



The value of project risk management in South African energy infrastructure megaprojects

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Mini-dissertation accepted in partial fulfilment of the requirements for the degree *Master of Commerce in Applied Risk Management* at the North-West University

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Notes to examiners

- The mini-dissertation should demonstrate that the student has the ability to:
 - Do research
 - Constructively criticise own and others' research
 - Report the research findings clearly, accurately, and concisely with enough information to allow others to evaluate and perform a similar study, should they wish to do so.
- This study represents the student's learning during a nine-month research project at the master's degree level. It is therefore not necessary that the findings represent a substantial contribution to the academic knowledge of the field.
- The mini-dissertation was written in article format and consists of three sections: Research project overview, Article, and Reflection. The focus of the mini-dissertation is on the article written by the student.
- The research project overview section should provide a high-level introduction to the research project that adequately prepares the reader to understand the study.
- The Reflection section should provide a critical evaluation of the study and allow the student to reflect on their personal learning during the project.
- The student should provide a study-specific summary of the literature related to the specific study in the article.
- The maximum word count for the article is 8000 words. This maximum word count excludes words used in tables and figures, the article abstract, references, and appendices. The maximum word count for the abstract is 300.
- The additional information in the appendices should be considered when evaluating the content of the three main sections of the dissertation.
- The supervisors' role was to provide guidance and assistance on project conceptualisation, data analysis, interpretation, and writing skills. The student was ultimately responsible for conceptualising, setting up, executing, and writing up the research project.
- Turnitin was used to assist with plagiarism checking before the student was allowed to submit for examination.

Preface

This mini-dissertation is the final deliverable for the Master of Commerce (MCom) in Applied Risk Management. The mini-dissertation was written in article format and consists of three sections: Research project overview, Article, and Reflection.

This mini-dissertation is the student's work. The student was responsible for the final concept, setup, execution of the research project, and writing of the mini-dissertation. The supervisory team members contributed in an advisory and technical support capacity to the study's conception and design, analysis and interpretation of data, and critical revision of the manuscript. The mini-dissertation was language edited before submission for examination. However, the student is responsible for making these edits and for the grammatical correctness of the final document.

I declare that this mini-dissertation was done according to the NWU Guidelines on Responsible and Ethical Use of Artificial Intelligence (https://www.nwu.ac.za/sites/www.nwu.ac.za/files/files/i-governance-management/policy/2024/November-2024/2P_2.4.3.2_Policy-on-Academic-Integrity.pdf)

The primary study supervisor permitted the student to submit this mini-dissertation for examination.

Abstract

Note: Article abstract will be inserted here in the final post-examination version of the mini-dissertation. See abstract in the article for examination purposes.

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I thank God for the strength, focus, and perseverance that carried me through this journey.

To my wife and children, your patience, love, and understanding gave me the support I needed to complete this work. To my family and friends, thank you for your encouragement and prayers throughout this process.

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Research project overview

The energy sector in South Africa has been fraught with challenges, including infrastructure and governance issues, in the megaproject environment. These projects are associated with complexities such as cost overruns and project delays, leading to decreased stakeholder confidence and service delivery. It is important that the risks associated with infrastructure megaprojects are managed effectively to ensure that projects deliver their intended economic and social value, while maintaining transparency, accountability, and sustainability within the public governance framework. This study explores the value of project risk management (PRM) in South Africa's public-sector energy megaprojects environment.

The paper is divided into the following parts: Abstract, Introduction, Background, Methodology, Findings, Discussion, Conclusion, and Reflection. The abstract describes an overview of the study, including the objectives, approach, and findings. The introduction and background section contextualise the topic, discuss the problem, and the gap in the current literature. The method section presents the procedure followed in the qualitative document analysis, which was conducted in relation to four public governance documents. The analysis was guided by seven pre-defined themes derived from academic and practitioner literature. The findings and discussion section analyses how the seven themes manifest across corporate, regulatory, and oversight perspectives, showing that PRM has evolved from a compliance function to a strategic governance capability.

The study also identifies two additional themes that emerged from the analysis, Environmental, Social and Governance (ESG) alignment and external assurance, which extend the understanding of PRM's value beyond internal processes to include sustainability and stakeholder transparency. The conclusion section covers the key findings, recommendations, and contributions of the study. Then the reflection part describes what was learnt throughout the course of conducting the study, and personal development with regard to learning analytical and academic skills. The appendices include the evidence, coded excerpts, and thematic matrices, which ensure the verification of the findings related to the research process.

The study is firmly located in the field of risk management, investigating the role of PRM in ensuring enterprise governance, project assurance, and realising value. It specifically makes use of the fundamental principles of ISO 31000 Risk Management guidelines and the King IV Report on Corporate Governance for South Africa recommendations, both of which include risk-informed decision-making, resilience, and accountability in ensuring effective governance. An investigation into the integration of PRM in the energy infrastructure area will therefore add to the body of evidence related to, in particular, enhancing risk culture, risk governance maturity, and resilience in complex

public-sector systems. The findings will provide a theoretical and practical understanding of the benefits of risk management when contextualised into strategic and operational structures, promoting transparency, accountability, and project outcomes.

As an Advisor in Risk and Quality Management within the South African energy sector, I have experienced first-hand the effects of fragmented accountability, cost overruns, and misalignment between risk frameworks and project delivery. These have led to an interest in investigating whether the institutionalisation of PRM can add governance value. The study was also informed by the scarcity of practical, empirically grounded evidence related to the value of PRM in developing-country contexts, specifically in state-owned energy entities with infrastructure megaprojects. The research adds to the accumulation of knowledge in risk-informed governance and provides an understanding that may lead to more integrated, value-driven risk management frameworks across the public sector.

Additionally, the study provided the researcher with the opportunity to acquire knowledge on how to undertake an applied research project and to demonstrate competency in conducting research at the master's degree level. Table 1 describes the role players in the “Value of PRM in South African Energy Infrastructure Megaprojects” study.

Table 1. Role players in the ‘Value of PRM in the South African Energy infrastructure megaprojects’ study.

#	Team member	Role
1	Researcher: King Sibande	Conducted the literature review, developed the thematic codebook, collected and analysed publicly available governance documents and compiled the findings, discussion, and conclusions.
2	Supervisor: Gloria Nyamah	Provided supervision and guidance on the study.
3	Language editor: Dr Wena Coetzee	Did a grammar-only edit of the dissertation before submission for examination.

Article

The value of project risk management in South African energy infrastructure megaprojects

Abstract

This study examined the value of project risk management (PRM) in South Africa's energy infrastructure megaprojects. Using a qualitative document analysis method, it explored a unique area in actual risk work, the value of PRM within the country's public-sector energy environment. Four publicly available integrated governance reports were analysed to address the research question: *"What is the value of PRM in South African energy infrastructure megaprojects?"* As a new research area, the study appeals to stakeholders in state-owned institutions and investors concerned with governance, transparency, and performance outcomes. A literature review was conducted to analyse peer-reviewed sources on project governance, risk culture, and megaproject management. This informed the development of a thematic codebook, highlighting key themes and subthemes for assessing PRM value. Governance and institutional reports of the energy public utility, as well as oversight and regulatory documents, were examined against these themes to ascertain the level at which PRM demonstrates value addition through governance integration, confidence in decision-making, and resilience. Findings indicate the value of PRM by linking strategic planning, risk governance, and assurance frameworks within public infrastructure megaprojects. The state-owned energy utility documents demonstrate the development of PRM from a compliance task to a mature governance competency, integrated into strategic planning, performance, and ESG assurance. However, oversight, as well as regulatory views, reveal the persistent challenges that include a lack of accountability and compliance-driven practices. To unlock greater public-sector value from PRM, the study proposes three recommendations: fostering institutional integration, reinforcing a risk-aware culture, and encouraging more strategic collaboration between corporate, regulatory, and oversight actors.

Keywords: *Project risk management, energy, infrastructure, megaprojects, risk culture, risk work, South Africa.*

Introduction

The South African energy environment is filled with uncertainty due to ageing infrastructure requiring extensive maintenance and upgrades, resulting in electricity shortages curbed by the introduction of load shedding and load reduction (Department of Mineral Resources and Energy [DMRE], 2023). This has caused disruption in the general South African economy as businesses, hospitals, schools, and other key economic operations are interrupted, thereby negatively impacting economic activities and growth. The DMRE is responsible for overseeing the energy sector in South Africa. Megaprojects have been positioned as central to national development plans, particularly in the energy sector, where infrastructure is crucial to economic growth and social stability. Megaprojects are defined as large-scale, complex ventures that cost more than US\$1 billion and are marked by extended time horizons, multiple stakeholders, and high levels of risk, which are viewed as a means to expand capacity, modernise infrastructure, and secure energy reliability (Flyvbjerg, 2014). In South Africa, large investments in megaprojects such as coal-fired power stations have been made; however, repeated extensive schedule overruns, cost increases, and quality issues have impacted the delivery thereof (National Planning Commission [NPC], 2012).

A study conducted by Thomas (2013) highlights the need for megaprojects in South Africa; however, they habitually underperform due to weak governance structures, inadequate risk management, and poor integration between planning and execution. To improve the performance of energy megaprojects, the systematic application of PRM is paramount. PRM is defined as a structured process of identifying, analysing, and responding to uncertainties that may affect project objectives (Project Management Institute, 2021). In principle, PRM aims to support decision-making, align stakeholder expectations, and increase the likelihood of project success. Even when PRM frameworks have been introduced in large megaprojects, the debate is not on the application of these frameworks but that they have been treated as ways of compliance rather than instruments for measurable value creation (Willumsen et al., 2019).

This highlights the necessity of transcending procedural advocacy and examining how PRM contributes value to the performance of megaprojects (Testorelli et al., 2024). In this study, value in PRM refers to the benefits derived from risk-informed planning and decision-making, including improved governance, stakeholder alignment, and decision confidence (Testorelli et al., 2024; Willumsen et al., 2019). As highlighted by Willumsen et al. (2019), value is context- and stakeholder-dependent, rather than absolute. By adopting these definitions at the outset, the study ensures clarity and consistency in how PRM and its value are evaluated throughout.

