPPs in Kenya and Malawi, there should be greater risk appetite – and improved terms – that reflect this good risk profile vis-à-vis the current practice that may be informed by the assumption that the insurers and guarantors will have to make claim payments; and greater partnership should be explored between private and public institutions to align some of the benefits perceived by IPPs towards each group into bespoke products e.g. the efficiency of the private market, combined with the halo effect of multilateral financial institutions. Similar collaboration should be considered with academia to encourage further empirical studies in this economic sub-sector that has seen limited studies compared to other fields.

5.7.3. Recommendations for Policy

Government entities active in the energy sector should take greater ownership of the provisions of available credit enhancement instruments to IPPs in their countries. Such a proactive approach will allow for credit enhancement instruments to be considered at an early stage as projects are structured, eliminating the negative impact that project sponsors face when such instruments are requested by financiers at a later stage in the project development cycle.

In addition, greater involvement of the public sector may allow for further innovation that would result in improvements to the credit enhancement instruments – possibly by way of blended finance – and structured in a manner that they continue to be beneficial to IPPs without adding any further burden to the sovereign debt and available fiscal space.

5.7.4. Recommendations for Theory

Economic theories underpinning this study highlight key insights for future research. Market Failure Theory demonstrates how credit enhancement instruments can address inefficiencies in financing renewable energy IPPs, particularly in markets with limited private sector participation. Further studies should examine how these instruments evolve to address emerging risks, such as climate change and exchange rate fluctuations.

The Financial Intermediation Theory offers a lens to understand how the collaboration between public and private entities optimizes resource allocation, ensuring effective risk-sharing

mechanisms. Expanding research in these areas can deepen the understanding of how economic principles shape the financing landscape for IPPs in Kenya and Malawi.

5.8. Suggested Areas for Further Research

The exploratory sequential research design is considered a good fit for this field of study and an ideal option for future researchers pursuing similar topics. The researcher recommends that researchers considering a similar approach allocate additional time towards the period of data collection to allow for more responses which may result in larger sample sizes. It is also recommended that researchers should consider conducting the research in two separate phases that would allow for extensive data analysis before additional respondents are engaged – this would limit the likelihood of any limitations being observed at the point of data analysis.

This study focuses on IPPs in Kenya and Malawi, researchers should consider conducting similar studies on a single country only to reduce any limitations that may arise where findings in one country may not perfectly align with the other country across all the variables under consideration. Lastly, whilst the study focuses on credit enhancement instruments, there is need to explore the other factors – beyond the provision of such instruments – that limit or have an impact on the successful financing of critical infrastructure by private investors.

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APPENDICES

Appendix 1: Ethical Clearance from the Strathmore University Institutional Scientific Ethics Review Committee (SU-ISERC)

Strathmore UNIVERSITY

16th July 2024

Mr Banda Obbie Samuel,
banda.obbie@strathmore.edu

Dear Mr Banda,

RE: Assessing the Effect of Credit Enhancement in Climate Financing in Sub-Saharan Africa: A Study of Independent Power Projects in Kenya and Malawi

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** proposal. Your application reference number is **SU-ISERC2329/24.** The approval period is from **16th July 2024 to 15th July 2025.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
v. Clearance for the export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and obtain other clearances needed.

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC

Appendix 2: Cover Letter from the National Commission for Science, Technology & Innovation (NACOSTI)

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 761438

Date of Issue: 31/July/2024

RESEARCH LICENSE

This is to Certify that Mr.. Samuel Obbie Banda of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: ASSESSING THE EFFECT OF CREDIT ENHANCEMENT IN CLIMATE FINANCING IN SUB-SAHARAN AFRICA: A STUDY OF INDEPENDENT POWER PROJECTS IN KENYA AND MALAWI for the period ending : 31/July/2025.

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Appendix 3: Interview Framework

A. General Information on Interviewee and Organisation

No.	Questions	Responses	Instructions
1.1	What type of organisation do you work for?	a) Project Sponsor/ IPP b) Development Finance Institution c) Commercial Bank d) Government Entity e) Advisors (Legal, Financial, Technical) f) Insurer/ Guarantor g) Other (please specify)	Tick or select as appropriate
1.2	What is your position in the organisation?	a) Analyst or Associate b) Officer or Junior Management c) Senior Management d) Executive Management	Tick or select as appropriate
1.3	How many years of industry experience do you have?	a) Less than 5 years b) Between 5 – 10 years c) More than 10 years	Tick or select as appropriate
1.4	Level of education	a) Diploma b) Bachelor's Degree c) Post-graduate Qualification	Tick or select as appropriate
1.5	Have you worked on IPPs in Kenya and/ or Malawi?	a) Kenya only b) Malawi only c) Both, Kenya and Malawi d) Neither Kenya nor Malawi	Tick or select as appropriate

B. General Questions on IPP Financing and Development in Kenya

I. What are your thoughts regarding the extent of private sector involvement in Kenya's electricity generation sector?

II. Do you believe the Government of Kenya provides sufficient support to IPPs?

III. In your view, what are the top three risks faced by IPPs in Kenya?

C. General Questions on IPP Financing and Development in Malawi

IV. What are your thoughts regarding the extent of private sector involvement in Malawi's electricity generation sector?

V. Do you believe the Government of Malawi provides sufficient support to IPPs?

VI. In your view, what are the top three risks faced by IPPs in Malawi?

D. Use of Credit Enhancement Instruments in support of IPPs

VII. Have you interacted with any of the credit enhancement instruments available in Kenya and/ or Malawi, if yes which ones?

VIII. What's your view of the credit enhancement instruments currently offered in Kenya and/ or Malawi (are they relevant and well-structured to address risks faced by IPPs)?

IX. In your view, are the existing credit enhancement instruments well priced for IPPs?

X. Are you aware of any incentives that are available to encourage the uptake and utilization of credit enhancement instruments (donor trust funds, discounted pricing, quicker processing times, etc.)?

