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Integrated Financing for Renewable Energy in Zimbabwe: A Convergent Mixed-Methods Assessment of Policy Support, Institutional Barriers, and Investment Drivers

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Abstract: Zimbabwe possesses an amazing variety of energy resources in the form of solar, wind, and biomass, but the amount of renewable energy investment and deployment is still quite low overall. The primary objective of this research is to assess the impact of different factors such as policy support, institutional capacity, accessibility to finance, and collaboration among stakeholders on the investment in renewable energy in Zimbabwe. The paper also intends to show how the contextual risk factors affect the decision of the investor. A convergent parallel mixed-methods (hybrid analytics) approach was used to combine quantitative and qualitative evidence. The quantitative data was gathered via a structured survey which was given to 100 people involved in the energy sector and the data was analyzed using the SPSS v28 program, employing descriptive statistics, Pearson correlation, and standard multiple regression techniques. The qualitative data was obtained from 15 semi-structured expert interviews and then analyzed thematically using NVivo in order to support and enrich the statistical findings. The major outcomes of the investigation show that (i) policy support is the only predictor of renewable energy investment likelihood that has been found to be statistically significant ($\beta = 0.321$, $p = 0.002$), the decisive role of policy credibility is being emphasized; (ii) financial accessibility is regarded as critically low despite the fact that there is a relatively high level of collaboration among stakeholders, hence there are persistent constraints that are associated with currency instability, guarantees, and investor risk perception; and finally (iii) the fragmentation of institutions and the ambiguity of regulations are the reasons for the ineffectiveness of the existing financial mechanisms.

Keywords: Renewable energy; financing; policy credibility; Zimbabwe; blended finance

INTRODUCTION

Zimbabwe continues to experience a persistent electricity deficit that poses significant economic, social, and developmental challenges. Chronic power shortages have increased production costs, disrupted industrial operations, and constrained growth in key sectors such as mining, agriculture, and manufacturing, which are central to the country's economic recovery agenda (World Bank, 2021; ZERA, 2023). National electricity access remains limited, particularly in rural areas, reinforcing energy poverty and reliance on environmentally unsustainable biomass sources (African Development Bank, 2022). Paradoxically, Zimbabwe is endowed with abundant renewable energy resources most notably solar, wind, and biomass yet renewables contribute less than a marginal share to the national energy mix despite rising demand and global momentum toward low-carbon transitions (Akpan *et al.*, 2024; Mushosho & Qutieshat, 2024). This disconnect between resource potential and deployment underscores the urgency of examining the structural and institutional factors constraining renewable energy investment.

Globally, renewable energy expansion has been strongly associated with the deployment of integrated financing mechanisms such as blended finance, green bonds, credit guarantees, and public–private partnerships, which have proven effective in mobilizing private capital and managing risk in capital-intensive infrastructure projects (OECD, 2022a; Attridge & Engen, 2019; Gatti, 2023). African flagship cases, including South Africa's Renewable Energy Independent Power Producer Procurement Programme, demonstrate how transparent procurement, standardized power purchase agreements, and credible government commitments can significantly enhance investor confidence and project bankability (Eberhard *et al.*, 2014; OECD, 2022b). These experiences have shaped policy prescriptions across the continent and reinforced the role of institutional credibility and risk allocation in enabling renewable energy finance.

Within Zimbabwe, however, the effectiveness of such mechanisms remains contested. While the government has articulated strong policy intent through instruments such as the National Renewable Energy Policy and the establishment of renewable energy financing initiatives, implementation outcomes have been limited (Government of Zimbabwe, 2019; UN Zimbabwe, 2024). One strand of literature attributes this

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underperformance primarily to macroeconomic instability, currency volatility, and sovereign risk, which elevate investor risk perception and undermine long-term financing arrangements (IDBZ, 2020; World Bank, 2020; MIGA, 2023). Another body of scholarship emphasizes institutional fragmentation, regulatory ambiguity, and weak inter-agency coordination as binding constraints that dilute policy effectiveness and delay project execution (Vangana, 2025; Mushosho & Qutieshat, 2024). A growing third perspective argues that financing instruments alone are insufficient unless embedded within credible and enforceable policy frameworks capable of de-risking investment in fragile governance contexts (Weber & Alfen, 2010; Klijn, 2022; Nocco & Stulz, 2022).