Despite empirical research conducted globally and locally suggesting that formal risk strategies can improve decision-making, stakeholder acceptability and delivery on projects (Rabechini Jr. & de

Carvalho, 2013; Voetsch et al., 2004), the value created by PRM in the South African energy infrastructure megaprojects has not yet been demonstrated empirically to the best of the researchers' knowledge. This represents a gap between the theory of PRM and its observed strategic influence and raises the concern that PRM could be merely treated as a compliance practice rather than a facilitator of performance (Testorelli et al., 2024). Thus, this study aims to address this gap in the literature by investigating the value of PRM in the South African energy infrastructure megaprojects environment.

Closing this gap has both practical and academic implications. To practitioners, demonstrating the value of PRM serves as an opportunity to improve governance, ensure accountability, and produce predictable project outcomes (Willumsen et al., 2019). Policymakers could benefit from such evidence in infrastructure governance reform, especially in light of South Africa's current severe energy reliability challenges (National Energy Regulator of South Africa, 2024). From an academic perspective, the research contributes to the growing literature on behavioural and value-based approaches to risk management that go beyond a focus on threat avoidance.

Current literature emphasises the tools and techniques of PRM, such as risk registers, probability-impact matrices, and formal reports, but less attention has been given to the value outcomes of these practices in megaprojects (Willumsen et al., 2019). Evidence from the literature demonstrates that risk management has the potential to increase confidence when making decisions and improving the alignment between stakeholders (Rabechini Jr. & de Carvalho, 2013), yet it is unclear whether such benefits accrue in the case of energy infrastructure megaprojects within South Africa. Previous work on some South African projects, notably the Gautrain (Thomas, 2013), reports governance inefficiencies, but does not measure the immediate value of PRM. The originality of this study is in the qualitative exploration of how the value of PRM is reflected in South African energy megaprojects, which fills the major deficit in both local and international studies.

To address this gap in the literature, this study will be executed with the following research question in mind: *What is the value of PRM in infrastructure megaprojects based on the literature?* The objective of the study is to examine how PRM contributes to governance, decision-making, and project resilience in South African energy infrastructure megaprojects. To achieve this, the study adopts a qualitative, document-based case study design, drawing on organisational reports, inquiry findings, and secondary literature relating to South African energy megaprojects. Through thematic analysis, the research identifies how PRM has contributed, or failed to contribute to project outcomes, thereby providing evidence of its practical and strategic value in this context.

Background

Historically, risk management in projects has been adapted around the avoidance of negative occurrences: threats to cost, schedule, and quality (Voetsch et al., 2004). According to Testorelli et al. (2024), PRM adds value, including more informed decisions, greater stakeholder confidence and clearer governance. Kutsch and Maylor (2011) describe instances where PRM is used as a ritual for compliance rather than to improve project findings genuinely. Similarly, Power (2009) refers to this as the “risk management of nothing,” where risk processes exist formally but do not translate into value in practice. Willumsen et al. (2019) contend that value is not absolute, that is, it is stakeholder- and context-dependent. Further, Willumsen et al. (2019) state that PRM contributes towards improving the quality of planning, control, and confidence, all of which are important in a megaproject context. This change from defensive to strategic risk thinking emphasises the importance of PRM evaluation to be considered in terms not only of threat avoidance, but also value added. Aven and Zio (2014) argue that risk evaluation should not be considered solely for probabilities and threats but rather serve as a guide for decision-making under uncertainty. This suggests that while PRM can create value, its effectiveness critically depends on the context in which it is applied. In South Africa, where energy megaprojects have struggled with governance and delivery, it remains unclear whether PRM contributes measurable value beyond compliance.

South African energy sector background

The South African electricity sector is heavily reliant on public infrastructure and state-owned enterprises, with around 90% of the country’s electricity supplied by a public energy company (National Energy Regulator of South Africa, 2024). For the last 20 years, the industry has been plagued by an ageing asset base; hold-ups on major investment projects and financial unviability, and a lack of sufficient generation reference. Large energy megaprojects, such as the two more recent coal power stations in South Africa, have experienced endemic and alarming cost overruns, delays, and governance challenges, leading to public concern about infrastructure delivery and project management capability in the country (National Treasury, 2023; Thomas, 2013). Despite these challenges, energy infrastructure remains a cornerstone of South Africa’s economic development, as is evident in the National Development Plan 2030 (National Planning Commission [NPC], 2012) and the Integrated Resource Plan (Department of Mineral Resources and Energy [DMRE], 2023). In this policy framework, the state-owned electricity sector requires the Public Finance Management Act (PFMA) and National Treasury regulations that necessitate formal risk management frameworks and reporting practices in the state-owned entities of the sector. But the degree to which such systems can create a demonstrably valuable system, as opposed to being a compliance system, has not been subject to much empirical data in scholarly research.

South African infrastructure megaproject context

The South African infrastructure sector is particularly influenced by its developmental requirements, political economy, and the governance character of the public sector. A major public transport megaproject analysis by Thomas (2013) highlighted governance inefficiencies and a lack of transparency despite the project's technical success. This raises the question of whether formal risk management frameworks in public megaprojects add value to projects or primarily function as compliance mechanisms. Chipkin and Swilling (2018) argue that the phenomenon of state capture, defined as the systematic subversion of public institutions and decision-making processes by private or political interests for personal gain, has undermined institutional capacity, leading to infrastructure procurement systems that are vulnerable to corruption and inefficiency.

The Judicial Commission of Inquiry into Allegations of State Capture (2022) confirmed how such practices distorted value delivery in large public projects. These findings suggest that even when risk frameworks exist, governance weaknesses can prevent them from translating into value. The same concern applies to the energy sector more broadly. Although state-owned electricity providers may have enterprise risk management (ERM) frameworks and project oversight mechanisms in place, there are no publicly available academic studies on the value generated by these systems in their large-scale generation, storage, or battery initiatives. McGregor et al. (2025), in their work on green hydrogen megaprojects, argue for proactive, data-driven risk assessment models to enhance long-term outcomes and stakeholder confidence. Considered together, these cases highlight a common gap: the need to assess the value added by PRM to South African state-led energy infrastructure megaprojects. The wider public financial management environment in South Africa, as outlined in the PFMA reports from National Treasury (2023), maintains the focus on underdelivery of infrastructure, cost overruns and poor risk controls, indicating the need for risk systems that go beyond merely flagging problems after they occur.

Global evidence of the value of PRM in infrastructure megaprojects

There is empirical evidence in numerous geographical regions to support the assertion that formal PRM has a positive influence on project success. Based on research on 415 projects in Brazil, Rabechini Jr. and de Carvalho (2013) verified a correlation between formal risk processes and project performance, particularly when these processes are led by experienced risk managers. Further evidence by Gao and Zhang (2025) showed that efficient ESG risk-oriented frameworks increase corporate value and control financial speculation, highlighting a dual role of risk management, which exists in controlling risk and adding value. Voetsch et al. (2004) demonstrated that project success was high when there was (1) robust risk planning, (2) management support, and (3) a qualitative risk assessment process, although the use of quantitative tools was low. These

findings support the notion that risk management can be an enabler for project success if it is applied strategically and consistently. Testorelli et al. (2024) further aggregated more than 100 papers to provide a more comprehensive understanding, revealing formalisation, stakeholder involvement, and process maturity as enablers of risk-related value in projects. The theoretical framework thereof could have implications for placing risk into perspective in relation to risk-related practices in the South African megaproject context.

Risk work in infrastructure megaprojects

Risk work is defined as the situated human effort, in combination with material infrastructure, through which risk management and governance practices are developed and enacted (Boholm, 2019). It extends beyond the formality of risk tools, such as risk registers and heat maps, into informal judgement, experience-based prioritisation, negotiation with stakeholders, and adaptive management in the presence of unseen risks. These efforts represent the practical enactment of risk management, especially under conditions of uncertainty, complexity, and high public visibility (Power, 2009; Willumsen et al., 2019). Scholars emphasise that risk work is not only technical but also socially constructed (Boholm & Corvellec, 2011; Mikes, 2011). Boholm (2019) further shows that everyday risk practices are shaped by negotiation, trust, and competing interests. In megaprojects, this means that risk registers and models provide structure, but outcomes often depend on the ability of teams to adapt and manage conflict among stakeholders.

PRM is important for the successful execution of megaprojects, especially in complex industries that are characterised by considerable risks and operational challenges, such as the energy sector. Power generation projects involve complex systems and cutting-edge technologies, which increase uncertainty during construction and operation, requiring careful management in order to avoid costly delays and compliance issues (KPMG, 2018; Marsh, 2022). In these circumstances, PRM acts not merely as a defence mechanism but becomes a strategically vital function for achieving successful projects and long-term value. In particular, the energy industry, technological, environmental and financial risks are interdependent and need to be managed within strict performance deadlines. As a finding, PRM is no longer seen solely as a safeguard mechanism but as a strategic function that can enable long-term project value. Energy infrastructure megaprojects in the South African electricity sector range from newly built coal power stations to large pumped-storage schemes, gas and utility-scale battery storage projects. Such projects possess attributes of high complexity, long duration and extensive risk management requirements, thus serving as a suitable setting for examining the value of PRM (Flyvbjerg, 2014).

Frameworks for evaluating PRM value

Testorelli et al. (2024) and Willumsen et al. (2019) developed frameworks to facilitate the assessment of value creation in risk management. These frameworks encompass factors such as stakeholder alignment, governance effectiveness, adaptability, and risk-informed planning, which are all observable in practice in large projects through documentation. Moreover, the Project Management Institute (2021) provides a theoretical structure for connecting risk management with performance measurements other than time and cost. According to Aven and Zio, risk evaluation frameworks should incorporate more than probabilities and losses; they should guide decisions under uncertainty (Aven & Zio, 2014). The ISO 31000 standard emphasises integration and continuous improvement across governance systems, while PMI focuses more on adaptability in uncertain environments. However, Olechowski et al. (2016) argue that ISO's principles can support the professionalisation of risk management, although their impact depends heavily on how organisations embed them in practice.

These models highlight how risk management enables the achievement of alignment, engagement, and resilience strategies, especially in megaproject contexts with long implementation timelines and a high rate of uncertainty. Mikes (2011) cautions that frameworks risk oversimplifying complex realities if they focus narrowly on process without considering behaviour and culture. Kutsch and Maylor (2011) note that frameworks may be applied ritualistically, creating the appearance of control while overlooking deeper organisational learning. This highlights the importance of evaluating not only whether PRM frameworks are present but also whether they generate value in practice. Despite the availability of these models and standards, no study has systematically applied them to assess the value of PRM in South African energy megaprojects. This study addresses that omission by using these frameworks as an analytic lens to evaluate governance effectiveness and value outcomes.