XI. Are you aware of any claim settlements that have been made on credit enhancement instruments and is this (such a track record) a factor in the utilization of credit enhancement instruments?

E. Open Statements

XII. In your view, can projects under development in Kenya and/ or Malawi achieve financial close without the use of any de-risking or credit enhancement instruments?

XIII. Do you have any additional comments on this topic that have not been addressed via the questions presented?

Appendix 4: Survey Questionnaire

Part 1: General Information on the Respondent

No.	Questions	Responses	Instructions
1.0	**Demographic Characteristics of Respondents**		
1.1	What type of organisation do you work for?	a) Project Sponsor/ IPP b) Development Finance Institution c) Commercial Bank d) Government Entity e) Advisors (Legal, Financial, Technical) f) Insurer/ Guarantor g) Other (please specify)	Tick or select as appropriate
1.2	What is your position in the organisation?	a) Analyst or Associate b) Officer or Junior Management c) Senior Management d) Executive Management	Tick or select as appropriate
1.3	How many years of industry experience do you have?	a) Less than 5 years b) Between 5 – 10 years c) More than 10 years	Tick or select as appropriate
1.4	What is your level of education?	a) Diploma b) Bachelor's Degree c) Post-graduate Qualification	Tick or select as appropriate
1.5	Have you worked on IPPs in Kenya and/ or Malawi?	a) Kenya only b) Malawi only c) Both, Kenya and Malawi d) Neither Kenya nor Malawi	Tick or select as appropriate

Part 2: Perception of Credit Enhancement Instruments

Please rate the degree to which you agree or disagree with the following statements about credit enhancement instruments:

2.0	**Statement:** "Credit Enhancement instruments…"	**1** **Strongly Disagree**	**2** **Disagree**	**3** **Neutral**	**4** **Agree**	**5** **Strongly Agree**
2.1	Enable expanded access to debt					
2.2	Attract new sources of financing for IPPs					
2.3	Mitigate offtaker non-payments risks faced by IPPs					
2.4	Serve as a form of security by protecting underlying loans from default					
2.5	Lower the cost of capital by reducing the interest rate charged by lenders					
2.6	Facilitate favourable debt repayment by extending the maturity of debt					
2.7	Lead to lower PPA tariffs					
2.8	Have a strong influence on the IPPs ability to achieve financial close					

Part 3: Success Factors for the Utilization of Credit Enhancement Instruments in Kenya and Malawi

Using a scale of 1 - 5, please evaluate the degree of relevance or importance of each of the following statements, where 1 is "Not critical for the use of credit enhancement instruments by IPPs" and 5 is "Most critical for the use of credit enhancement instruments by IPPs"

3.0	**Statement:** "The following factors have a bearing on the successful utilization of Credit Enhancement instruments in Kenya and Malawi"	**1 Not Critical**	**2 Less Critical**	**3 Critical**	**4 More Critical**	**5 Most Critical**
3.1	**Availability of Credit Enhancement Instruments –** Have you interacted with any of the credit enhancement instruments available to IPPs in Kenya and/ or Malawi? Such instruments - which may take the form of political risk insurance, non-payment cover, Partial Risk Guarantees, or other alternatives - may be offered by multilateral financial institutions, private insurers, Export Credit Agencies (ECAs), host governments, etc.	**Yes or No**				
	Availability of Credit Enhancement Instruments - The objective of the questions under this section is to ascertain if the number and variety of credit enhancement instruments available to IPPs may have an impact on the likelihood of such instruments being used by IPPs.	**N/A**				
3.2	The IPP having a variety of credit enhancement instruments to choose from					
3.3	The providers of credit enhancement instruments being flexible with their pricing, underwriting processes, policy wording, etc.					

3.4	The nature of the organization providing the credit enhancement instrument i.e. Are they a Multilateral, Host Government, Commercial Bank, do they benefit from a Preferred Creditor Status, etc.					
3.5	The credit rating of the provider of the credit enhancement instruments					
	Pricing of Credit Enhancement Instruments – The objective of the questions under this section is to ascertain whether the existing credit enhancement instruments are well priced for IPPs and if pricing is a key factor in the likelihood of an IPP using such instruments.	**N/A**				
3.6	The pricing of the available credit enhancement instruments					
3.7	The availability of payment plans to settle the premium payable e.g. payable quarterly or annually for the duration of the PPA					
3.8	The ability to fully recover the cost of the premium paid through the PPA tariff					
3.9	Transparency on the pricing methodology of the provider of the credit enhancement instrument					
	Adequacy of the cover provided by Credit Enhancement Instruments - In deciding which instruments may be used by IPPs, in your opinion, what key considerations related to the adequacy of cover may guide this decision?	**N/A**				
3.10	The type of risks covered by the credit enhancement instrument i.e. non-payment, political, climate or other risks					
3.11	The duration of cover (i.e. number of years)					

3.12	Approval of the IPPs' lenders that the credit enhancement instrument is useful					
3.13	Ability of the credit enhancement instrument to attract non-traditional financiers e.g. local commercial banks and pension funds					
3.14	In your opinion, do the existing credit enhancement instruments available in Kenya and Malawi effectively address the risks faced by IPPs in the two countries?	**Yes or No**				
	Claims History	**N/A**				
3.15	Are you aware of any claim settlements that have been made by guarantors and insurers on credit enhancement instruments issued in support of IPPs in either Kenya or Malawi? NB: such claim settlements may be the result of a payment default by the offtaker or host government, termination of the project agreements, the lack of access to foreign exchange, etc.	**Yes or No**				
3.16	The track record of the provider of credit enhancement instruments in paying claims i.e. their Claims History					
3.17	The simplicity of the claims process (limited paperwork, clear timelines for claim payment, etc.)					
3.18	The possibility of a cross default within the country that would trigger a greater sense of urgency for the host government to resolve the default					
3.19	Likelihood of a recovery following a claim payment and reinstatement of the credit enhancement instrument without the need for a new application					

Part 4: Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?

