Gordon Institute of Business Science
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Aligning Agents To Principals: An Exploration Of The Job Creation Possibilities Of South Africa's Infrastructure Public-Private Partnerships.

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

26 April 2021

Abstract

This study sought to explore the governance mechanisms that result in agent-principal alignment in Public Private Partnerships (PPPs), with specific reference to Job Creation. This is important to understand in South Africa as infrastructure PPPs are central to the government's economic growth strategy.

The Renewable Energy Programme (REIPPPP), a decade-old PPP, was identified as the ideal context given its consistent job-creation alignment between the state and its agents, Independent Power Producers (IPPs).

Agency Theory posits that agents are inherently self-interested and thus unlikely to act in the interests of principals. However, while some theoretical propositions envisage instances of agent-principal alignment, what is less known are the precise mechanisms by which this can be achieved.

This study explored the questions of moral hazard and adverse selection, which refer to goal conflict and information asymmetry in agent-principal relationships. The research was undertaken through a qualitative study, comprised of secondary data analysis as well as semi-structured interviews.

It was found that by aligning contracts across multiple stakeholders, agents can increase their enforcement capacity. Furthermore, a rigorous data collection system accompanied by credible penalties, results in greater compliance. This contribution enhances the theory in respect of governance mechanisms whilst simultaneously providing practical guidance for PPP structuring.

Keywords

Infrastructure; Public-Private Partnerships; Job Creation; Agency Theory; Governance Mechanisms; Moral Hazard and Adverse Selection.

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Ngoku-Sakhile Mazwi
26 April 2021

Table of Contents

List of Figures

1. Chapter 1: Introduction To Research Problem

Agency Theory posits that agents are inherently self-interested and thus unlikely to act in the interests of principals (Eisenhardt, 1989). The theory, which seeks to understand responsibility-sharing arrangements, surfaces aspects of these relationships which are thought to inherently generate misalignment (Mitnick, 2011). In the first instance, the theory identifies a moral hazard problem, which means that agents and principals, by virtue of having competing or conflicting goals, are likely to be misaligned (Panda & Leepsa, 2017). The second concern is adverse selection, which identifies information asymmetries between agents and principals, as an added driver of misalignment (Panda & Leepsa, 2017). The combined effect of these two dilemmas is that agents, who are expected to carry out a task on behalf of the principal, are likely to underperform in relation to the expectations and/ targets set by agents (Zogning, 2017).

In studying agent-principal problems, the theory attempts to propose scenarios in which agent-principal misalignment, is overcome. These propositions assume a variety of factors that, correctly organised, can result in better alignment. For example, a popular proposition of Agency Theory suggests that agent-principal alignment can be achieved through high-quality information systems (Zogning, 2017). Although concepts such as moral hazard and adverse selection are not specific to organisation studies, they give Agency Theory a particular resonance in the field of organisational management because they speak to the dilemma at the heart of the modern organisation (Mitnick, 2011). The modern organisation is typically characterised by a separation between the ownership of assets (shareholding) and the operationalisation of assets (management) (Eisenhardt, 1985). This separation brings about the agent-principal problem as the principal, the owner of the asset, does not have full insight into the management of their assets by the agent. There is thus value in finding ways to overcome this challenge because its practical implications are far-reaching and thus, its theoretical development is of importance. The aspect of theory that sits at the heart of this paper pertains to governance mechanisms. Governance mechanisms are the levers by which agency problems can be overcome (Eisenhardt, 1989). This study therefore sought to contribute a deeper understanding of the governance mechanisms that can result in agent-principal alignment, to enrich the theory as well as practice.