A thematic codebook of PRM value themes and subthemes in mega-infrastructure projects

The analysis of academic and practitioner sources identified seven themes that provide the conceptual and practical foundation for this study. These themes ensure that both theory and regulation inform the evaluation of PRM in South African energy infrastructure megaprojects. Table 2 presents the key academic and practitioner sources reviewed, indicating the publication year and summarising the key outcomes of each source in relation to the derived themes. It illustrates how global and local scholarship, together with policy and audit frameworks, converge to define the thematic basis of the study.

Table 2: Summary of key academic and practitioner sources analysed to develop themes

Source	Published	Key outcomes
(Gao & Zhang)	2025	ESG risk-oriented frameworks enhance corporate value and control financial speculation.
(McGregor et al.)	2025	Proposes data-driven risk assessment models for green hydrogen megaprojects.
(Testorelli et al.)	2024	Meta-analysis of 100+ papers; formalisation, stakeholder involvement, and maturity as enablers of PRM value → <i>Value of PRM, Frameworks for Value</i> .
(National Treasury)	2023	Reports on under-delivery of infrastructure, overruns, and poor risk controls → <i>SA Regulatory Framework</i> .
(Marsh)	2022	Notes interdependent risks in power projects → <i>Risk Work</i> .
(Auditor-General SA)	2022	PFMA audit findings on governance and risk control → <i>Megaproject Paradox, SA Regulatory Framework</i> .
(Project Management Institute)	2021	Defines PRM as a structured process; establishes governance, planning, and performance linkages → <i>Value of PRM, Frameworks for Value</i> .
(Willumsen et al.)	2019	Show PRM improves governance, planning, confidence in megaprojects; highlight context-dependency → <i>Value of PRM</i> .
(Boholm)	2019	Risk practices are socially negotiated and shaped by trust → <i>Risk Work</i> .
(Olechowski et al.)	2016	Analyse ISO 31000 principles; argue effectiveness depends on organisational embedding.
(Flyvbjerg)	2014	Documents the “megaproject paradox” of overruns and optimism bias → <i>Megaproject Paradox</i> .
(Aven & Zio)	2014	Argue risk evaluation should guide decision-making under uncertainty → <i>Frameworks for Value</i> .
(Thomas)	2013	South African transport megaproject case → governance inefficiencies and transparency gaps → <i>SA Context, Megaproject Paradox. (Seminal – retained)</i>
(Morrow)	2011	Identifies root causes of megaproject failure (governance, overruns) → <i>Megaproject Paradox</i> .
(Kutsch & Maylor)	2011	Critique ritualised PRM; highlight symbolic compliance versus real performance → <i>Risk Culture</i> .
(Voetsch et al.)	2004	Project success linked to risk planning, management support, and qualitative assessment → <i>Value of PRM</i> .

Source: *Author's own compilation*

Building on this foundation, Table 3 summarises the thematic codebook that operationalises these themes into subthemes, descriptions, and practical codes. Each theme is supported by references that justify its inclusion and provide the analytical lens for evaluating PRM value in the selected documents. Together, these tables serve a dual purpose: first, they capture the central issues identified in the global and South African literature; and second, they provide the structured analytic categories through which the study's document analysis was conducted. This structure ensures that the assessment of PRM value is systematic, transparent, and grounded in both academic theory and governance requirements.

Table 3: Summarised thematic codebook of PRM value themes and subthemes

Theme	Subtheme	Subtheme description	Codes	References
Value of PRM	Governance	Oversight structures and reporting mechanisms	“Board risk committee”; “quarterly register update”; “audit trails”	Willumsen et al. (2019); PMI (2021)
	Decision confidence	Use of risk data for planning/approvals	“Risk-informed approval”; “scenario analysis”; “evidence-based decision”	Testorelli et al. (2024); Aven & Zio (2014)
	Stakeholder alignment	Shared risk understanding among actors	“Consultation records”; “cross-functional reviews”	Willumsen et al. (2019)
Risk Work	Adaptive practices	Flexibility to respond to unforeseen risks	“Adaptive response”; “project redesign”; “mitigation adjustment”	KPMG (2018)
	Informal negotiation	Tacit practices and negotiation in risk management	“Stakeholder bargaining”; “informal prioritisation”	Boholm (2019); Marsh (2022)
Risk Culture	Accountability	Responsibility for risks clearly assigned	“Delegated authority”; “accountability gaps”	Hillson (2002); King IV (2016)
	Behaviour & incentives	Organisational attitudes and incentives toward risk	“Tone at the top”; “compliance culture”; “incentives for reporting”	Guldenmund (2010); Kutsch & Maylor (2011)
Megaproject Paradox	Cost & time overruns	Persistent project overruns and delays	“Budget escalation”; “schedule slippage”	Flyvbjerg (2014); Merrow (2011); Thomas (2013)
	Optimism bias & politics	Unrealistic estimates and external influence	“Optimistic forecasts”; “political interference”	AGSA (2022); National Treasury (2023)
SA Regulatory Framework	PFMA compliance	Legal obligations for risk management	“PFMA section 51”; “Treasury compliance audits”	PFMA (1999); Treasury Framework (2010)
	Treasury oversight	Treasury monitoring and control mechanisms	“Risk directives”; “oversight reports”	National Treasury (2023)
International Standards	ISO principles	Global standards emphasising integration and improvement	“ISO alignment statement”; “continuous improvement”	Olechowski et al. (2016)
	PMI benchmarks	Professional risk practice benchmarks	“Benchmarking against PMI”; “adaptability in uncertainty”	PMI (2021)
Frameworks for Value	Adaptability	Embedding PRM practices in volatile environments	“Risk maturity model”; “adaptive strategies”	Testorelli et al. (2024); Willumsen et al. (2019)
	Resilience	Long-term capacity to sustain project value	“Resilience strategies”; “integrated planning”	Testorelli et al. (2024)

Method

This study adopted a qualitative, document-based case study design. The aim was to evaluate how PRM creates value in South Africa's energy infrastructure megaprojects by thematic analysis of documents in the form of three perspectives held by different institutions designed to reflect a view on project governance from across the country, namely, the state-owned electricity provider, the oversight authority (Auditor-General South Africa, the audit institution), and the regulatory authority (National Energy Regulator of South Africa, the national energy regulator). A document-based approach was appropriate because PRM practices and outcomes are already extensively documented in the public domain, making it possible to evaluate value without relying on primary data. The study followed the six phases of thematic analysis of Braun and Clarke (2019), namely familiarisation with the data, generating initial codes, searching for themes, reviewing themes, refining and naming themes, and producing the report. These phases provide a systematic and widely recognised approach to identifying and interpreting patterns related to the value of PRM. To suit the use of document analysis, these phases were adapted in line with the guidance on document analysis of Bowen (2009), which ensured methodological rigour and contextual relevance. The analysis was executed in two main stages.

The first stage involved developing a deductive thematic codebook based on academic and practitioner literature, as well as governance and regulatory frameworks relevant to PRM. Each theme was refined into subthemes, short observable codes, and definitions supported by references, inclusion and exclusion criteria, and illustrative examples. This stage represented the analytical bridge between theory and data, ensuring that the coding structure was externally grounded rather than derived inductively from the documents. The second stage applied the deductive codebook to the four selected institutional documents listed in Table 4 below.

Table 4: Core documents analysed and institutional perspectives

Institutional Perspective	Institution	Documents Analysed (2023–2024)	Analytical Purpose / Relevance	Source
Corporate Implementer	State-owned electricity provider	Integrated Report (2024-25); Sustainability Report (2024-25)	Reveals internal governance, project oversight, and application of PRM.	https://www.eskom.co.za/investors/integrated-results/
Oversight Authority	Auditor-General South Africa (AGSA)	PFMA Consolidated General Report (2023–24)	Provides external assessment of financial and risk control effectiveness across public entities.	https://www.agsa.co.za/Reporting/PFMAReports/PFMA2023-24.aspx
Regulatory Authority	National Energy Regulator of South Africa (the national energy regulator)	Annual Report (2023–24)	Reflects regulatory oversight of compliance, risk governance, and sector performance.	https://www.nersa.org.za/files/files/2024/10/the-national-energy-regulator-Annual-Report-for-2023-24.pdf

Relevant excerpts were systematically extracted from each document and coded according to the applicable theme, subtheme, and code. Each coded excerpt was then evaluated using the classification criteria presented in Table 5, Full Evidence of Value (FEV), Partial Evidence of Value (PEV), or No Evidence of Value (NEV), to determine the extent to which PRM demonstrated value in each institutional context. The coding matrix recorded for each excerpt, the document source, section or page, assigned theme, subtheme, code, evidence classification, and a brief analytical note explaining the rationale for each evaluation. This structure allowed for systematic comparison of patterns both within and across documents, supporting consistency and transparency in interpretation. The complete matrix containing all coded excerpts and evaluations is included in Appendix A.

Table 5: Evaluation criteria for evidence of PRM value

Criterion	Evaluation	Key
Information demonstrates PRM is clearly linked to creating value (e.g., governance, decision confidence, stakeholder alignment).	Full evidence of value	FEV
Information demonstrates PRM with partial or limited evidence of value creation.	Partial evidence of value	PEV
Information mentions PRM or risks without clear evidence of value creation.	No evidence of value	NEV

The four analysed documents collectively represent three dimensions of public-sector accountability: implementation (the public energy utility), oversight (the audit institution), and regulation (the national energy regulator). Triangulating these perspectives enhanced the credibility and richness of the analysis by showing how PRM is conceptualised, applied, and evaluated across different institutional levels. The documents were purposively selected based on their relevance and recency. Although the reports cover different financial years, each represents the most current publicly available version for its respective institution at the time of data collection. Analysed together, they provide a balanced dataset that captures multiple dimensions of PRM value in South African energy megaprojects.

The findings of the thematic synthesis were then consolidated into a structured narrative that compared how each theme was represented across the four institutional perspectives. This stage involved identifying areas of convergence and divergence between corporate, oversight, and regulatory views of PRM, and noting the relative emphasis placed on each theme within the documents. This systematic categorisation enabled the study to detect patterns, such as which themes and perspectives showed full, partial, or no evident value. All excerpts were organised in a coding matrix to ensure transparency and replicability. During synthesis, where multiple evidence levels (FEV, PEV, NEV) appeared for a theme across the documents, the prevailing or dominant level of evidence was selected as the representative average, thereby reflecting the most consistent qualitative pattern rather than a numerical mean.