Please rate the degree to which you agree or disagree with the following statements about credit enhancement instruments:

		1 **Strongly Disagree**	**2** **Disagree**	**3** **Neutral**	**4** **Agree**	**5** **Strongly Agree**
4.1	IPPs in Kenya can achieve financial close without using any credit enhancement instruments					
4.2	IPPs in Malawi can achieve financial close without using any credit enhancement instruments					

Appendix 5: Overview of Kenya's Energy Sector

Government Agencies in the Energy Sector

Government Agency	Responsibility
Ministry of Energy and Petroleum	Responsible for developing and communicating energy policies to foster a conducive environment for the sector's efficient operation and growth. he ministry aims to establish strategic directions to promote sector growth and offer a long-term vision for all stakeholders
Energy and Petroleum Regulatory Authority (EPRA)	Independent statutory body with a regulatory mandate in the operations of the entire energy and petroleum sectors.
Rural Electrification and Renewable Energy Corporation (REREC)	Charged with the mandate of implementing the rural electrification program
Geothermal Development Company (GDC)	A state-owned company tasked with assessing geothermal resources, including exploration, evaluation, and steam production. GDC handles exploration and development, then sells geothermal steam to KenGen and IPPs for electricity generation
Kenya Electricity Generating Company (KenGen)	Kenya's leading electricity power-generating company, responsible for producing approximately 60% of the country's electricity consumption. The GoK owns 70% of KenGen with 30% shareholding listed on the Nairobi Securities Exchange
Kenya Electricity Transmission Company (KETRACO)	State-owned entity responsible for planning, designing, constructing, operating and maintaining high voltage electricity grid
Kenya Power and Lighting Company (KPLC)	State-owned corporation in charge of electricity transmission, distribution, and retail sales; KPLC manages energy purchase agreements with KenGen and IPPs for subsequent transmission and distribution.

Select Policy Adjustments and Legislation

The table below gives a summary of the key legislative framework guiding renewable energy projects in Kenya:

Legislation	Impact
The Energy Act of 2019	Establishes three new agencies: EPRA, REREC, and the Nuclear Power and Energy Agency; Strips KPLC of the role of independently buying electricity from producers and gives it to KETRACO. **NB**: KPLC retained its monopoly on distribution
The Energy Act 12 of 2006	Sets up Energy Regulatory Commission (ERC) and provides Licensing regulations/ guidelines for all stakeholders
The Feed-in-Tariff Policy of 2008	Revised in 2010 and subsequently in 2012; Implementing a FiT system to promote the generation of electricity from renewable energy sources
The National Energy Policy of 2004 (Subsequent drafts being used)	Outlines the national strategies and policies for the energy sector, aligning with the new constitution and supporting Vision 2030

Source: AfDB's Africa Energy Portal (2024)

Electricity Supply and Demand

According to KPLC's Annual Report for FY 2022/23, the country's installed capacity stood at 3,246 MW of which 3,127 MW is the effective interconnected capacity on the grid; this followed the addition of three new generation sources to the grid: Sosian's 35MW geothermal project; Alten solar's 40 MW project; and 200 MW imports from Ethiopia through the 50kV high-voltage direct current (HVDC) interconnector which was fully commissioned in 2023 (the imports are projected to increase to 400 MW in the coming years, in line with the PPA signed between KPLC and Ethiopia Electric Power (EEP)). As at 31 December 2023, the installed and effective capacity reduced to 3,200 MW and 3,052, respectively. The effective interconnected capacity includes intermittent sources such as solar and wind power, which constitute 635 MW (20.3%) of the effective capacity.

The country's installed capacity continues to be dominated by renewable energy sources as noted in the table below:

Technology	Interconnected Capacity (MW)		% of Total Installed Capacity
	Installed	Effective	
Geothermal	940	841	29
Hydro	839	810	26
Thermal	573	562	18
Wind	436	426	14
Solar	210	210	7
Imports	200	200	6
Bioenergy	2	2	-
Total	**3,200**	**3,052**	**100**

Source: EPRA's Bi-Annual Energy and Petroleum Statistics Report for FY 2023/ 24

The installed capacity increases to 3,690 MW when you include Captive (450 MW) and Off-grid capacity (40 MW). Out of the 6,805.28 GWh of electricity produced from June to December 2023, renewable energy sources were predominant, accounting for 84.93% of the total. Geothermal energy remained the leading source, contributing 44.6%, while hydro, wind, and solar energies made up 22.5%, 14.3%, and 3.5%, respectively. Electricity imports added 6.2% to the total energy mix during this period. On the other hand, thermal energy generation has decreased since 2022 due to a reduction in thermal installed capacity as PPAs expire and a shift towards prioritizing renewable energy generation. During the same period, peak demand during was 2,170 MW, highlighting the need for additional peaking capacity to support the energy system, particularly the spinning reserves, when the intermittent capacity is not available.

Planning for Kenya's generation and transmission system is guided by a 20-year rolling Least Cost Power Development Plan (LCPDP), which is updated every two years. The LCPDP lists planned generation projects and their respective proposed dates of connecting to the grid.

IPPs in Kenya

As of 2023, Kenya had 18 IPPs that sold more than 1 GWh of electricity to KPLC, as noted in the table below:

	Name of IPP	Energy Source	Installed Capacity (MW)
1	Lake Turkana Wind Power	Wind	310
2	OrPower 4 Inc.	Geothermal	48
3	Kipeto Energy Plc	Wind	100
4	Rabai Power Limited	Heavy Fuel Oil	90
5	Thika Power Limited	Heavy Fuel Oil	87
6	Gulf Power Limited	Heavy Fuel Oil	80.3
7	Iberafrica Power (E.A.) Company Limited	Heavy Fuel Oil	52.5
8	Malindi	Solar	40
9	Cedate Eldosol	Solar	40
10	Selenkei Solar Farm	Solar	40
11	Alten Kenya Solarfarm	Solar	40
12	Triumph Power Generating Company Limited	Heavy Fuel Oil	83
13	Regen-Terem	Hydro	5.2
14	Metumi Power Plant	Hydro	5.6
15	Gura Hydro	Hydro	2
16	Sosian Menengai Geothermal	Geothermal	35
17	Power Technology Solutions Limited	Hydro	-
18	Kianthumbi Small Hydro	Hydro	0.65

Source: KPLC's Annual Report for FY 2022/23

Of the 18 operational IPPs, 13 were renewable energy projects.