To explore the question of governance mechanisms, the study identified South Africa’s Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) as the ideal context. REIPPPP is a decade-old government procurement programme in which the state procures electricity from Independent Power Producers (IPPs) (Eberhard et al., 2014). Throughout its existence, REIPPPP has defied the expected agent-principal problems, with agents, IPPs, over-delivering on the state’s developmental objectives (IPP Office, 2020). The state sets targets across seven areas of Economic Development, namely,

1. Job Creation,
2. Black Ownership,
3. Black Top Management,
4. Local Content,
5. Preferential Procurement,
6. Enterprise Development and
7. Socio-Economic Development

This study focused specifically on Job Creation within REIPPPP, where agents have overperformed. According to the Department of Mineral Resources and Energy (DMRE), IPPs had committed to delivering 25 002 jobs during construction (the most employment-intensive phase of a renewable energy power plant), but instead delivered 35 212 jobs, thus overperforming their targets by 41% (IPP Office, 2020). This outcome is extremely positive for South Africa given that the reduction of unemployment is amongst the central development objectives of the country (National Planning Commission, 2010). It is also an outcome that is unexpected in terms of Agency Theory, as it demonstrates extreme alignment between the state, the principal and IPPs, the agents.

This project therefore sought to explore the governance mechanisms that are at play, within REIPPPP, to establish how it is that they drive principal-agent alignment. The study undertook, through qualitative research methods, to study this problem, by exploring propositions that relate to moral hazard and adverse selection in the context of REIPPPP.

1.2 The Importance of The Research

South Africa (SA) seeks to embark on an ‘labour-intensive growth path’ to stimulate Economic Development in light of a decade-long trend of poor economic performance (National Treasury, 2018). This situation has been compounded by the devastating impacts of the novel coronavirus, COVID19, which, through inducing reduced social and economic activity, is predicted to result in a contraction in the SA economy of 6.4% (National Treasury, 2020). In response to these challenges, the government has rearticulated its growth strategy, coupling the need for labour-intensiveness with a sectoral focus on ‘infrastructure-led growth’ (SIDSSA, 2020).This ambition has been made concrete through the establishment of the Infrastructure and Investment Office within The Presidency. Amongst its activities has been the establishment of the Sustainable Infrastructure Development Symposium (SIDS), which was initiated on 23 June 2020, to enable a cross-sectoral mobilisation of the resources required for the delivery of new infrastructure investments (SIDSSA, 2020). Central to the plan is the recognition that infrastructure investments depend on both the public and private sector’s participation (SIDSSA, 2020).

This study, by assessing the governance mechanisms by which the state can align its interests to agents, in the context of Public Private Partnerships, such as REIPPPP, sought to make a practical contribution pertaining to Job Creation and by extension, Economic Development. Specifically, this research sought to understand the steps that must be taken to ensure that agents fulfil the Job Creation targets of the state. Given South Africa’s inordinately high unemployment levels, which sit at 32,5%, it is of importance to understand the mechanisms by which greater employment can be achieved (STATSSA, 2020).

Specifically, this paper explores the question in the context of the utility-scale renewable energy sector, which forms a composite piece of the electricity industry. The South African government enabled the emergence of this sector by establishing a procurement programme in 2011, the REIPPPP. This programme has thus far enabled the procurement, by government, of over 6000MW of electricity from private sector-owned renewable energy projects (IPP Office, 2019). It is thus an existing example of what the state seeks to expand through SIDS, an infrastructure public-private partnership programme that sits firmly within the global drive for sustainability. Indeed, the SIDS anticipates a key place for the energy sector, outlining that in 2019, energy made the second-highest infrastructure contribution to economic Gross Value Added (GVA), after the transport sector (SIDSSA, 2020). This is not to the exclusion of other infrastructure classes such as water, telecommunications, healthcare and education, inter alia. In all, SIDS represents the state's drive to create economic growth in tandem with the attainment of other development objectives.

This paper therefore sought to enrich the understanding of how, in the intersection of the state's dual imperative for employment creation or labour-intensiveness and infrastructure investments, Job Creation can be simultaneously achieved. Having observed an outcome deemed to be unusual by Agency Theory, the employment outperformance in REIPPPP projects (IPP Office, 2020), this paper explored whether lessons that can be transferred to other infrastructure sectors. The next section articulates the problem in greater depth.