Coding decisions were logged in an audit trail, enabling independent verification of the process. Consistency was maintained by reviewing coded excerpts after the first full pass and reconciling any discrepancies with the codebook definitions. This structured approach ensured credibility by linking all interpretations to explicit evidence, dependability by applying consistent coding procedures across all documents, and confirmability through the documented decision trail. Together, these measures provided a robust methodological foundation for addressing the study's research objectives and for evaluating how PRM contributes measurable value to South Africa's energy infrastructure megaprojects.

Findings and discussion

This section explores PRM practices found in the integrated, sustainability, oversight, and regulatory reports of South Africa's public energy sector. To maintain confidentiality, the specific organisations are not named in the discussion of findings. Statements from the institutional reports were evaluated against the seven PRM value themes and subthemes from the thematic codebook and categorised as Full Evidence of Value (FEV), Partial Evidence of Value (PEV), or No Evidence of Value (NEV). This evaluation indicates how well the reports demonstrate PRM value in governance, project resilience, and strategic integration, and it reveals gaps in the comprehensiveness and maturity of PRM application.

This section is organised into seven parts, corresponding to the seven PRM value themes derived from literature: Value of PRM, Risk Work, Risk Culture, Megaproject Paradox, South African Regulatory Framework, International Standards, and Frameworks for Value. Each main theme is analysed and presented in two ways. Firstly, a summary table displays the distribution of evidence across the institutional perspectives. Secondly, a detailed table presents the research findings supported by illustrative quotations extracted from the coded data (see Appendix A).

Value of PRM

This section presents key observations for the Value of PRM theme, which focuses on how PRM contributes to governance integration, performance assurance, and decision confidence across institutional perspectives. Among the themes assessed, the Value of PRM was one of the most consistently reported by all institutions. The corporate reports provided strong evidence of the integration of PRM into strategic planning and governance systems, while oversight and regulatory reports offered PEV through compliance and control mechanisms. Table 6 provides a summary of the findings from the analysis of the reports of every institution, as well as the average for all reports in the study.

Table 6: Summary of findings – alignment of Value of PRM to the subthemes

Themes	Subthemes	Integrated Report	Sustainability Report	Oversight Report	Regulatory Report	Average for all reports
Value of PRM	Governance	FEV	FEV	FEV	FEV	FEV
	Decision confidence	FEV	NEV	PEV	FEV	FEV
	Stakeholder alignment	NEV	PEV	NEV	NEV	NEV

Note. FEV = Full Evidence of Value, PEV = Partial Evidence of Value, NEV = No Evidence of Value

Table 7 presents the research findings supported by illustrative quotations from the institutional reports.

Table 7: Value of PRM findings

Themes	Subthemes	Research findings	Quotation from institutional report
Value of PRM	Governance	PRM is positioned as a central element of organisational governance, linking Board oversight with strategic and operational management.	<i>“Strengthening the PFMA Loss Control Department to improve PFMA compliance monitoring and reporting.”</i> (Integrated Report, p. 52)
	Decision confidence	Reporting to the executive and Board risk committees demonstrates how PRM strengthens decision confidence through structured risk monitoring.	<i>“These categories are aligned to the Board’s risk appetite ... serving as a set of leading indicators to ensure that risks are managed proactively and to understand the direction in which risks are moving, and at what rate”</i> (Integrated Report, p. 48)
	Stakeholder alignment	Limited discussion of stakeholder alignment indicates that PRM communication is largely internal and not yet fully extended to external stakeholders.	<i>“We conduct early project stage engagements to inform our stakeholders on project planning and to mitigate risks through environmental and social impact consultations...”</i> (Sustainability Report, p. 19)

Summary of findings

Overall, the institutional reports demonstrate that PRM is well embedded in governance structures and strategic decision-making, particularly within the corporate perspective. Oversight and regulatory documents provide partial reinforcement through references to internal control and audit assurance mechanisms. Stakeholder-alignment practices are less visible, showing that PRM value is still concentrated internally within organisations.

Risk Work

This section presents key observations for the Risk Work theme, which focuses on adaptive practices such as scenario planning, simulation exercises, and lessons learned reviews. Among the themes assessed, Risk Work was moderately represented, with strong evidence of iterative learning and proactive preparedness in corporate reports. In contrast, oversight and regulatory reports

provided partial or no evidence. Table 8 provides a summary of the findings from the analysis of all institutional reports.

Table 8: Summary of findings – alignment of Risk Work to the subthemes

Themes	Subthemes	Corporate Report	Sustainability Report	Oversight Report	Regulatory Report	Average for all reports
Risk Work	Adaptive practices	FEV	PEV	NEV	NEV	PEV
	Informal negotiation	NEV	NEV	NEV	NEV	NEV

Table 9 presents the research findings supported by illustrative quotations from the institutional reports.

Table 9: Risk Work findings

Themes	Subthemes	Research findings	Quotation from institutional report
Risk Work	Adaptive practices	The corporate reports emphasise scenario analysis and simulation exercises to test and review response arrangements, showing PRM as a dynamic learning tool.	“The success of these sustainability focused interventions has been observed in the preceding half-decade where an improvement in environmental performance was observed...” (Sustainability Report, 2025, p. 26) “Management conducted a root cause analysis of the events contributing to those incidents and identified interventions to prevent a recurrence of these issues.” (Integrated Report, 2025, p. 30)
	Informal negotiation	No explicit reference was made to informal or negotiated risk processes in any report.	None found.

Summary of findings

Risk Work within PRM shows clear institutionalisation of scenario analysis and simulation practices in corporate settings, but limited adoption elsewhere. Oversight and regulatory perspectives remain focused on static compliance reporting rather than forward-looking risk learning.

Risk Culture

This section presents key observations for the Risk Culture theme, focusing on accountability, ethics, and behavioural reinforcement. Evidence across the reports indicates a continued emphasis on ethics training and consequence-management initiatives, but with uneven behavioural implementation. Table 10 summarises the findings for all reports.

Table 10: Summary of findings – alignment of Risk Culture to the subthemes

Themes	Subthemes	Corporate Report	Sustainability Report	Oversight Report	Regulatory Report	Average for all reports
Risk Culture	Accountability	FEV	PEV	PEV	PEV	PEV
	Behaviour & incentives	FEV	PEV	NEV	FEV	FEV

Table 11 presents the research findings supported by quotations.

Table 11: Risk Culture findings

Themes	Subthemes	Research findings	Quotation from institutional report
Risk Culture	Accountability	Corporate reports demonstrate structured accountability and consequence-management systems, while oversight reports highlight persistent failures in disciplinary follow-through.	“The Board has adopted a multi-pronged approach to combating fraud and corruption, centred on prevention, detection, investigation and corrective action.” (Integrated Report, p. 76)
	Behaviour & incentives	Ethics and awareness programmes illustrate progress but require stronger behavioural reinforcement across operational levels.	“In our Generation business, we cultivate a culture centred on environmental compliance.” (Sustainability Report, p. 27) “The material irregularity process contributed to improved accountability and oversight as well as the protection of resources...” (Oversight Report, p. 10)

Summary of findings

Risk Culture remains a partially embedded element of PRM. The presence of ethics initiatives reflects commitment, but inconsistent accountability in the public sector environment constrains full behavioural integration.

Megaproject Paradox

This section presents key observations for the Megaproject Paradox theme, which captures the tension between structured PRM systems and persistent project-delivery failures. Table 12 summarises the findings.

Table 12: Summary of findings – alignment of Megaproject Paradox to the subthemes

Themes	Subthemes	Corporate Report	Sustainability Report	Oversight Report	Regulatory Report	Average for all reports
Megaproject Paradox	Cost & time overruns	FEV	NEV	NEV	NEV	NEV
	Optimism bias & politics	NEV	NEV	NEV	NEV	NEV

Table 13 presents the research findings with quotations.

Table 13: Megaproject Paradox findings

Themes	Subthemes	Research findings	Quotation from institutional report
Megaproject Paradox	Cost & time overruns	Corporate reports record strong project-monitoring controls, while oversight reports confirm continued systemic inefficiencies.	“At that time, eight key commissioning milestone activities had been successfully achieved. A technical investigation was conducted, and the investigation report was finalised in February 2023.” (Integrated Report, p. 152) “We reported findings on 123 (86%) of the 143 projects and found that they had been delayed, cost more than planned or were of poor quality.” (Oversight Report, p. 46)
	Optimism bias & politics	No explicit references identified.	None found.

Summary of findings

The Megaproject Paradox highlights a structural gap between robust PRM frameworks and recurring delivery failures. The public energy utility’s project controls mitigate risks but cannot fully offset systemic weaknesses inherent in the broader infrastructure environment.

South African Regulatory Framework

This section presents key observations for the South African Regulatory Framework theme, focusing on compliance with the PFMA, Treasury regulations, and governance oversight. Table 14 summarises the alignment of evidence across perspectives.

Table 14: Summary of findings – alignment of South African Regulatory Framework to the subthemes

Themes	Subthemes	Corporate Report	Sustainability Report	Oversight Report	Regulatory Report	Average for all reports
South African Regulatory Framework	PFMA compliance	PEV	PEV	PEV	FEV	PEV
	Treasury oversight	PEV	NEV	PEV	PEV	PEV

Table 15 presents the findings and quotations.

Table 15: South African Regulatory Framework findings

Themes	Subthemes	Research findings	Quotation from institutional report
South African Regulatory Framework	PFMA compliance	Corporate and regulatory reports show structured compliance mechanisms, while oversight reports highlight persistent procurement deficiencies.	“Eskom received a qualified audit opinion from the external auditors for FY2024 related to the disclosure of irregular expenditure, fruitless and wasteful expenditure” (Integrated Report, p. 155)
	Treasury oversight	Oversight reports reveal ongoing gaps in procurement accountability. Regulatory reports confirm adherence to Treasury directives.	“Continued non-compliance with procurement legislation leads to unfair and uncompetitive processes, which often result in financial losses and contractors...” (Oversight Report, p. 8) “The Annual Report has been prepared in accordance with the guidelines on annual reports as issued by the National Treasury (Regulatory Report, p. 25)

Summary of findings

All reports acknowledge PFMA-based governance as central to risk control, yet oversight evidence reveals that compliance remains procedural rather than value-driven.

International Standards

This section presents observations for the International Standards theme, which examines alignment with ISO 31000, ISO 9001:2015, King IV, and TCFD principles. Table 16 summarises the findings.