Despite these debates, there remains limited empirical evidence that simultaneously examines policy support, institutional capacity, financial accessibility, and stakeholder collaboration within a single analytical framework in Zimbabwe. Accordingly, this study seeks to examine the drivers of, and barriers to, renewable energy investment in Zimbabwe, with particular focus on whether credible policy support functions as a prerequisite for investment in a high-risk environment. The study addresses the central research question of how these interrelated factors shape investment likelihood and the persistent policy–implementation gap. To achieve this objective, the research adopts a convergent parallel mixed-methods approach, combining quantitative survey data from energy-sector stakeholders with qualitative insights from expert interviews, analyzed using statistical and thematic techniques respectively (Creswell & Plano Clark, 2018; Miles *et al.*, 2014).

This paper is organized as follows: following the introduction, the second section presents a literature review encompassing relevant theoretical and empirical studies on renewable energy finance, policy credibility, and institutional dynamics. The third section outlines the research background and methodology. The fourth section presents the empirical analysis and findings, followed by a discussion of policy implications. The final section concludes with key findings, recommendations, limitations, and directions for future research.

LITERATURE REVIEW

This literature review examines existing theoretical and empirical scholarship on renewable energy financing, with particular emphasis on integrated financing mechanisms, policy credibility, institutional capacity, financial accessibility, and stakeholder collaboration. The review adopts a structured approach that first establishes the theoretical and conceptual foundations guiding renewable energy investment decisions, before synthesizing empirical evidence from global, African, and Zimbabwean contexts. By linking theory to empirical findings, the review identifies key knowledge gaps and provides a basis for the development of testable hypotheses aligned with the objectives of this study.

Theoretical and Conceptual Background

Renewable energy investment is increasingly understood as a systemic process shaped by the interaction of policy frameworks, financial structures, institutional arrangements, and risk perceptions rather than by project-level financial considerations alone. Energy Transition Theory provides a foundational lens for understanding this complexity, conceptualising the shift from fossil-based systems to renewable energy as a socio-technical and institutional transformation rather than a purely technological substitution (Drewello, 2022; Kühne *et al.*, 2022). The theory emphasises that transitions unfold unevenly across governance contexts, with policy coherence and institutional coordination determining investment outcomes. In fragile or high-risk economies, fragmented governance and regulatory uncertainty often delay or distort transition pathways, even where renewable resource potential is high.

Risk Management Theory further explains how investors respond to uncertainty in capital-intensive infrastructure sectors. According to Nocco and Stulz (2022), investors prioritise downside risk protection and cash-flow stability, particularly in environments characterised by macroeconomic volatility and weak contract enforcement. Lee (2021) argues that in such contexts, policy and institutional risks dominate technical risks in shaping investment decisions. This perspective underscores the importance of policy credibility, guarantees, and risk-sharing mechanisms in lowering the perceived risk premium demanded by investors. Integrated financing frameworks combining concessional finance, guarantees, and private capital can therefore be interpreted as institutional responses to systemic risk rather than merely financial innovations.

Public–Private Partnership (PPP) Theory complements this analysis by highlighting the governance dimension of infrastructure financing. PPPs are viewed not only as financing arrangements but as institutional contracts designed to allocate risks to the parties best able to manage them (Klijn, 2022). Effective PPPs depend on trust, transparency, and long-term policy commitment, while poorly designed partnerships often collapse under regulatory ambiguity and political interference. Financial Intermediation Theory further explains the role of financial institutions in mobilising long-term capital and managing information asymmetries. However, in high-risk environments, intermediaries become highly risk-averse, resulting in short loan tenors and stringent collateral requirements that are incompatible with renewable energy project economics (Gbadebo, 2024). Collectively, these theories suggest that renewable energy financing outcomes are fundamentally conditioned by policy support, institutional capacity, and risk mitigation rather than by capital availability alone.