1.3 Problem Definition

Scholars have long grappled with the implications of responsibility-sharing in contracts that require one party to delegate work to another (Zogning, 2017). Specifically, the challenge pertains to the incentives that may or may not exist for the party to whom work is delegated, referred to as the 'agent', to fulfil the objectives of the delegating party, referred to as the 'principal' (Zogning, 2017). The theory emerging out of this dilemma is referred to as Agency Theory. Barnard (1938) is recognised as having made a seminal contribution to Agency Theory, being amongst the first to provide a theoretical formulation of the challenge that arises out of agent-principal relationships, that being the notion that agents and principals have conflicting goals and therefore, that it is to be expected that principals are likely to be compromised by agents. The development of the theory has largely been within the field of Economics, with organisational scholars grappling more seriously with agent-principal problems in the latter part of the 20th century (Zogning, 2017). To this end, Eisenhardt has been a leading scholar, advocating for the relevance of Agency Theory within Organisational Studies (Eisenhardt, 1985; 1989). Importantly, Eisenhardt expands on the dominant theoretical lens in economics, utility maximisation, by identifying other benefits of the theory such as its contributions to the understanding of ‘risk, outcome uncertainty, incentives and information systems’, all of which are valuable to the study of organisations (Eisenhardt, 1989: 3).

The research problem identified for this study relates to the governance mechanisms that are required for the attainment of agent-principal alignment. This question is most pronounced in a sub-field of Agency Theory, referred to as Positivist Agency Theory (Eisenhardt, 1989). Therefore, the research objectives related to the problem, were defined in terms of two constraints on agent-principal alignment, moral hazard (goal-conflict) and adverse selection (information asymmetry). Specifically, the objective of the study was to understand how these issues have been overcome in the chosen context, REIPPPP, and therefore, what that implies for the requisite governance mechanisms that can result in agent-principal alignment. This alignment, through overcoming moral hazard and adverse selection, is important to understand as Agency Theory is constantly grappling with the question of governance mechanisms. It also has practical value given that the country of South Africa is grappling with unemployment, a challenge which is inherent to its chosen growth path, infrastructure development executed through an agent-principle model, public-private partnerships.

1.4 The Context

The question of sustainable infrastructure development is not unique to South Africa. Indeed, in explaining the rationale for SIDS, the head of the Investment and Infrastructure Office in the Presidency states that the term ‘sustainability’ is a direct reference to the country’s commitment to aligning with the Sustainable Development Goals (SIDSSA, 2020, p.4). The United Nations (UN), in its Sustainable Development Goals (SDGs), identifies the need for Resilient Infrastructure in goal 9, thus placing infrastructure development at the centre of the global development agenda (United Nations, 2015). Specifically, the SDG target 9.1, outlines the exact requirements in respect of infrastructure, namely: ‘Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support Economic Development and human well-being, with a focus on affordable and equitable access for all’ (United Nations, 2015, p.22).

Broadly, infrastructure refers to power, railways, ports, roads, airports, gas pipelines, housing, urban services, hospitals, schools, water and sanitation (Grimsey & Lewis, 2002). Infrastructure is further deconstructed into two categories, economic and social infrastructure. Economic infrastructure refers to the power, water, telecommunication and transport sectors, whereas, social infrastructure predominantly refers to hospitals, schools, government housing as well as prisons and graveyards (Grimsey & Lewis, 2002).

What is of salience in the United Nations’ framing of goal 9, is the link drawn between infrastructure and Economic Development. The UN’s stated requirement for infrastructure *‘to support Economic Development’* objectives is rooted in well-documented evidence. Aschauer's (1990) seminal paper inspired much research into the link between infrastructure investment and economic growth. Located in the United States context, Aschauer's (1990) research identified strong links between infrastructure investment and economic growth. It has since become widely accepted that infrastructure investments contribute immensely to economic growth (Chong & Poole, 2013; Kumari & Kumar Sharma, 2017). In addition, Calderón & Servén, (2004) find that infrastructure investments also reduce inequality. Belloumi & Achour (2016) similarly discerned a causal relationship between transport infrastructure, energy consumption and gross domestic product (GDP) in Tunisia. Infrastructure Investments have also been reported to play a significant role in supporting agricultural expansion and regional development (Wong, Luo, Zhang & Rozelle, 2013). Amongst the most profound findings on the economic benefits of infrastructure is research that demonstrates that a 1% increase in infrastructure stocks results, on average, in a 1% increase in Gross Domestic Product (GDP) (Kumari & Kumar Sharma, 2017). In sum, it is believed that well-developed economic and social infrastructure in rural and urban areas leads to economic growth, prosperity and improved living standards.