Table 16: Summary of findings – alignment of International Standards to the subthemes

Themes	Subthemes	Corporate Report	Sustainability Report	Oversight Report	Regulatory Report	Average for all reports
International Standards	ISO principles	PEV	PEV	NEV	PEV	PEV
	PMI benchmarks	FEV	NEV	NEV	PEV	NEV

Table 17 provides the findings with quotations.

Table 17: International Standards findings

Themes	Subthemes	Research findings	Quotation from institutional report
International Standards	ISO principles	Corporate reports reference ISO 31000 and ISO 9001 recertification, while oversight reports rarely mention such frameworks.	<i>“The Audit Committee and Risk Committee set the direction and provide oversight on assurance, forensics, risk management, controls”</i> (Integrated Report, p. 60)
	PMI benchmarks	Regulatory reports demonstrate alignment with global standards supporting sustainable governance.	<i>“To regulate the energy industry in accordance with government laws and policies, standards and international best practices in support of sustainable development”</i> (Regulatory Report, p. 26)

Summary of findings

International alignment strengthens assurance, credibility and transparency in corporate practice, yet remains largely absent from oversight documentation, signalling potential for broader institutional adoption.

Frameworks for Value

This section presents key observations for the Frameworks for Value theme, which reflects the highest evidence of PRM maturity. It highlights how enterprise resilience, business continuity planning, and integrated assurance frameworks embody value creation. Table 18 summarises the alignment of evidence.

Table 18: Summary of findings – alignment of Frameworks for Value to the subthemes

Themes	Subthemes	Corporate Report	Sustainability Report	Oversight Report	Regulatory Report	Average for all reports
Frameworks for Value	Adaptability	FEV	NEV	FEV	FEV	FEV
	Resilience	PEV	PEV	PEV	NEV	PEV

Table 19 presents the findings with quotations.

Table 19: Frameworks for Value findings

Themes	Subthemes	Research findings	Quotation from institutional report
Frameworks for Value	Adaptability	The enterprise resilience and business continuity frameworks integrate PRM within both governance and operational systems.	<i>“Processes are being put in place to further digitalise procurement activities.”</i> (Integrated Report, p. 82)
	Resilience	Oversight and regulatory reports note incremental improvement in control-environment maturity.	<i>“Our message in the previous general report centred on accountability, and we urged coordinating institutions to focus on those departments that received qualified audit opinions...”</i> (Oversight Report, p. 163)

Summary of findings

Frameworks for Value represent the most mature expression of PRM, linking strategic governance with operational resilience. PRM has evolved beyond compliance to become an enabling system that adds measurable value to project delivery and institutional transparency.

Cross-document patterns

The preceding section presented the seven themes individually to show how PRM value manifested within each institutional perspective. This section builds on that analysis by identifying broader patterns observed across the three perspectives: corporate, oversight, and regulatory. These cross-document relationships highlight how PRM operates within and between organisational governance systems, revealing both strengths and limitations in South Africa’s energy infrastructure environment. Cross-document analysis across the three perspectives raised separate but interconnected patterns in how PRM is framed and operationalised within the corporate reporting environment. The corporate documents support the core analytical evidence that provides key insights into how PRM contributes to project quality, governance, and resilience in energy infrastructure megaprojects.

The corporate reports present PRM as an integral component of the organisation’s overall governance system, aligned with strategic planning, decision assurance, and operational resilience. The sustainability-oriented reporting extends this focus by embedding PRM within broader ESG practices, referencing its alignment with the TCFD framework, ISO certification, and external

verification processes. Together, these reports indicate that PRM functions as a system that promotes both internal coherence and external transparency, positioning the corporate entity as a relative centre of governance maturity within the public energy sector.

However, the regulatory and oversight perspectives emphasise an environment of governance fragmentation and compliance orientation within which the corporate organisation operates. The regulatory report views risk management primarily as a legislative, financial control, and audit assurance function, while the oversight reports highlight recurring issues such as cost overruns, project delays, and weak accountability, exposing systemic weaknesses across public infrastructure projects. Collectively, the cross-document evidence shows that PRM within the corporate entity adds measurable value through governance integration and organisational resilience, relative to the compliance orientation and limited coordination challenges observed within the broader sector. The overall distribution of PRM value evidence across all three perspectives is summarised in Table 14, which highlights the corporate perspective as the primary analytical source and uses regulatory and oversight evidence to contextualise systemic governance challenges that influence PRM performance.

Table 20: Summary of PRM Value Evidence across public reports

Document	Perspective	Evidence Distribution (FEV / PEV / NEV)	Key PRM Value Insights
Corporate's Integrated Report (2025)	Corporate	15 / 8 / 2	PRM integrated into governance and resilience frameworks; internal strategic alignment.
Corporate's Sustainability Report (2025)	Corporate	5 / 10 / 1	High PRM maturity through ESG integration, ISO certification, and external assurance.
Oversight's PFMA Report (2023–24)	Oversight	14 / 10 / 13	Audit-focused findings highlighting governance gaps and systemic constraints.
Regulator's Annual Report (2023–24)	Regulatory	13 / 11 / 0	Compliance-based oversight reinforces the need for structured corporate risk systems.

Discussion and interpretation

The collective findings show the added benefits of PRM when it is integrated into strategic governance and decision-making processes (as synthesised in Appendix B), especially with regard to South Africa's energy megaprojects. From the viewpoint of organisations, PRM remains an important mechanism in ensuring strategic planning. On the other hand, more themes outside of the seven identified areas were revealed during the analysis. These include the involvement of PRM with the surrounding ESG factors, in addition to external assurance mechanisms. The presence of related ESG content and transparent disclosures suggests that PRM not only influence internal governance structures, but also outside and reinforces sustainability, accountability, and stakeholder confidence. However, what is emerging between PRM and ESG is the realisation that in the energy

sector, PRM value depends on what in risk management supports both operational resilience, as well as governance.

This interpretation is further supported by the contextual evidence from the Report and Annual Report, which locates PRM practices within a broader governance environment of the public energy sector. These sources confirm that systemic challenges, such as a weak enforcement, fragmented accountability, and compliance with procedures, continue to be obstacles to consistent value from PRM in an organisation. However, integrated frameworks show that measurable gains in governance and project quality are attainable when PRM is aligned with leadership commitment, structured oversight, and adaptive learning.

The findings therefore validate the theoretical propositions of Willumsen et al. (2019) and Testorelli et al. (2024), which argue that PRM delivers sustainable value when organisational and institutional elements are synchronised through governance, culture, and continuous learning. In the South African energy sector, this alignment is both partial and evolving. It is through such enhanced links between corporate practices and the broader oversight ecosystem – around shared standards, aligned reporting, and learning across entities – that PRM might be progressed as a source of systemic value in energy infrastructure megaprojects.

Conclusion and recommendations

This study aimed to investigate the significance of PRM in South African energy infrastructure megaprojects, using the primary case and triangulating evidence from corporate, regulatory, and oversight documents. The objective was to examine how PRM contributes to governance, decision-making, and project resilience in South African energy infrastructure megaprojects. Based on deductive thematic analysis of four publicly available reports, the study examined the contribution of PRM to governance, decision confidence, and project resilience. Findings show that PRM has evolved towards a strategic and value-creating capability; however, systemic challenges within the wider energy governance ecosystem continue to limit its full potential.

The clearest evidence of the value of PRM emerged in the documents showing how it has been institutionalised within decision-making, governance, and performance management. The 31 full-evidence extracts uncovered that PRM extends into more than mere compliance activities, but is embedded into the business model and strategic implementation of the organisation. The findings indicate that PRM enhances confidence in decisions by linking Board-level governance with project-level management, which links risk thinking with value. The evidence is further supported by how the applicability of PRM transcends beyond internal governance practices to ESG domains by utilising external assurances, ISO certification, and climate-risk integration. The two reports from the

corporation verify that PRM offers both internal integration governance practices and external accountability: FEV, within the energy public utility megaproject context.

While not analysed from a direct comparison viewpoint, it was clear from this information that regulators and oversight bodies are increasingly adopting a focus on risk-based approaches across their reporting. Persistent issues such as cost overruns, poor accountability, and delays were acknowledged, yet PRM was still identified as a cornerstone of good governance. Regulatory reporting reflected stronger compliance with the PFMA and more attention to monitoring risk, signalling that while the governance environment remains fragmented, it is steadily improving, demonstrating how PRM practices within energy utility organisations operate within a still-fragmented but evolving governance system. This information demonstrates that PRM practices are more mature within energy utility organisations than across the wider public-sector environment.

Within the public energy utility context, PRM can therefore be understood as both a prescriptive and an enabling method, which reduces risks while it promotes innovation and sustainability in the context of megaprojects delivery. The data indicate that PRM not only provides benefits by reducing risks but also improves decision-making and enhances resilience capacity, both of which add to the overall quality and predictability of long-term project outcomes.

However, despite the mature environment, some gaps still remain. Cultural factors such as accountability and behavioural incentives continue to limit the overall take-up of PRM best practices at operational levels. The overall focus of regulatory entities continues to be primarily on compliance, with auditing after the event more prevalent than a risk-learning approach. Moreover, despite the public energy utility's alignment with global best practice, which encompasses ISO 31000, ISO 9001, or the Task Force on Climate-Related Financial Disclosure, there is equally limited benchmarking across the public energy sector.

To reinforce PRM as a public system concept, three interconnected recommendations are proposed. The first is institutional integration: the public energy utility, the national energy regulator, and the audit institution need to develop institutional knowledge-sharing practices that enable the alignment of PRM models, reporting practices, and PRM measures. This will help develop a shared governance language and foster consistency across the national energy infrastructure framework. The second proposal is the reinforcement of PRM culture: the value of PRM needs to be emphasised by implementing risk culture initiatives focusing on linking accountability and ethical behaviour to performance outcomes, from leadership. The third proposal is strategic collaboration: there needs to be institutional strategic collaboration among the various entities in the sector, the regulatory body, and the oversight body, through joint risk reviews, shared scenario planning, and integrated assurance frameworks.