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Empirical Review and Hypothesis Development

Empirical evidence from global and regional contexts supports the theoretical emphasis on policy credibility and integrated financing. Studies from developed economies demonstrate that stable and predictable policy frameworks have been more influential than subsidy levels in attracting renewable energy investment (Geddes, 2021; OECD, 2022a). Long-term instruments such as feed-in tariffs, competitive auctions, and standardized power purchase agreements have reduced revenue uncertainty and enabled large-scale private sector participation. Similarly, China's integrated green finance model—combining policy mandates, concessional lending, and state-backed financial institutions—has reduced transaction costs and accelerated project deployment through centralized coordination (Musonda, 2025).

In Africa, empirical studies highlight the effectiveness of blended finance and PPP-based models when supported by credible institutions. South Africa's Renewable Energy Independent Power Producer Procurement Programme is widely cited as a benchmark, with transparent procurement processes and standardized contracts significantly reducing investor risk and mobilising private capital at scale (Eberhard *et al.*, 2014; Mhango, 2024). Kenya's Lake Turkana Wind Power Project further illustrates how concessional finance and multilateral guarantees can compensate for weak domestic financial systems and high country risk, enabling large-scale investment in renewable energy infrastructure (Geddes, 2021). However, the literature also cautions that such models are difficult to replicate in contexts characterised by weak governance and macroeconomic instability (Knoll, 2025; Weber & Alfen, 2010).

Zimbabwean-focused studies consistently identify policy uncertainty, currency volatility, and institutional fragmentation as primary barriers to renewable energy investment. Mushosho and Qutieshat (2024) find that despite the existence of supportive policies, macroeconomic instability undermines project bankability and deters long-term financing. Vangana (2025) demonstrates that weak inter-agency coordination increases transaction costs and delays project approvals, while Jakarasi (2022) notes that existing financing facilities lack sufficient capital and risk tolerance to meaningfully de-risk investments. Empirical evidence further suggests that while stakeholder collaboration and development partner involvement are present, their impact is limited in the absence of credible policy enforcement and standardized contractual frameworks (Hlatshwayo & Mpundu, 2024; UN Zimbabwe, 2024).

Drawing from this empirical literature, the study posits that integrated financing conditions influence renewable energy investment outcomes, but that their effectiveness is mediated by policy credibility and institutional capacity. While financial accessibility, institutional strength, and stakeholder collaboration are expected to positively influence investment, the literature increasingly suggests that policy support plays a dominant role in high-risk environments. Accordingly, the following hypotheses are formulated:

- **H1:** Policy support has a positive and statistically significant effect on renewable energy investment likelihood in Zimbabwe.
- **H2:** Financial accessibility has a positive effect on renewable energy investment likelihood in Zimbabwe.
  H3: Institutional capacity has a positive effect on renewable energy investment likelihood in Zimbabwe.
  H4: Stakeholder collaboration has a positive effect on renewable energy investment likelihood in Zimbabwe.
- These hypotheses enable empirical testing of whether policy credibility outweighs other integrated financing components in shaping renewable energy investment decisions within Zimbabwe's high-risk economic context.

RESEARCH AND METHODOLOGY

The study methodology is presented herewith as the research design, data sources, sampling procedures, measurement instruments, analytical techniques, and the ethical considerations that were taken into account. The method is explained so well that others can repeat and retest the experiment, which is in accordance with the basic rules of scientific research. A mixed-methods approach is used in the survey so as to provide both quantitative and qualitative data on the factors influencing renewable energy investment in Zimbabwe.

Research Design and Conceptual Model

The study employed a convergent parallel mixed-methods research design, whereby quantitative and qualitative data were collected concurrently, analysed independently, and integrated during interpretation to enhance validity through triangulation (Creswell & Plano Clark, 2018). This design was selected to combine the strengths of statistical generalisation with in-depth contextual understanding, particularly appropriate for complex policy–finance interactions in high-risk environments.

The quantitative component tested hypothesised relationships between policy support, financial accessibility, institutional capacity, stakeholder collaboration, and renewable energy investment likelihood. The qualitative component complemented this analysis by exploring how policy credibility, regulatory enforcement, and risk perception shape investment behaviour in practice. Integration occurred at the interpretation stage, where qualitative themes were used to explain and contextualise statistical findings.

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Figure 1 presents the conceptual model guiding the study, illustrating the hypothesised direct effects of the four independent variables on renewable energy investment likelihood.