In addition to the requirement for infrastructure to catalyse economic benefits, there exists an urgent and related challenge, Climate Change. The Intergovernmental Panel on Climate Change (IPCC) has become a universally accepted source of knowledge in this area. In their projections, they suggest a global warming average of two degrees to remain within the agreements of the Paris Agreement (UNFCC, 2015). However, such an outcome will still result in cities such as Karachi and Kolkata being 'uninhabitable' because of deadly heatwaves, by the end of the 21st century (Wallace-Wells, 2019). Furthermore, according to the IPCC, Africa is the most vulnerable region to climate change because widespread poverty limits adaptive capacity (Calzadilla, Zhu, Rehdanz, Tol & Ringler, 2013).

To this end, much of the literature on infrastructure has pivoted towards an emphasis on resilience, aligning with the SDGs. Indeed, authors such as Giordano (2012) and Milly, Bentacourt, Falkenmark, Hirsch, Kundzewicz, Lettenmaier & Stouffer (2008) have long argued for an understanding of infrastructure outside the historical paradigm of 'stationarity'. Instead, in a climate change context, the longer the lifespan of the infrastructure, the more vulnerable it is to climate-related hazards (Giordano, 2012). For this reason, there is a need for a new kind of planning, that factors in a higher degree of uncertainty (Giordano, 2012). Meltzer (2016) further emphasises the point, identifying that building the same infrastructure as before has the potential to lock the world into a high-carbon future, thus reproducing the very climate risks that are impacting the longevity and effectiveness of existing infrastructure.

It is against this backdrop that renewable energy has grown in popularity as a form of infrastructure that responds both to the demand for climate change mitigation as well as Economic Development. It is proposed by Vakulchuk, Overland & Scholten (2020) that the targets of the Paris Agreement depend on reaching a 100% emissions reduction by 2050, much of which depends on the transition to renewable energy. Thus, there is great reliance on the sector to drive the desired climate change outcomes.

The South African government shares this global perspective on the place of the renewable energy sector. This is outlined in the national electricity plan, which indicates that of the new electrical capacity required by 2030, 18 870 MW should be generated from renewable energy sources, versus only 1 000 MW from coal (Department of Minerals and Energy, 2019).

Given its centrality then, to infrastructure development and climate change mitigation, renewable energy has attracted increased academic interest across a variety of topics, including innovative finance (Byrne, Taminiau, Kim, Seo & Lee, 2016); socio-political processes (Wolsink, 2020); culture (Sharpton, Lawrence & Hall, 2020) and rural development (Clausen & Rudolph, 2020), inter alia.

Of these questions, the most pertinent to this paper is the question of Job Creation. The South African Statistics Agency (STATSSA) reports that “the number of employed persons decreased by 38 000 to 16,4 million and the number of unemployed persons increased by 344 000 to 7,1 million in Q1: 2020 bringing the unemployment rate to 30,1% as last measured in the first quarter of 2020” (STATSSA, 2020, p.2). Women are disproportionately affected by joblessness as the unemployment rate within this community is 32,4% versus the rate for men, 28,3% (STATSSA, 2020). Race is also a determinant of unemployment as Black people have an unemployment rate of 33,8% versus White people at 8,1%, the lowest for all races (STATSSA, 2020, p.22). By contrast, the global unemployment rate for 2019 was 5.3% as reported on by the World Bank (2020). Within the comparative group of emerging economies of which South Africa is a part, namely Brazil, Russia, India and China (BRICS), SA fairs poorly as, for 2019, Brazil sat at 12% unemployment; Russia’s rate was 4,5%; India, 5,3% and China at 4,3% (World Bank Group, 2020). South Africa equally exceeds its regional peers as the Sub-Saharan Africa unemployment rate for 2019 was 6% (World Bank Group, 2020). That South Africa has a huge challenge with respect to unemployment is thus patently clear. Further, STATSSA reports that South Africa’s unemployed are predominantly unskilled, with 90,2% of the jobless possessing a matric or less (STATSSA, 2020, p.7). To this end, the strategy to catalyse labour-intensive growth envisages the absorption of the low and semi-skilled majority into the economy (National Treasury, 2018). For this reason, it is predominantly in the construction sector that the unemployed are most likely to become central to the infrastructure-led growth plan.