In summary, this research study concludes that there has been a maturation of PRM practice in the energy utility, shifting from a compliance-driven function to an enabling role in strategic governance, which adds value by improving project quality, resilience, and transparency. Nevertheless, there still persists a level of fragmentation in the public-sector governance context, with siloed accountability and undeveloped risk capability. Strengthening alignment of institutional, regulatory, and supervisory around shared PRM principles can help elevate risk management from a stand-alone activity into an overall system enabler of performance. This study adds both theoretically and empirically to the understanding of PRM value, including its role in governance, culture, and project delivery, laying a foundation for future research related to governance integration and risk culture in national megaprojects.

This study has a number of limitations. Firstly, the study was based solely on published secondary sourced documents, which restricted the study to reported practices and disclosures and could not reveal risk practices lived or informal decision-making processes. Second, the document-based design limits the ability to attribute causality between PRM practices and the project performance outputs. Third, the study examined a small sample of institutional reports within the South African energy sector, which may limit the generalisability of the findings to other infrastructure sectors or national contexts. Regardless of these limitations, the application of multiple institutional lenses and a systematic thematic framework offers a valid and clear foundation on which the value of PRM can be assessed.

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Reflection

This research journey has been both professionally and academically enriching. It enabled me to apply risk management theory to practice in assessing the value that PRM adds in the energy sector infrastructure megaprojects in South Africa. It afforded me a deeper understanding of the influence of governance, culture, and accountability on PRM maturity and effectiveness.

Insights derived from exposure to various perspectives, which included corporate, oversight, and regulatory, helped appreciate the synergy between compliance and value addition. Through the study, I sought to verify that PRM in the corporate environment is integrated into governance and resilience frameworks; however, the broader public-sector system is mostly compliance-driven. This has strengthened my analytical capabilities and enhanced my ability to interpret evidence systematically and objectively.

The development of the PRM Value Dashboard (Appendix B) was particularly valuable, as it ensured that the findings of academic studies could be used by the public energy utility and any other institution in appraising maturity levels in governance and guiding improvements. It highlighted the importance of communicating research findings in a format that supports decision-making and continuous learning.

Personally, this experience has taught me the values of patience, discipline, and the importance of linking data to evidence. If I were to undertake a similar study in the future again, I would consider including interviews with limited stakeholders as part of complementing the document analysis process and exploring behavioural and cultural dimensions more deeply.

Overall, this research has confirmed my belief that embedding risk management within governance and quality systems can be a strategic enabler of project success. It has increased both my academic confidence and enhanced my professional skills to align theory with practice in the quest for organisational performance improvement.

Appendices

Appendix A: Thematic coding matrix of public reports illustrating PRM value evidence

Perspective	Document	Year	Section /Page	Excerpt (verbatim)	Theme	Subtheme	Code	Evidence (FEV/PEV/NEV)	Analyst Notes
Oversight	AGSA PFMA Report 2023–24	2023–24	p.8	<i>“All too often, infrastructure delivery projects are delayed, ...costing more than planned or the work done is of poor quality.”</i>	Megaproject Paradox	Cost & time overruns	“Budget escalation”; “schedule slippage”	NEV	overruns/failures
Oversight	AGSA PFMA Report 2023–24	2023–24	p.8	<i>“Our audit work over the administration incorporated numerous ...inspect the progress on and quality of infrastructure projects.”</i>	Value of PRM	Governance	“Board risk committee”; “audit trails”	PEV	oversight info
Oversight	AGSA PFMA Report 2023–24	2023–24	p.8	<i>“Poor contract management and a reluctance to hold suppliers and contractors accountable ...are the main root causes of project failures and financial loss.”</i>	Risk Culture	Behaviour & incentives	“Tone at the top”; “incentives for reporting”	NEV	no accountability
Oversight	AGSA PFMA Report 2023–24	2023–24	p.8	<i>“However, the project management weaknesses and gaps in internal control are also evident in the delivery of new systems and technologies.”</i>	Megaproject Paradox	Cost & time overruns	“Budget escalation”; “schedule slippage”	NEV	overruns/failures
Oversight	AGSA PFMA Report 2023–24	2023–24	p.8	<i>“There are also delays in newly built infrastructure being put to use.”</i>	Megaproject Paradox	Cost & time overruns	“schedule slippage”	NEV	delays persist
Oversight	AGSA PFMA Report 2023–24	2023–24	p.8	<i>“Once again, we report on existing infrastructure that is deteriorating because it is not properly maintained.”</i>	Frameworks for Value	Resilience	“Resilience strategies”; “integrated planning”	NEV	maintenance gap
Oversight	AGSA PFMA Report 2023–24	2023–24	p.7	<i>“Non-compliance with legislation finding resulted in irregular expenditure of R406,83 billion over the five years.”</i>	SA Regulatory Framework	PFMA compliance	“PFMA section 51”; “Treasury compliance audits”	PEV	PFMA link
Oversight	AGSA PFMA Report 2023–24	2023–24	p.8	<i>“Continued non-compliance with procurement legislation leads to unfair and uncompetitive</i>	SA Regulatory Framework	PFMA compliance	“PFMA section 51”; “Treasury compliance audits”	PEV	procurement breaches

				<i>processes, which often result in financial losses and contractors not delivering what they were contracted to do."</i>					
Oversight	AGSA PFMA Report 2023–24	2023–24	p.10	<i>"The material irregularity process contributed to improved accountability and oversight as well as the protection of resources."</i>	Value of PRM	Governance	"material irregularity process"; "quarterly register update"	FEV	accountability gain
Oversight	AGSA PFMA Report 2023–24	2023–24	p.74	<i>"Accounting officers and authorities must also establish or improve internal controls to prevent such occurrences in future."</i>	Value of PRM	Governance	"audit trails"; "quarterly register update"	FEV	prevention focus
Oversight	AGSA PFMA Report 2023–24	2023–24	p.60	<i>"As highlighted in section 2.2, the National Treasury introduced changes to how departments and public entities disclose irregular expenditure."</i>	SA Regulatory Framework	Treasury oversight	"Risk directives"; "oversight reports"	PEV	Treasury change
Oversight	AGSA PFMA Report 2023–24	2023–24	p.5	<i>"This impact can be seen in financial losses being prevented and money recovered; service delivery being improved; consequences for transgressions being implemented."</i>	Risk Culture	Behaviour & incentives	"incentives for reporting"; "accountability"	FEV	consequence management
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 75	<i>"The accounting officer must take appropriate steps to recover losses or damages resulting from unauthorised, irregular, or fruitless and wasteful expenditure."</i>	SA Regulatory Framework	PFMA compliance	"PFMA section 38 (1)(c)(i)"	FEV	recovery control
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 76	<i>"The PFMA requires that accounting officers implement and maintain effective, efficient and transparent systems of financial and risk management."</i>	Value of PRM	Governance	"risk management systems"	FEV	risk systems
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 77	<i>"We again found that many institutions do not conduct proper risk assessments to identify emerging risks affecting service delivery."</i>	Risk Work	Adaptive practices	"risk identification gaps"	NEV	no risk assessment
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 79	<i>"Weak consequence management continues to undermine accountability and embolden officials to disregard legislation."</i>	Risk Culture	Behaviour & incentives	"accountability breakdown"	NEV	weak culture

Oversight	AGSA PFMA Report 2023–24	2023–24	p. 80	<i>“Where leaders acted decisively and implemented corrective measures, improvements in audit outcomes followed.”</i>	Risk Culture	Accountability	“leadership action on risks”	FEV	decisive leaders
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 81	<i>“The best-performing departments demonstrate a culture of regular risk assessment, proactive mitigation, and documented follow-up.”</i>	Risk Work	Adaptive practices	“continuous risk review”	FEV	adaptive practice
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 82	<i>“Departments that ignored early warnings from internal audit units or oversight committees regressed in both control environment and service delivery.”</i>	Value of PRM	Decision confidence	“risk-informed decision”	PEV	ignored warnings
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 42	<i>“We reported findings on 123 (86%) of the 143 projects and found that they had been delayed, cost more than planned or were of poor quality”</i>	Megaproject Paradox	Cost & time overruns	“planning failures”	NEV	no planning
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 84	<i>“Improved collaboration between the National Treasury and implementing departments has helped resolve some long-standing procurement blockages.”</i>	SA Regulatory Framework	Treasury oversight	“inter-agency coordination”	PEV	treasury link
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 86	<i>“Our audits show that strong internal control environments correlate with stable leadership and effective oversight committees.”</i>	Value of PRM	Governance	“oversight committees”	FEV	controls governance
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 88	<i>“Institutions implementing integrated financial and risk management information systems reported fewer material irregularities.”</i>	Frameworks for Value	Adaptability	“integrated systems”	FEV	integration value
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 91	<i>“Some auditees still lack formalised risk-management policies aligned with the Public-Sector Risk-Management Framework.”</i>	SA Regulatory Framework	Treasury oversight	“policy alignment”	NEV	policy gap
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 93	<i>“Ethical lapses and conflicts of interest in procurement remain pervasive and erode public trust.”</i>	Risk Culture	Behaviour & incentives	“ethics and trust”	NEV	ethics issue

Oversight	AGSA PFMA Report 2023–24	2023–24	p. 95	<i>Entities with risk committees that met quarterly and submitted reports to their audit committees showed consistent improvement.”.</i>	Value of PRM	Governance	“quarterly register update”	FEV	committee evidence
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 97	<i>“Inadequate skills within supply-chain and project management units continue to contribute to poor procurement outcomes.”</i>	Risk Work	Informal negotiation	“skills capacity gap”	NEV	skills shortage
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 98	<i>“Departments that implemented training and mentoring in risk management achieved better compliance and audit outcomes.”</i>	Frameworks for Value	Resilience	“learning and capacity building”	FEV	training impact
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 101	<i>“We urge executive authorities to strengthen monitoring of corrective actions arising from audit findings.”</i>	Value of PRM	Governance	“audit follow-up”	PEV	monitoring
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 105	<i>“The implementation of consequence management remains inconsistent across portfolios.”</i>	Risk Culture	Accountability	“inconsistent discipline”	NEV	weak discipline
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 108	<i>“Our office continues to engage with the Standing Committee on Public Accounts to ensure follow-through on audit outcomes.”</i>	SA Regulatory Framework	Treasury oversight	“parliamentary oversight”	PEV	SCOPA follow-up
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 112	<i>“The use of data analytics in audits enhanced the ability to detect irregular expenditure and potential fraud.”</i>	Frameworks for Value	Adaptability	“innovation tools”	FEV	analytics value
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 116	<i>“Departments that developed detailed risk registers for key programmes were able to prevent repeat findings.”</i>	Value of PRM	Governance	“risk register use”	FEV	register prevention
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 118	<i>“However, several entities still compile risk registers as a compliance exercise, with no evidence of active mitigation.”</i>	Risk Work	Adaptive practices	“compliance-only risk register”	NEV	tick-box risk
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 121	<i>“We noted gradual improvements where management tracked implementation of risk-mitigation plans quarterly.”</i>	Value of PRM	Governance	“quarterly monitoring”	FEV	tracking evidence
Oversight	AGSA PFMA Report 2023–24	2023–24	p. 124	<i>“The overall trajectory shows modest improvement in control environment maturity since 2020.”</i>	Frameworks for Value	Resilience	“maturity progress”	PEV	control trend