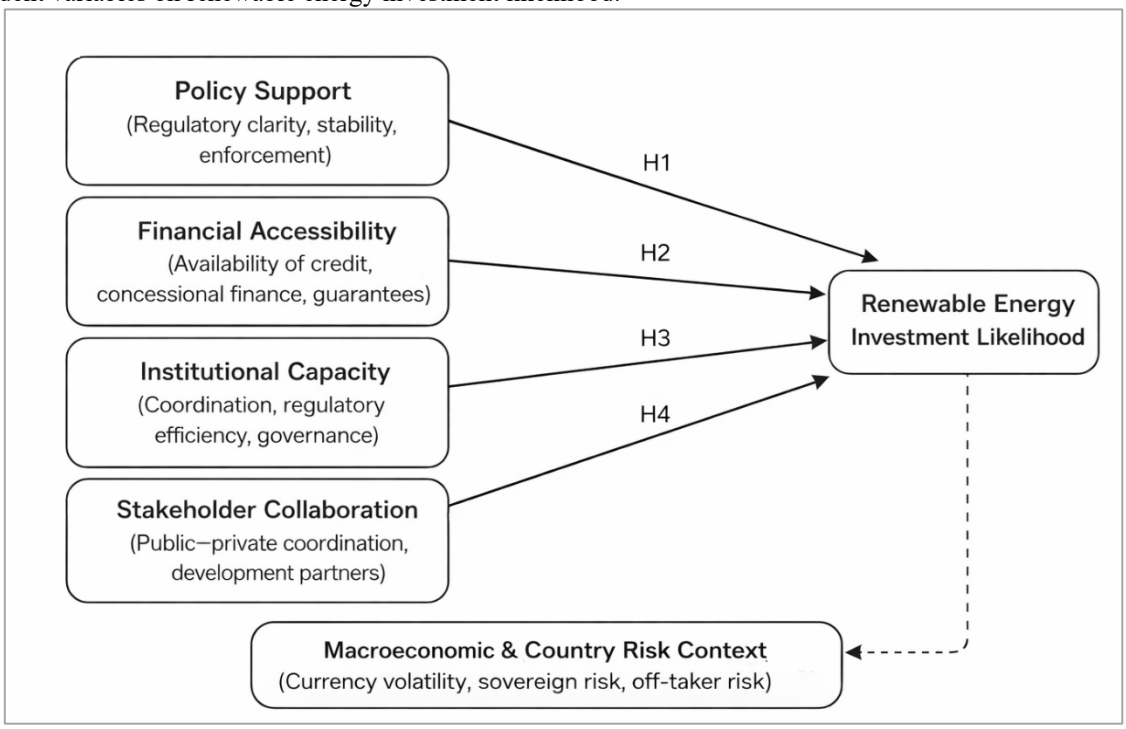

Figure 1: Conceptual Model of the Study
Source: Mhango, (2024), Drewello, (2022)

Study Population and Sampling Procedures

The target population was made up of about 500 energy-sector stakeholders that were all part of the renewable energy ecosystem in Zimbabwe. These stakeholders included government ministry representatives, regulatory authority members, independent power producers, financial institutions, development partners, energy and environmental consultants, and academic experts. The selection of this mixed population was intentional to cover all angles of the different opinions in the policy-making, financing, regulation, and project implementation areas.

For the quantitative part of the research, a sample size of 100 was calculated using Slovin's formula at a 5% error rate thus, guaranteeing statistical sufficiency and representativeness. The selection of respondents was through stratified purposive sampling so that the key stakeholder groups would have their proportions represented. The qualitative strand employed expert purposive sampling and the outcome was 15 semi-structured interviews with senior professionals who possessed a high level of expertise in the sector. The interviewers were selected according to their direct participation in the areas of either policy-making, financing, regulation, or project development related to renewable energy, thus ensuring the collection of rich, high-quality data.