Credit Enhancement Instruments Issued in Support of IPPs in Kenya

From the operational renewable energy IPPs in Kenya, the following were noted as having used some form of credit enhancement instrument to achieve financial close:

Project Name: Lake Turkana Wind Power

Project Sponsors: Aldwych Turkana Investments Ltd; Sandpiper

Lenders: AfDB; KfW DEG; EADB; TDB; EIB; FMO; PROPARCO

Credit Enhancement Instrument used: Political Risk Insurance from ATIDI; Partial Risk Guarantee from the African Development Bank (AfDB); Project financing guarantee from Denmark's Export Credit Agency, EKF; Investment guarantees from DFC (formerly, the Overseas Private Investment Corporation (OPIC))

Project Name: OrPower 4 Inc.

Project Sponsors: Ormat Holding Corporation

Lenders: AFD; KfW DEG; EAIF; EIB; KfW; FMO; United States International Development Finance Corporation (DFC)

Credit Enhancement Instrument used: Political Risk Insurance from MIGA

Project Name: Kipeto Energy Plc

Project Sponsors: Actis LLP; Craftskills Wind Energy International

Lenders: United States International Development Finance Corporation (DFC)

Credit Enhancement Instrument used: Short-term liquidity guarantee from ATIDI

Project Name: Alten Kenya Solarfarm

Project Sponsors: Alten Energías Renovables Group (Alten)

Lenders: Emerging Africa Infrastructure Fund (EAIF); Standard Bank of South Africa; and Stanbic Bank Kenya

Credit Enhancement Instrument used: Political Risk Insurance from ATIDI

Appendix 6: Overview of Malawi's Energy Sector

Government Agencies in the Energy Sector

Government Agency	Responsibility
Ministry of Natural Resources, Energy and Mining	Responsible for overall policy oversight, this body is tasked with providing guidance and direction on all issues related to Malawi's natural resources, energy, and environmental management
Malawi Energy Regulatory Authority (MERA)	Established by the Energy Regulatory Act No. 20 of 2004, regulates the energy sector, including licensing and tariff approvals impacting IPPs
Electricity Supply Corporation of Malawi (ESCOM)	A limited liability company responsible for procuring, transmitting, and distributing electricity within the country
Electricity Generating Company of Malawi (EGENCO)	Responsible for power generation
Power Market Limited (PML)	Established in 2019 to serve as the Single Buyer entity responsible for the bulk purchase of electricity from ESCOM. PML was dissolved in 2023

Summary of Recent Policy Adjustments and Legislation

Legislation	Impact
National Electrification Program 2018 (NEP)	NEP features the rapid expansion of grid connections managed by ESCOM and the Malawi Rural Electrification Programme (MAREP); an improved and broader off-grid access program running parallel to grid connections; and a range of Technical Assistance (TA) initiatives aimed at reinforcing the institutional framework to achieve universal electricity access. After implementation, the Ministry of Natural Resources, Energy and Mining will be responsible for overseeing the entire NEP program

Electricity (Amendment) Act 2016	Integrated Resource Plan (IRP) and Annual Generation Procurement Plan; Revision of market rules leading to the unbundling of ESCOM; Introduction of the Automatic Tariff Adjustment Formula (ATAF) which allows ESCOM to adjust its tariff at any time to offset any financial gains or losses that may occur due to changes in economic fundamentals such as inflation and the exchange rate
Malawian Electricity Act (Electricity Act No. 20 of 2004)	Malawian Energy Policy – Grid Code
Energy Regulation Act 2004	Allows issuing of generation licences (IPPs & MERAs role) and Cost Reflective Pricing
Public Procurement Act No. 8 of 2003	Public Procurement Regulations (2004); Credit Enhancement and Forex Support

Over the past few years, the GoM has received support from the US Government through the MCC Malawi Compact worth USD 350m, USAID funded activities, Power Africa as well as broader US Government electrification efforts. More than two thirds of the MCC Compact program went towards the country's Infrastructure Development Project (IDP) whose main focus was to improve the reliability, stability and quality of the power grid. The IDP focused on Transmission Network Upgrade as well as the Distribution Network Upgrade, Expansion and Rehabilitation.

Recent Base Tariff Review and Approval

The most recent application by ESCOM for an increase in the base tariff for the period 2018 to 2022 was reviewed and approved by MERA. The approved increment of 31% should translate into an increase of MWK 21.92/ kWh over the four years and an average tariff of MWK 95.15/ kWh over the period. The table below summarizes these adjustments:

Annual Average Tariffs (2018 – 2022)	**Base Year (MWK/ kWh)**	**2018/19**	**2019/20**	**2020/21**	**2021/22**
End User Tariff	73.23	88.02	94.54	91.98	101
Percentage Increase	-	20%	7%	-3%	10%

**Based on a USD/ MWK exchange rate of 734.69, the base year tariff in USD is just under USD 10¢/ kWh and will increase to USD 14¢/ kWh by the year 2022. The tariff published on the MERA website as of 03/09/2020 was MWK 88.02/ kWh (USD 11.9¢/ kWh) – in line with the approved 2018/19 tariffs but short of the proposed 2019/20 tariffs.*

Electricity Supply and Demand

Malawi has one of the world's lowest electrification rates at 18%, with a significant gap between urban (55%) and rural areas (10%). Current power generation cannot meet peak demand of about 440MW, causing frequent shortages, especially during dry spells. Malawi is not connected to the Southern African Power Pool (SAPP), limiting its ability to trade power with neighbors. The country aims to join SAPP to improve supply security and reduce reliance on expensive emergency diesel generators.