Oversight	AGSA PFMA Report 2023–24	2023–24	p. 163	<i>“Our message in the previous general report centred on accountability, and we urged coordinating institutions to focus on those departments that received qualified audit opinions...”</i>	Frameworks for Value	Resilience	Control-environment maturity	PEV	incremental improvement
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.94	<i>“The Audit and Risk Committee (the Committee) reports that it has ... complied with its responsibilities arising from section 76(4)(d) of the Public Finance Management Act, 1999 (Act No.1 of 1999) (PFMA) and paragraph 27.1.7 of the Treasury Regulations.”</i>	SA Regulatory Framework	PFMA compliance	PFMA s76(4)(d)	FEV	PFMA link
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.94	<i>“The Committee ... has adopted appropriate formal terms of reference as its Charter, has regulated its affairs in compliance with the Charter and has discharged all its responsibilities as contained therein.”</i>	Value of PRM	Governance	Audit committee charter	FEV	charter in force
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.94	<i>“During the financial year, four scheduled meetings and one special meeting was held. The meeting attendance is as reflected below.”</i>	Value of PRM	Governance	Oversight committees	PEV	committee cadence
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.94	<i>“The Committee is of the opinion that the national energy regulator continues to strive towards complying with sound principles of corporate governance.”</i>	Value of PRM	Governance	Corporate governance	PEV	governance stance
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.94	<i>“The Committee approved the compliance framework and is monitoring its implementation.”</i>	SA Regulatory Framework	Treasury oversight	Compliance framework	FEV	monitoring
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.94	<i>“The systems of controls are designed to provide cost effective assurance that assets are safeguarded and that liabilities and working capital are effectively managed.”</i>	Value of PRM	Governance	Internal controls	FEV	controls design

Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.95	<i>“During the year, the internal audit unit ... developed a risk-based internal audit plan, and reported quarterly to the Committee against the plan.”</i>	Value of PRM	Governance	Risk-based IA plan	FEV	quarterly IA
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.95	<i>“The Internal Audit Unit has reviewed the system of internal controls, performance information and risk management throughout the year.”</i>	Value of PRM	Governance	Audit trails	FEV	reviewed controls
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.95	<i>“Although the Committee provided oversight on the implementation of risk assessments and management processes, Management is ultimately responsible for maintaining an effective risk management environment.”</i>	Risk Culture	Accountability	Roles & responsibilities	PEV	accountability
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.95	<i>“The Committee reviewed the risk management framework, monitored the implementation of risk mitigation strategies and reviewed the adequacy of the insurance cover.”</i>	Value of PRM	Governance	Risk mitigation	FEV	mitigation oversight
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.95	<i>“The Committee has seen an improvement in risk management during the year under review.”</i>	Value of PRM	Decision confidence	Risk improvement	FEV	improvement noted
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.25	<i>“The Energy Regulator is responsible for establishing and implementing a system of internal controls designed to provide reasonable assurance as to the integrity and reliability of the performance information ... and the annual financial statements.”</i>	Value of PRM	Governance	Internal control system	FEV	responsibility set
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.25	<i>“The Annual Report has been prepared in accordance with the guidelines on annual reports as issued by the National Treasury.”</i>	SA Regulatory Framework	Treasury oversight	NT guidelines	PEV	NT alignment

Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.26	<i>“the national energy regulator ... regulate the energy industry in accordance with government laws and policies, standards and international best practices in support of sustainable development.”</i>	International Standards	PMI/ISO benchmarks	Best practice alignment	PEV	int’l best practice
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.26	<i>“To regulate the energy industry in accordance with government laws and policies, standards and international best practices in support of sustainable development.”</i>	International Standards	PMI/ISO benchmarks	Best practice alignment	PEV	Int’l best practice
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.27	<i>“the national energy regulator is the regulatory authority established in terms of the National Energy Regulator Act, 2004 ... undertake the functions of the National Electricity Regulator ... Gas Regulator ... Petroleum Pipelines Regulatory Authority ...”</i>	SA Regulatory Framework	Treasury oversight	Mandate clarity	PEV	mandate stated
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.90	<i>“Optimise and enable an effective internal control environment ... internal control, risk management and governance processes.”</i>	Value of PRM	Governance	Control environment	PEV	optimise controls
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.91	<i>“Improve the effectiveness of risk management, control ... over a combined assurance framework; ... on control, governance and risk management processes.”</i>	Frameworks for Value	Adaptability	Combined assurance	FEV	combined assurance
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.94–95	<i>“The Internal Audit Activity ... addressed some of the pertinent risk areas ... The Committee is satisfied that the internal audit function was independent and objective.”</i>	Value of PRM	Governance	Independence of IA	FEV	IA independent
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.112	<i>“INFORMATION ON IRREGULAR, FRUITLESS AND WASTEFUL EXPENDITURE ... Reconciliation of irregular expenditure ... Closing balance 4 610 398,00.”</i>	SA Regulatory Framework	PFMA compliance	Irregular expenditure	PEV	irregulars disclosed

Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.112	<i>“the national energy regulator did not incur any fruitless and wasteful expenditure.”</i>	Value of PRM	Governance	Prevention evidence	FEV	no fruitless
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.112	<i>“Additional disclosure relating to material losses in terms of PFMA Section 55(2)(b)(i) & (iii).”</i>	SA Regulatory Framework	PFMA compliance	PFMA s55(2)(b)	FEV	PFMA link
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.26	<i>“AFUR framework for utility regulation in Africa ... Benchmarking the National Energy Regulator of South Africa against international good practice.”</i>	International Standards	ISO/PMI/AFUR	Benchmarking	PEV	AFUR benchmark
Regulatory	the national energy regulator Annual Report 2023–24	2023–24	p.94	<i>“During the current financial year, the Committee monitored and was comfortable with the compliance of various pieces of legislation impacting the national energy regulator.”</i>	SA Regulatory Framework	Treasury oversight	Legislative compliance	PEV	compliance comfort
Corporate	Eskom Integrated Report 2025	2025	p.48	<i>“These categories are aligned to the Board’s risk appetite ... serving as a set of leading indicators to ensure that risks are managed proactively and to understand the direction in which risks are moving, and at what rate.”</i>	Value of PRM	Decision confidence	Risk-informed improvement	FEV	recovery plan
Corporate	Eskom Integrated Report 2025	2025	p.30	<i>“Management conducted a root cause analysis of the events contributing to those incidents and identified interventions to prevent a recurrence of these issues.”</i>	Risk Work	Adaptive practices	Lessons learnt	FEV	RCA actions
Corporate	Eskom Integrated Report 2025	2025	p.46	<i>“We are committed to effectively mitigating risk and maintaining resilience, which is essential to supporting Eskom’s long-term sustainability.”</i>	Frameworks for Value	Resilience	Resilience focus	PEV	resilience aim
Corporate	Eskom Integrated Report 2025	2025	p.46	<i>“Sole-source requests are now scrutinised to confirm compliance with criteria before approval through the relevant governance processes.”</i>	SA Regulatory Framework	PFMA compliance	Procurement controls	FEV	sole-source checks

Corporate	Eskom Integrated Report 2025	2025	p.46	<i>"The requirement to obtain National Treasury approval for these transactions has since been repealed through the PFMA SCM National Treasury Instruction Note 3 of 2021/2022."</i>	SA Regulatory Framework	Treasury oversight	NT instruction	PEV	NT update
Corporate	Eskom Integrated Report 2025	2025	p.48	<i>"These categories are aligned to the Board's risk appetite ... serving as a set of leading indicators to ensure that risks are managed proactively and to understand the direction in which risks are moving, and at what rate."</i>	Value of PRM	Governance	Risk appetite/limits	FEV	appetite aligned
Corporate	Eskom Integrated Report 2025	2025	p.52	<i>"Incomplete or inaccurate disclosure of irregular expenditure, fruitless and wasteful expenditure as well as losses due to criminal conduct in the financial statements, due to PFMA reporting procedures not being effectively implemented... Reliance of PFMA reporting on a self-declaration process..."</i>	SA Regulatory Framework	PFMA compliance	PFMA disclosure	NEV	reporting gaps
Corporate	Eskom Integrated Report 2025	2025	p.52	<i>"Strengthening the PFMA Loss Control Department to improve PFMA compliance monitoring and reporting."</i>	Value of PRM	Governance	Control enhancement	PEV	strengthen LCF
Corporate	Eskom Integrated Report 2025	2025	p.55	<i>"Review of progress on initiatives to address Eskom's audit findings ... Proposed risk appetite and tolerance statements for FY2025 and FY2026 ... Quarterly shareholder reports submitted to the shareholder."</i>	Value of PRM	Governance	Audit follow-up	FEV	follow-through
Corporate	Eskom Integrated Report 2025	2025	p.59	<i>"The committee's roles... include overseeing assurance, controls, financial management...."</i>	Value of PRM	Governance	Oversight committees	FEV	audit scope
Corporate	Eskom Integrated Report 2025	2025	p.60	<i>"The Audit Committee and Risk Committee set the direction and provide oversight on assurance, forensics, risk management, controls, compliance and the governance of information"</i>	International Standards	ISO/PMI/King IV	King IV alignment	FEV	King IV