Data Collection Methods

Quantitative data were collected using a structured questionnaire administered electronically and in person. The instrument employed five-point Likert-scale items (1 = strongly disagree to 5 = strongly agree) to measure the following constructs:

- Policy Support
- Financial Accessibility
- Institutional Capacity
- Stakeholder Collaboration
- Renewable Energy Investment Likelihood (dependent variable)

Qualitative data were gathered through semi-structured interviews, guided by an interview protocol designed to explore:

- policy credibility and enforcement,
- regulatory processes and approval timelines,
- investor risk perceptions (currency, sovereign, and off-taker risks),
- institutional coordination, and
- accessibility and effectiveness of financing instruments.

All interviews were audio-recorded with participant consent and later transcribed verbatim.

Data Analysis Techniques

Quantitative data were analysed using SPSS version 28. Descriptive statistics were used to summarise respondent characteristics and variable distributions. Pearson correlation analysis examined associations among variables, while standard multiple regression analysis tested the hypothesised effects of the

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independent variables on renewable energy investment likelihood. Qualitative data analysis was conducted using NVivo, following a thematic analysis procedure involving open coding, categorisation, and theme development (Miles *et al.*, 2014). Emergent themes were compared with quantitative results to identify convergence, complementarity, and divergence across data strands.

Reliability, Validity, and Ethical Considerations

Instrument reliability was assessed through a pilot study, and internal consistency was confirmed using Cronbach's alpha coefficients, all exceeding the acceptable threshold of 0.70. Content validity was ensured through expert review and alignment with established literature. Ethical approval for the study was granted by the University of Zambia Research Ethics Committee (Ref. No. 6432-2025). All participants provided informed consent prior to participation, and confidentiality and anonymity were maintained throughout the research process. Data were securely stored and used solely for academic purposes.

Table 1: Summary of Selected Empirical Literature

Author (Date)	Subject	Variables	Methods	Findings
Bozdogan (2021)	Energy problem in aviation	Flight number, passengers, cargo size	Regression analysis	Passenger numbers, flight distance, range, and cargo type significantly affect fuel consumption
Steam *et al.* (2022)	Fatigue in aviation	Cabin crew, pilots, passengers	Multiple regression model	Increased pilot fatigue on long-haul flights negatively affects performance and safety
Mhango (2024)	Renewable energy financing in Africa	Policy support, blended finance, risk	Mixed methods	Policy credibility significantly improves private investment mobilisation
Mushosho & Qutieshat (2024)	Renewable energy policy in Zimbabwe	Policy stability, institutional capacity	Qualitative review	Weak implementation undermines otherwise sound policy frameworks

***Source**: Authors*

FINDINGS AND DISCUSSION

Findings

Descriptive Statistics

Descriptive statistics were computed to summarize stakeholder perceptions of key determinants of renewable energy investment in Zimbabwe. Variables included stakeholder collaboration, policy support, investment likelihood, institutional capacity, and financial accessibility, measured on a five-point Likert scale, with higher scores indicating stronger agreement. The sample comprised 100 respondents, providing sufficient data for preliminary inferential analysis (Table 2).

Table 2: Descriptive Statistics of Key Variables (N = 100)

	Mean	Standard Deviation
Stakeholder Collaboration	4.13	1.42
Policy Support	3.29	1.36
Investment Likelihood	3.41	1.21
Institutional Capacity	3.02	1.28
Financial Accessibility	2.82	1.44

Collaboration between stakeholders was recorded to be the highest rating (M = 4.13), which pointed at an impact of engagement among governmental officials, private investors, financiers, and partners for development. Policy environment and regulatory capacity were rated average indicating the presence of formal frameworks but insignificant effectiveness. Financial accessibility obtained the lowest level of scoring (M = 2.82), testifying to emerging barriers to long-term and affordable funding. Investment intent was scored at medium positive levels (M = 3.41), showing that stakeholders are cautiously optimistic. In summary, overall descriptive results indicate a coordination-vs.-finance mismatch-where there exists collaboration but with inadequate financial mechanisms and institutional consistency. These results are in tandem with the likes of previous studies on Zimbabwe governance and renewable energy finance, according to which the trends of collaboration are emerging, and financing vacuums and regulatory discrepancies are metered out (Vangana, 2020; Mushosho & Qutieshat, 2021; Hlatshwayo & Mpundu, 2019).

Pearson Correlation Analysis

Pearson correlation analysis was conducted to examine bivariate associations between independent variables and investment likelihood (Table 3).