IPPs in Malawi

As of 31 December 2023, Malawi had 4 operational IPPs as noted in the table below:

	Name of IPP	Energy Source	Installed Capacity (MW)
1	Salima Solar PV	Solar	60
2	Nkhotakota Solar PV	Solar	21
3	Golomoti Solar PV	Solar	20
4	Ruo-Ndiza Hydro	Hydro	8.25

Source: AfDB's Africa Energy Portal (2024)

Credit Enhancement Instruments Issued in Support of IPPs in Malawi

From the operational renewable energy IPPs in Malawi, the following were noted as having used some form of credit enhancement instrument to achieve financial close:

Project Name: Salima Solar PV

Project Sponsors: JCM Power and InfraCo Africa

Lenders: N/A

Credit Enhancement Instrument used: Political Risk Insurance from MIGA; Short-term liquidity support from ATIDI

Project Name: Nkhotakota Solar PV

Project Sponsors: Serengeti Energy

Lenders: N/A

Credit Enhancement Instrument used: Short-term liquidity support from ATIDI

Project Name: Golomoti Solar PV

Project Sponsors: JCM Power and InfraCo Africa

Lenders: N/A

Credit Enhancement Instrument used: Political Risk Insurance from MIGA; Short-term liquidity support from ATIDI

Appendix 7: Qualitative Phase – Respondent Profiles and Findings

Expert Interviews Respondent Profiles

Respondent	Type of Organisation	Position	Industry Experience	Level of Education	Countries worked in
1	Project Sponsor/ IPP	Senior Management	More than 10 years	Post-Graduate	Both, Kenya and Malawi
2	Project Sponsor/ IPP	Officer or Junior Management	Between 5 – 10 years	Post-Graduate	Both, Kenya and Malawi
3	Government Entity	Senior Management	More than 10 years	Post-Graduate	Malawi Only
4	Project Sponsor/ IPP	Executive Management	More than 10 years	Bachelor's Degree	Both, Kenya and Malawi
5	DFI	Senior Management	More than 10 years	Post-Graduate	Both, Kenya and Malawi
6	Insurer/ Guarantor	Officer or Junior Management	More than 10 years	Bachelor's Degree	Kenya Only

Thematic Content Analysis

Theme	Sub Themes	Frequency
Private Sector Participation and Government Support	Incentives for IPPs (the beneficiaries) - private sector	5
	Government Entity	6
	Private Sector Participation and Government Support	10
Adequacy of cover provided by Credit Enhancement Instruments	Above Average	1
	Adequate Credit Instruments	2
	Inadequate Credit Instruments	4
	Credit Enhancement Instruments are Unavailable	1

Availability of Credit Enhancement Instruments	Unavailability of IPPs	1
	Credit Enhancement Instruments are Available	5
Claims History	Lack of knowledge on claims settlements	1
	History of the organization in settling claims	1
	Claims History not key consideration in using Credit Instruments	3
Incentives for IPPs (the beneficiaries)	Not aware of credit enhancement instruments	5
	Incentives for IPPs (the beneficiaries) - government	5
Pricing	Low Pricing	1
	Better Pricing of Credit Facilities	1
	High Prices	2
	Differential in Pricing Offered by DFIs	2
	Inadequate Pricing of Credit Enhancement Instruments	2
	Credit Instruments are well priced	5
	Delayed payments from the offtaker	1
	Timelines risk	1
	Technical risk	1
	Expropriation	1
	Renegotiation of PPAs	1
	Weak transmission infrastructure or national grid	1
	Underinvestment risk	1
	No use of Political Risk Insurance and Partial Risk Guarantees	1

Risks	Lack of proper demonstration and track record	1
	Payment risk	1
	Land acquisition risk	1
	None payment	1
	Policy and tariffs risk	2
	Commercial risk	2
	Non-commercial risk	3
	Political Risk Insurance	3
	Political Risk	3
	Foreign Exchange risk	16

Appendix 8: Quantitative Phase – Inferential Analysis

Chi-Square Tests of Association

Association between the perceptions of respondents towards credit enhancement instruments and the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi

Attributes	Response	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?					Statistics
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
		%	%	%	%	%	
Credit Enhancement Instrument enable expanded access to debt	Strongly Disagree	0.0%	0.0%	3.8%	0.0%	0.0%	χ^2 = 17.594, df = 9, p = **0.040***
	Disagree	0.0%	0.0%	0.0%	0.0%	0.0%	
	Neutral	0.0%	12.5%	0.0%	0.0%	0.0%	
	Agree	0.0%	50.0%	65.4%	33.3%	14.3%	
	Strongly Agree	0.0%	37.5%	30.8%	66.7%	85.7%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
Credit Enhancement Instrument attract new sources of financing for IPPs	Strongly Disagree	0.0%	0.0%	3.8%	0.0%	0.0%	χ^2 = 22.922, df = 12, p = **0.028***
	Disagree	0.0%	0.0%	0.0%	14.3%	0.0%	
	Neutral	0.0%	0.0%	23.1%	9.5%	0.0%	
	Agree	0.0%	87.5%	53.8%	23.8%	42.9%	
	Strongly Agree	0.0%	12.5%	19.2%	52.4%	57.1%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
Credit Enhancement Instruments mitigate off taker non-payments risks faced by IPPs	Strongly Disagree	0.0%	12.5%	0.0%	0.0%	0.0%	χ^2= 17.593, df = 9, p = **0.036***
	Disagree	0.0%	0.0%	0.0%	0.0%	0.0%	
	Neutral	0.0%	0.0%	3.8%	0.0%	0.0%	
	Agree	0.0%	50.0%	57.7%	33.3%	0.0%	
	Strongly Agree	0.0%	37.5%	38.5%	66.7%	100.0%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
Credit Enhancement Instruments serve as a form of security by protecting underlying loans from default	Strongly Disagree	0.0%	0.0%	3.8%	0.0%	14.3%	χ^2= 14.292, df = 12, p = 0.282
	Disagree	0.0%	12.5%	0.0%	4.8%	0.0%	
	Neutral	0.0%	12.5%	23.1%	14.3%	14.3%	
	Agree	0.0%	50.0%	46.2%	23.8%	14.3%	
	Strongly Agree	0.0%	25.0%	26.9%	57.1%	57.1%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
Credit Enhancement Instruments lower the cost of capital by reducing the interest rate charged by lenders	Strongly Disagree	0.0%	0.0%	0.0%	0.0%	14.3%	χ^2= 17.612, df =12, p = 0.128
	Disagree	0.0%	12.5%	19.2%	9.5%	0.0%	
	Neutral	0.0%	12.5%	11.5%	42.9%	14.3%	
	Agree	0.0%	50.0%	53.8%	33.3%	42.9%	
	Strongly Agree	0.0%	25.0%	15.4%	14.3%	28.6%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
Credit Enhancement Instruments facilitate favourable debt repayment by extending the maturity of debt	Strongly Disagree	0.0%	12.5%	7.7%	0.0%	0.0%	χ^2= 11.475, df =12, p = 0.489
	Disagree	0.0%	0.0%	3.8%	4.8%	14.3%	
	Neutral	0.0%	12.5%	42.3%	47.6%	14.3%	
	Agree	0.0%	62.5%	38.5%	33.3%	71.4%	
	Strongly Agree	0.0%	12.5%	7.7%	14.3%	0.0%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
Credit Enhancement Instruments lead to lower PPA tariffs	Strongly Disagree	0.0%	25.0%	3.8%	0.0%	28.6%	χ^2= 21.644, df =12, p = **0.042***
	Disagree	0.0%	0.0%	38.5%	14.3%	14.3%	
	Neutral	0.0%	50.0%	30.8%	28.6%	0.0%	
	Agree	0.0%	25.0%	19.2%	42.9%	42.9%	
	Strongly Agree	0.0%	0.0%	7.7%	14.3%	14.3%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
Credit Enhancement Instruments have a	Strongly Disagree	0.0%	12.5%	0.0%	0.0%	0.0%	
	Disagree	0.0%	0.0%	0.0%	0.0%	0.0%	

strong influence on the IPPs' ability to achieve financial close	Neutral	0.0%	0.0%	23.1%	0.0%	0.0%	χ^2= 27.734, df = 9, p = **0.001****
	Agree	0.0%	50.0%	50.0%	19.0%	14.3%	
	Strongly Agree	0.0%	37.5%	26.9%	81.0%	85.7%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	

Note: **, *** indicate significance at the 95%, and 99% level, respectively
Source: Survey Data (2024)

Association between the Availability of Credit Enhancement Instruments and the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi

Availability of Credit Enhancement Instruments	Response	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?					Statistics
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
		%	%		%	%	
The IPP having a variety of credit enhancement instruments to choose from	Not Critical	0.0%	0.0%	3.8%	4.8%	0.0%	χ^2= 16.631, df = 12, p = 0.164
	Less Critical	0.0%	25.0%	30.8%	9.5%	0.0%	
	Critical	0.0%	50.0%	53.8%	33.3%	57.1%	
	More Critical	0.0%	25.0%	0.0%	38.1%	28.6%	
	Most Critical	0.0%	0.0%	11.5%	14.3%	14.3%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
The providers of credit enhancement instruments being flexible with their pricing, underwriting processes, policy wording, etc.	Not Critical	0.0%	0.0%	0.0%	0.0%	0.0%	χ^2= 13.349, df = 12, p = 0.147
	Less Critical	0.0%	0.0%	7.7%	0.0%	0.0%	
	Critical	0.0%	12.5%	26.9%	19.0%	0.0%	
	More Critical	0.0%	50.0%	53.8%	42.9%	28.6%	
	Most Critical	0.0%	37.5%	11.5%	38.1%	71.4%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
The nature of the organization providing the credit enhancement instrument i.e. Are they a Multilateral, Government-backed agency, Commercial Bank, do they benefit from a Preferred Creditor Status, etc.	Not Critical	0.0%	0.0%	0.0%	4.8%	0.0%	χ^2= 6.143, df = 9, p = 0.726
	Less Critical	0.0%	0.0%	7.7%	4.8%	14.3%	
	Critical	0.0%	25.0%	26.9%	33.3%	14.3%	
	More Critical	0.0%	62.5%	34.6%	9.5%	14.3%	
	Most Critical	0.0%	12.5%	30.8%	47.6%	57.1%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
The credit rating of the provider of the credit enhancement instruments	Not Critical	0.0%	0.0%	0.0%	0.0%	0.0%	χ^2= 3.699, df = 3, p = 0.296
	Less Critical	0.0%	0.0%	3.8%	4.8%	0.0%	
	Critical	0.0%	12.5%	15.4%	14.3%	0.0%	
	More Critical	0.0%	50.0%	42.3%	33.3%	14.3%	
	Most Critical	0.0%	37.5%	38.5%	47.6%	85.7%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	

Availability of Credit Enhancement Instruments	Response	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?					Statistics
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
		%	%	%	%	%	
Have you interacted with any of the credit enhancement instruments available to IPPs in Kenya and Malawi?	Yes	0.0%	87.5%	100.0%	90.5%	100.0%	χ = 3.699, df = 3, p = 0.296
	No	0.0%	12.5%	0.0%	9.5%	0.0%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	

Association between Pricing of Credit Enhancement Instruments and their use in the financing of IPPs in Kenya and Malawi