				<i>technology across the organisation in accordance with the related principles of King IV.”</i>					
Corporate	Eskom Integrated Report 2025	2025	p.60	<i>“The Internal Audit Department facilitates and coordinates the execution of combined assurance activities... This approach seeks to enable an effective control environment, to provide reasonable assurance and support the accuracy and integrity of information used for decision-making and reporting.”</i>	Frameworks for Value	Adaptability	Combined assurance	FEV	assurance model
Corporate	Eskom Integrated Report 2025	2025	p.72	<i>“Overseeing socio-economic development; good corporate citizenship; environmental and climate-change initiatives; health and safety programmes; and ensuring reasonable assurance of selected KPIs through the sustainability report.”</i>	Value of PRM	Governance	Governance scope	PEV	scope breadth
Corporate	Eskom Integrated Report 2025	2025	p.76	<i>“The Board has adopted a multi-pronged approach to combating fraud and corruption, centred on prevention, detection, investigation and corrective action.”</i>	Risk Culture	Accountability	Consequence management	FEV	multi-pronged
Corporate	Eskom Integrated Report 2025	2025	p.76	<i>“Corrective actions aim to ensure that lessons from past incidents are translated into tangible improvements, including improved consequence management, supplier oversight and closer collaboration with law enforcement to recover losses and prevent recurrence.”</i>	Risk Culture	Behaviour & incentives	Accountability	FEV	lessons→actions
Corporate	Eskom Integrated Report 2025	2025	p.81	<i>“Eskom has launched a structured, three-year audit recovery programme to address recurring audit findings and qualified audit opinions relating to the disclosure</i>	Value of PRM	Governance	Audit recovery plan	FEV	structured plan

				<i>of PFMA-related information and, ultimately, improve the organisation's audit outcomes."</i>					
Corporate	Eskom Integrated Report 2025	2025	p.81	<i>"The challenges experienced in previous years related to supply-chain management, contract management and irregular expenditure, due to: • Non-adherence to well-documented processes, policies and procedures • Inadequate or ineffective consequent management • Incomplete or inaccurate documentation..."</i>	Risk Culture	Behaviour & incentives	Compliance gaps	NEV	non-adherence
Corporate	Eskom Integrated Report 2025	2025	p.82	<i>"Processes are being put in place to further digitalise procurement activities."</i>	Frameworks for Value	Adaptability	Process digitalisation	PEV	digitise SCM
Corporate	Eskom Integrated Report 2025	2025	p.82	<i>"We identified instances of non-compliance with the PFMA and associated regulations. A detailed action plan to address the audit qualification has been developed and implementation is monitored regularly."</i>	SA Regulatory Framework	PFMA compliance	Remedial plan	PEV	plan in place
Corporate	Eskom Integrated Report 2025	2025	p.112	<i>"Looking ahead, we will continue engaging with key stakeholders to mitigate the impact of municipal supply interruptions."</i>	Stakeholder Alignment	Cross-functional reviews	Stakeholder engagement	PEV	stakeholder focus
Corporate	Eskom Integrated Report 2025	2025	p. 152	<i>"At that time, eight key commissioning milestone activities had been successfully achieved. A technical investigation was conducted, and the investigation report was finalised in February 2023."</i>	Risk Work	Adaptive practices	Scenario planning	FEV	scenario model
Corporate	Eskom Integrated Report 2025	2025	p. 155	<i>"Eskom received a qualified audit opinion from the external auditors for FY2024 related to the disclosure of irregular expenditure, fruitless and wasteful expenditure."</i>	Value of PRM	Governance	Audit outcome disclosure	FEV	Audit qualification

Corporate	Eskom Integrated Report 2025	2025	p. 160	<i>“Residual risk trends are analysed to determine improvement or deterioration across divisions.”</i>	Frameworks for Value	Adaptability	Trend analysis	PEV	trend tracking
Corporate	Eskom Integrated Report 2025	2025	p. 161	<i>“The corporate risk register was enhanced with early-warning indicators for key strategic risks.”</i>	Frameworks for Value	Adaptability	Early-warning system	FEV	EWI added
Corporate	Eskom Integrated Report 2025	2025	p. 162	<i>“Each division maintains its own risk register aligned to the corporate risk categories, with quarterly reporting to the Risk and Sustainability Committee.”</i>	Value of PRM	Governance	Risk register alignment	FEV	division alignment
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.13	<i>“Eskom’s governance framework is shaped by laws like the Public Finance Management Act (PFMA) and corporate principles such as the King IV Code of Corporate Governance.”</i>	SA Regulatory Framework	PFMA compliance	Regulatory requirements (PFMA, King IV)	NEV	Regulatory context
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.17	<i>“Our PFMA compliance status is under constant evaluation in accordance with our compliance risk monitoring plan. We have identified several areas where non-compliance remains a challenge.”</i>	SA Regulatory Framework	PFMA compliance	Compliance risk monitoring	PEV	Monitoring challenges
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.17	<i>“A dedicated communication channel has been created to enhance communication on PFMA-related matters throughout the business. We are also considering ways to enhance and strengthen internal controls to improve PFMA compliance and ensure that employees responsible for non-compliance with the PFMA are held accountable.”</i>	SA Regulatory Framework	PFMA compliance	PFMA controls, training & accountability	PEV	Controls & training
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.19	<i>“We conduct early project stage engagements to inform our stakeholders on project planning and to mitigate risks through environmental and social impact consultations.”</i>	Value of PRM	Stakeholder alignment	Early risk consultations	PEV	Stakeholder engagement
State-owned	Eskom Sustainability Report 2025	2025	p.20	<i>“Effective risk management is central to our governance and operations, supporting our vision,</i>	Value of PRM	Governance	Enterprise-wide risk integration	FEV	Proactive management

electricity provider				<i>mandate, and corporate objectives. Integrating it across all business processes ensures consistent and proactive risk identification and management, including ESG risks and opportunities."</i>					
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.20	<i>"We have established an integrated approach to managing risk that has been informed by international best practice and aligns to ISO 31000."</i>	International Standards	ISO principles	Alignment with ISO 31000 standard	PEV	Best practice
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.21	<i>"Executives across Group, Divisional, Subsidiary, and Functional levels are accountable for managing risks and resilience, monitoring progress, and reporting quarterly to Exco and Board committees. To ensure regular oversight and alignment to our governance processes, we continue to present the Risk and Resilience report quarterly to Eskom's governance structures, including the Exco Risk and Sustainability Committee, Board Risk Committee, and the Board."</i>	Value of PRM	Governance	Board-level risk oversight	FEV	Board oversight
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.22	<i>"The management of our risks is progressing, driven by the continuous interrogation of risks, self-assessments, and peer reviews."</i>	International Standards	ISO principles	Continuous risk process improvement	PEV	Process improvement
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.22	<i>"We have developed an Enterprise Resilience Framework, and capabilities to ensure continuity of operations, to adapt, and transform to ensure organisational sustainability and resilience."</i>	Frameworks for Value	Resilience	Enterprise resilience framework	PEV	Resilience plan
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.23	<i>"Divisional resilience is anchored by business continuity management, with each function accountable for maintaining its critical processes."</i>	Risk Culture	Accountability	Critical process accountability	PEV	Assigned responsibility

State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.23	<i>“Building resilience is therefore critical to withstand climate driven disruptions, ensuring reliable power supply.”</i>	Frameworks for Value	Resilience	Resilience ensures reliable supply	FEV	Reliable supply
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.23	<i>“These plans integrate the requirements of the Disaster Management Act and Framework, the Climate Change Act, and Eskom’s Integrated Risk Management methodology.”</i>	SA Regulatory Framework	PFMA compliance	Integration of DM Act & Climate Act	PEV	Compliance integration
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.23	<i>“In terms of the Eskom Integrated Risk and Resilience Management Procedure for Climate Adaptation Planning, there is a requirement to conduct simulation exercises to test and review response arrangements. These are done to continuously improve preparedness arrangements based on lessons learnt from these exercises.”</i>	Risk Work	Adaptive practices	Simulation drills for improvement	PEV	Continuous improvement
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.25	<i>“Eskom Risk and Sustainability successfully achieved ISO 9001:2015 recertification in March 2025, further strengthening the quality governance framework.”</i>	International Standards	ISO principles	ISO 9001 certification achievement	FEV	Certified quality
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.26	<i>“The success of these sustainability focused interventions has been observed in the preceding half-decade where an improvement in environmental performance was observed, specifically with respect to relative particulate emissions, specific water-use, and environmental incidents.”</i>	Risk Work	Adaptive practices	Improved environmental risk metrics	FEV	Improved metrics
State-owned electricity provider	Eskom Sustainability Report 2025	2025	p.27	<i>“In our Generation business, we cultivate a culture centred on environmental compliance.”</i>	Risk Culture	Behaviour & incentives	Environmental compliance culture	PEV	Compliance culture

Appendix B: PRM value dashboard - Summary of key insights and organisational contributions

PRM Theme	Core Contribution to Organisation / Sector	Key Findings (Evidence Type)	Sector-Level Learning Value
1. Value of PRM	Institutionalises PRM within governance, linking strategic decision-making, Board oversight, and performance monitoring.	High maturity observed across corporate reports (FEV) showing PRM embedded in decision assurance and Board-level processes.	Demonstrates how PRM enhances governance transparency and internal control integration in public-sector enterprises.
2. Risk Work	Transforms PRM from compliance to dynamic learning via scenario planning, simulation, and lessons learnt.	Corporate evidence (FEV) of scenario-based learning and iterative reviews; oversight reports show limited practice (NEV).	Encourages institutionalisation of adaptive learning mechanisms across government infrastructure programmes.
3. Risk Culture	Reinforces ethics, accountability, and behavioural discipline within the governance system.	Corporate efforts (PEV - FEV) evident in consequence management; oversight reports note weak accountability (NEV).	Highlights the need to strengthen behavioural incentives and leadership tone across the public sector.
4. Megaproject Paradox	Illustrates systemic inefficiencies (cost overruns, schedule slippage) and Eskom's proactive mitigation measures.	Oversight evidence (NEV) shows project underperformance; corporate perspective demonstrates structured risk tracking (FEV).	Reveals gaps between policy and practice - informing reforms in national infrastructure governance.
5. SA Regulatory Framework	Ensures compliance with PFMA and Treasury regulations while supporting structured internal control.	Widespread PEV evidence of compliance alignment; some Treasury oversight improvements noted.	Calls for integrated regulatory reporting and risk-based audit mechanisms across the sector.
6. International Standards	Promotes alignment with ISO 31000, ISO 9001, TCFD, and King IV - enhancing assurance and credibility.	FEV in corporate reports for certification and ESG disclosure; NEV in oversight/regulatory documents.	Strengthens South Africa's alignment with global ESG and assurance frameworks.
7. Frameworks for Value	Integrates PRM into enterprise resilience and business continuity - linking ERM with ESG.	Consistent FEV in resilience, adaptability, and assurance systems.	Provides a replicable model for embedding risk-based governance across public infrastructure sectors.