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Table 3: Pearson Correlation Matrix (N = 100)

	Investment Likelihood	Policy Support	Financial Accessibility	Stakeholder Collaboration	Institutional Capacity
Investment Likelihood	1.000				
Policy Support	0.437**	1.000			
Financial Accessibility	0.219*	0.284*	1.000		
Stakeholder Collaboration	0.091	0.312*	0.198	1.000	
Institutional Capacity	0.064	0.295*	0.176	0.341*	1.000

- $p < 0.05$, ** $p < 0.01$

Policy support shows a moderate, statistically significant positive correlation with investment likelihood ($r = 0.437$, $p < 0.01$), indicating that stronger, credible policies are associated with higher investor confidence. Financial accessibility has a weaker positive correlation ($r = 0.219$, $p < 0.05$), while stakeholder collaboration and institutional capacity show weak, non-significant correlations. These results reinforce the centrality of policy credibility in shaping renewable energy investment and suggest that financial and institutional factors operate conditionally, contingent on regulatory certainty. Similar trends have been reported in comparable contexts, where institutional arrangements influence investment primarily through their interaction with policy credibility (Geddes, 2019; Mhango, 2018; Musonda, 2020).

Multiple Regression Analysis

Multiple regression was used to assess the combined effects of policy support, financial accessibility, stakeholder collaboration, and institutional capacity on investment likelihood (Tables 4 and 5).

Table 4: Model Summary

R	R^2	Adjusted R^2	Std. Error of Estimate
0.571	0.326	0.298	0.83

Table 5: Regression Coefficients

Predictor	β	t	p-value
Constant	—	2.215	0.030
Policy Support	0.321	3.186	0.002
Financial Accessibility	0.114	1.176	0.243
Stakeholder Collaboration	0.027	0.272	0.786
Institutional Capacity	0.007	0.079	0.937

The regression confirms that policy support is the only statistically significant predictor of investment likelihood ($\beta = 0.321$, $p = 0.002$), providing strong empirical support for the study's working hypothesis that policy credibility is decisive in guiding renewable energy investment in Zimbabwe. Financial accessibility, stakeholder collaboration, and institutional capacity were not significant independent predictors, suggesting their influence is largely mediated by policy credibility. These findings align with research indicating that, in high-risk environments, investors prioritize regulatory certainty over financing instruments or institutional arrangements (Hlatshwayo & Mpundu, 2019; Musonda, 2020; Mushosho & Qutieshat, 2021).

Qualitative Findings

Qualitative analysis identified four themes that provide explanatory depth to the quantitative results:

- **Regulatory ambiguity and policy uncertainty:** Participants emphasised that policies are inconsistent and poorly enforced, with unclear implementation procedures and unpredictable timelines. Sudden changes in licensing requirements and tariffs increased perceived project risk, reducing investor confidence.
- **Investor risk perception and macroeconomic exposure:** Currency volatility, inflation, and the absence of sovereign guarantees amplified risk perceptions. Participants noted that revenues denominated in local currency versus debt obligations in foreign currency exposed investors to exchange-rate risk, discouraging investment even for technically viable projects.
- **Institutional fragmentation and governance confusion:** Overlapping mandates, conflicting directives, and weak inter-agency coordination increased transaction costs and slowed approvals. Investors found it difficult to navigate institutional structures efficiently, which limited the practical impact of institutional capacity.
- **Financial exclusion and limited access to instruments:** Commercial banks' high collateral requirements and short loan tenors effectively excluded smaller developers. Awareness and accessibility of alternative instruments, such as green bonds or blended finance facilities, were low, rendering financial accessibility insufficient in the absence of credible policy support.

Integration and Triangulation

Triangulating quantitative and qualitative evidence confirms that policy support is the central driver of investment likelihood in Zimbabwe. Quantitative results show policy support as the only significant predictor in regression analysis, while

qualitative findings explain the mechanisms: inconsistent enforcement, regulatory unpredictability, macroeconomic exposure, and fragmented institutions increase perceived risk, rendering financing mechanisms ineffective. Together, the evidence validates the working hypothesis and illustrates that financial and institutional factors operate conditionally, dependent on policy credibility.