Pricing of Credit Enhancement Instruments	Response	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?					Statistics
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
		%	%	%	%	%	
The pricing of the available credit enhancement instruments by IPPs	Not Critical	0.0%	0.0%	0.0%	0.0%	0.0%	χ^2= 8.561, df = 9, p = 0.479
	Less Critical	0.0%	0.0%	11.5%	0.0%	14.3%	
	Critical	0.0%	12.5%	30.8%	19.0%	14.3%	
	More Critical	0.0%	50.0%	26.9%	28.6%	14.3%	
	Most Critical	0.0%	37.5%	30.8%	52.4%	57.1%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
The availability of payment plans to settle the premium payable e.g. payable quarterly or annually for the duration of the PPA	Not Critical	0.0%	0.0%	3.8%	0.0%	0.0%	χ^2= 17.577, df = 12, p = 0.129
	Less Critical	0.0%	0.0%	26.9%	33.3%	28.6%	
	Critical	0.0%	25.0%	38.5%	33.3%	0.0%	
	More Critical	0.0%	75.0%	19.2%	23.8%	71.4%	
	Most Critical	0.0%	0.0%	11.5%	9.5%	0.0%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
The ability to fully recover the cost of the premium paid through the PPA tariff	Not Critical	0.0%	0.0%	0.0%	0.0%	0.0%	χ^2= 10.082, df = 9, p = 0.344
	Less Critical	0.0%	0.0%	19.2%	4.8%	0.0%	
	Critical	0.0%	37.5%	19.2%	33.3%	14.3%	
	More Critical	0.0%	37.5%	19.2%	38.1%	28.6%	
	Most Critical	0.0%	25.0%	42.3%	23.8%	57.1%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
Transparency on the pricing methodology of the provider of the credit enhancement instrument	Not Critical	0.0%	0.0%	11.5%	4.8%	0.0%	χ^2= 12.470, df = 12, p = 0.409
	Less Critical	0.0%	0.0%	23.1%	9.5%	0.0%	
	Critical	0.0%	37.5%	26.9%	33.3%	28.6%	
	More Critical	0.0%	37.5%	26.9%	23.8%	14.3%	
	Most Critical	0.0%	25.0%	11.5%	28.6%	57.1%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	

Association between Adequacy of the cover provided by Credit Enhancement Instruments their use in the financing of IPPs in Kenya and Malawi

Adequacy of the cover provided by Credit Enhancement Instruments	Response	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?					Statistics
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
		%	%	%	%	%	
The type of risks covered by the credit enhancement instrument i.e. non-payment, political, climate or other risks	Not Critical	0.0%	0.0%	0.0%	0.0%	0.0%	χ^2= 12.866, df = 6, p = **0.045***
	Less Critical	0.0%	0.0%	0.0%	0.0%	0.0%	
	Critical	0.0%	12.5%	7.7%	4.8%	0.0%	
	More Critical	0.0%	25.0%	50.0%	14.3%	0.0%	
	Most Critical	0.0%	62.5%	42.3%	81.0%	100.0%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
The duration of cover (i.e. number of years)	Not Critical	0.0%	0.0%	0.0%	0.0%	0.0%	χ^2= 11.126, df = 9, p = 0.267
	Less Critical	0.0%	0.0%	3.8%	4.8%	0.0%	
	Critical	0.0%	25.0%	11.5%	14.3%	0.0%	
	More Critical	0.0%	25.0%	65.4%	38.1%	28.6%	
	Most Critical	0.0%	50.0%	19.2%	42.9%	71.4%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
Approval of the IPPs' lenders that the credit enhancement instrument is useful	Not Critical	0.0%	12.5%	0.0%	0.0%	0.0%	χ^2= 37.704, df =12, p = **0.002****
	Less Critical	0.0%	0.0%	11.5%	0.0%	0.0%	
	Critical	0.0%	0.0%	23.1%	28.6%	0.0%	
	More Critical	0.0%	75.0%	19.2%	23.8%	0.0%	
	Most Critical	0.0%	12.5%	46.2%	47.6%	100.0%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	
The attractiveness of the credit enhancement instrument to non-traditional financiers of IPPs e.g. local commercial banks and pension funds	Not Critical	0.0%	0.0%	3.8%	0.0%	0.0%	χ^2= 9.928, df = 12, p = 0.622
	Less Critical	0.0%	25.0%	34.6%	14.3%	14.3%	
	Critical	0.0%	25.0%	26.9%	38.1%	28.6%	
	More Critical	0.0%	50.0%	26.9%	23.8%	28.6%	
	Most Critical	0.0%	0.0%	7.7%	23.8%	28.6%	
	Total	0.0%	100.0%	100.0%	100.0%	100.0%	

Note: **, *** indicate significance at the 95%, and 99% level, respectively
Source: Survey Data (2024)

Adequacy of the cover provided by Credit Enhancement Instruments	Response	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?					Statistics
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
		%	%	%	%	%	
Do the existing credit enhancement instruments available in Kenya and Malawi effectively address the risks faced by IPPs in the two countries?	Yes	42.9%	47.6%	42.3%	42.9%	0.0%	χ^2= 0.147, df = 3, p = 0.986
	No	57.1%	52.4%	57.7%	57.1%	0.0%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	

Association between Claims History and the use of credit enhancement instruments in the financing of IPPs in Kenya and Malawi

Claims History	Response	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?					Statistics
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
		%	%	%	%	%	
Are you aware of any claim settlements that have been made by guarantors and insurers on credit enhancement instruments issued in support of IPPs in either Kenya or Malawi? **NB**: such claim settlements may be the result of a payment default by the offtaker or host government, termination of the project agreements, the lack of access to foreign exchange, etc.	Yes	14.3%	14.3%	26.9%	0.0%	0.0%	χ^2= 3.456, df = 3, p = 0.326
	No	85.7%	85.7%	73.1%	100.0%	0.0%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	

Claims History	Response	Is the use of credit enhancement instruments by IPPs in Kenya and Malawi essential to achieve financial close?					Statistics
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
		%	%	%	%	%	
The track record of the provider of credit enhancement instruments in paying claims i.e. their Claims History	Not Critical	57.1%	42.9%	38.5%	25.0%	0.0%	χ^2= 8.620, df = 9, p = 0.473
	Less Critical	14.3%	19.0%	26.9%	37.5%	0.0%	
	Critical	0.0%	0.0%	0.0%	0.0%	0.0%	
	More Critical	0.0%	4.8%	19.2%	0.0%	0.0%	
	Most Critical	28.6%	33.3%	15.4%	37.5%	0.0%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
The simplicity of the claims process (limited paperwork, clear timelines for claim payment, etc.)	Not Critical	42.9%	4.8%	15.4%	37.5%	0.0%	χ^2= 12.312, df = 9, p = 0.196
	Less Critical	0.0%	38.1%	34.6%	25.0%	0.0%	
	Critical	0.0%	0.0%	0.0%	0.0%	0.0%	
	More Critical	0.0%	9.5%	15.4%	0.0%	0.0%	
	Most Critical	57.1%	47.6%	34.6%	37.5%	0.0%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
The possibility of a cross default within the country that would trigger a greater sense of urgency for the host government to resolve the default	Not Critical	42.9%	33.3%	30.8%	50.0%	0.0%	χ^2= 7.884, df = 9, p = 0.546
	Less Critical	0.0%	28.6%	11.5%	12.5%	0.0%	
	Critical	0.0%	0.0%	0.0%	0.0%	0.0%	
	More Critical	14.3%	0.0%	7.7%	12.5%	0.0%	
	Most Critical	42.9%	38.1%	50.0%	25.0%	0.0%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	
Likelihood of a recovery following a claim payment and reinstatement of the credit enhancement instrument without the need for a new application	Not Critical	57.1%	23.8%	26.9%	12.5%	0.0%	χ^2= 7.548, df = 9, p = 0.580
	Less Critical	0.0%	19.0%	19.2%	12.5%	0.0%	
	Critical	0.0%	0.0%	0.0%	0.0%	0.0%	
	More Critical	14.3%	4.8%	7.7%	0.0%	0.0%	
	Most Critical	28.6%	52.4%	46.2%	75.0%	0.0%	
	Total	100.0%	100.0%	100.0%	100.0%	0.0%	

Linear Regression

Regression Analysis for Respondents' Perceptions towards Credit Enhancement Instruments

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.304[a]	0.092	0.077	0.827	1.840

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.169	1	4.169	6.091	.016[b]
	Residual	41.073	60	0.685		
	Total	45.242	61			

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.541	0.775		1.989	0.051		
	Respondents' Perceptions towards Credit Enhancement Instruments	0.478	0.194	0.304	2.468	0.016	1.000	1.000

Regression Analysis for the Availability of Credit Enhancement Instruments

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.299[a]	0.089	0.074	0.829	1.756

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.043	1	4.043	5.889	.018[b]
	Residual	41.199	60	0.687		
	Total	45.242	61			

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.662	0.738		2.250	0.028		
	Availability of Credit Enhancement Instruments	0.461	0.190	0.299	2.427	0.018	1.000	1.000

Have you interacted with any of the credit enhancement instruments available to IPPs in Kenya and/ or Malawi?

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.027[a]	0.001	-0.016	0.868	1.778

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.033	1	0.033	0.044	.835[b]
	Residual	45.209	60	0.753		
	Total	45.242	61			

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.548	0.550		6.454	0.000		
	Have you interacted with any of the credit enhancement instruments available to IPPs in Kenya and/ or Malawi?	-0.107	0.514	-0.027	-0.209	0.835	1.000	1.000

Regression Analysis for the Pricing of Credit Enhancement Instruments

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.125[a]	0.016	-0.001	0.862	1.855

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.704	1	0.704	0.948	.334[b]
	Residual	44.538	60	0.742		
	Total	45.242	61			

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.867	0.594		4.825	0.000		
	Pricing of Credit Enhancement Instruments	0.155	0.159	0.125	0.974	0.334	1.000	1.000

Regression Analysis for the Adequacy of the cover provided by Credit Enhancement Instruments

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.386[a]	0.149	0.135	0.801	1.671

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.756	1	6.756	10.532	.002[b]
	Residual	38.486	60	0.641		
	Total	45.242	61			

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.020	0.751		1.358	0.180		
	Adequacy of the cover provided by Credit Enhancement Instruments	0.596	0.184	0.386	3.245	0.002	1.000	1.000

In your opinion, do the existing credit enhancement instruments available in Kenya and Malawi effectively address the risks faced by IPPs in the two countries?

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.024[a]	0.001	-0.016	0.855	1.868

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.024	1	0.024	0.033	.856[b]
	Residual	43.123	59	0.731		
	Total	43.148	60			

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.522	0.360		9.776	0.000		
	In your opinion, do the existing credit enhancement instruments available in Kenya and Malawi effectively address the risks faced by IPPs in the two countries?	-0.040	0.220	-0.024	-0.183	0.856	1.000	1.000

Regression Analysis for the Claims History

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.036[a]	0.001	-0.015	0.868	1.784

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.060	1	0.060	0.080	.779[b]
	Residual	45.182	60	0.753		
	Total	45.242	61			

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.526	0.340		10.383	0.000		
	Claims History	-0.030	0.105	-0.036	-0.283	0.779	1.000	1.000

Are you aware of any claim settlements that have been made by guarantors and insurers on credit enhancement instruments issued in support of IPPs in either Kenya and/ or Malawi?

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.010[a]	0.000	-0.017	0.868	1.788

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.005	1	0.005	0.006	.936[b]
	Residual	45.237	60	0.754		
	Total	45.242	61			

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.478	0.538		6.470	0.000		
	Are you aware of any claim settlements that have been made by guarantors and insurers on credit enhancement instruments issued in support of IPPs in either Kenya or Malawi?	-0.023	0.289	-0.010	-0.080	0.936	1.000	1.000

Appendix 9: Research Budget

No.	Items	Cost (KES)
1	1 Months' Subscription to SurveyMonkey for Data Collection	4,900
2	Research Assistant (Data Analysis)	35,000
3	Printing and Binding	5,000
	Total	**44,900**