Discussion

Policy support as the primary investment signal

Policy support emerges as the decisive determinant of renewable energy investment likelihood, supporting Risk Management Theory, which posits that investors prioritize regulatory consistency, enforceability of contracts, and credible incentives in high-uncertainty contexts. The findings extend prior research (Musonda, 2020; Mhango, 2018) by demonstrating empirically that, when considered jointly, policy credibility outweighs financial accessibility and institutional capacity in Zimbabwe's high-risk investment environment. Policy support is understood not merely as formal existence of policies, but as long-term governmental commitment and predictable enforcement, which signal stability to potential investors.

Financial accessibility as a conditional constraint

Although financial accessibility scored lowest descriptively, its non-significance in regression analysis indicates that financing constraints are primarily endogenous to policy risk. In unstable regulatory environments, financiers respond by shortening tenors, increasing collateral requirements, or withdrawing altogether, reducing access to capital. These findings confirm research in fragile and transitioning economies, where globally available capital may remain inaccessible locally due to regulatory uncertainty (Hlatshwayo & Mpundu, 2019). This positions financial instruments as dependent variables in the policy–investment relationship rather than independent drivers.

Institutional capacity and fragmentation

Institutional capacity was not statistically significant in predicting investment likelihood, highlighting the distinction between technical competence and effective governance. Fragmented mandates, overlapping responsibilities, and weak inter-agency coordination increase transaction costs, delay approvals, and amplify risk perceptions. This contribution refines institutional theory by showing that strengthening technical capacity alone is insufficient without coherent authority and coordination mechanisms.

Stakeholder collaboration: engagement versus formal coordination

High perceived collaboration (M = 4.13) contrasts with its lack of statistical significance, underscoring the difference between informal engagement and formal, enforceable coordination. Collaborative efforts without binding authority are insufficient to alter investor risk perceptions, suggesting the need for institutionalised governance structures that integrate participation with decision-making power. These insights contribute to governance literature by emphasising the limits of consultative platforms in driving tangible investment outcomes.

Implications for theory and future research

The findings suggest a hierarchical relationship among determinants of renewable energy investment policy credibility conditions the effectiveness of finance and institutional arrangements. Future research could test this hierarchy across multiple high-risk country contexts, employ longitudinal designs to track investment flows, or evaluate the efficacy of integrated policy–finance mechanisms such as blended finance or national renewable energy financing facilities. Moreover, testing the causal pathways between policy enforcement, institutional coherence, and private sector engagement would extend theoretical understanding of investment behavior in fragile economies.

CONCLUSIONS

The study's working hypothesis that policy support is the decisive determinant of renewable energy investment likelihood in Zimbabwe is strongly supported by both quantitative and qualitative evidence. Regression analysis identifies policy support as the only significant predictor, while qualitative insights clarify how regulatory inconsistency, macroeconomic exposure, and fragmented institutions amplify perceived risk and suppress capital deployment. Financial accessibility and institutional capacity, while relevant, operate primarily through policy credibility, representing a conditional rather than autonomous influence.

This research contributes to the literature by establishing the primacy of policy credibility in high-risk investment environments, demonstrating that financing instruments and institutional arrangements are subordinate to regulatory certainty. It also advances theoretical understanding by integrating risk management and institutional perspectives, showing how policy enforcement mediates the practical effectiveness of financial and administrative frameworks.

The study is constrained by reliance on perception-based data and cross-sectional design, which limit causal inference. Future research should track actual investment flows, compare Zimbabwe with peer markets, and experimentally evaluate interventions such as prototype national renewable energy financing facilities.

Institutional-systemic implications are clear: enhancing renewable energy investment requires integrated mechanisms that combine policy anchoring, risk mitigation, and coordinated finance. Establishing a National Renewable Energy Financing Facility with a

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legislated mandate, risk-sharing instruments, and a one-stop coordination hub would directly address observed gaps between policy intent, institutional performance, and financial accessibility. These measures could materially increase investor confidence, accelerate renewable energy deployment, and strengthen Zimbabwe's overall energy transition.

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- **Authors' contributions:** Chawheta: Conceptualization, methodology, investigation, analysis, writing original draft. Kumari: supervision, validation, writing review and editing.

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