Therefore, in a manner that is arguably more pronounced than in other countries, South Africa finds itself grappling more seriously with Job Creation in the context of renewable energy. Indeed, Job Creation is amongst the top three development priorities of the country, along with poverty alleviation and the reduction of extreme inequality (National Planning Commission, 2010). The challenge exists therefore to ensure that jobs are generated, throughout the economy, to resolve South Africa's greatest impediments to a shared and inclusive future. This is to say that the study of Job Creation outcomes in the context of the renewable energy sector responds to a globally important question which is uniquely pronounced in the South African context.

South Africa initiated the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) in 2011, which has seen the public and private sector collaborate to deliver 6 422MW of electrical energy (IPP Office, 2019). To date, 3 976 MW of the total procured capacity have become available through the national, state-owned electricity grid, representing 64 of the 112 projects that are licensed by the government. The remaining projects are in different phases, ranging from financial close to construction. These projects represent the beginning of what is anticipated to be the long-term bias towards renewable energy in South Africa's electricity sector (Department of Minerals and Energy, 2019).

It is the Job Creation performance of the REIPPPP projects, which are public-private partnerships and constitute the vast majority of South Africa's utility-scale renewable energy portfolio, that this paper seeks to study. In particular, the paper anchors on an unexpected anomaly. The REIPPPP projects have created 53% more jobs than the base case or what was initially planned for the construction phase of the projects (IPP Office, 2019). Similar results are observed in the operations phase, with projects exceeding the state's targets by a range of 68% to 84% across all categories of employment equity (IPP Office, 2019).

This outcome is particularly interesting because traditional theory on PPPs suggests that the state's development objectives, including Job Creation inter alia, should be in competition with the private sector's profit maximisation goals (Panda & Leepsa, 2017). This misalignment in incentives and goals, known as the Agent-Principal problem is present in the employment data in REIPPPP. Instead, what the data shows are agents, independent power producers, who contribute more to the state's Job Creation objectives, than what the state itself has set out to achieve. The questions that then arise are whether the state's Job Creation targets are too low; whether the private sector under-estimates its own labour needs and whether there exist currently unarticulated or under-explored opportunities, for greater labour intensity in South Africa's renewable energy sector?

Thus, where Agency Theory traditionally suggests that the private sector is less incentivised to deliver on the social objectives of the state in PPPs, instead favouring profit maximisation (Panda & Leepsa, 2017), the opposite is observed in the SA's REIPPPP (IPP Office, 2019). Further, this anomaly extends beyond South Africa as renewable energy power projects have been shown to have low Job Creation potential (Aldieri et al., 2020). It is this anomalous outcome of private actors overperforming on the state's development goals, in the renewable energy sector, that creates research interest.

There is thus clear, practical importance in the study that extends beyond the context and speaks directly to the requirement for relevance in academia. Indeed, Cepiku (2011, p.136) characterises a recurrent problem of academic research in the public policy space, as being 'lost before translation'. By this it is meant that published research is irrelevant to policy issues or alternatively, that policy issues of high importance receive little research attention (Cepiku, 2011). This project is alive to this concern and seeks to avoid the temptation of theoretically interesting work that is out of touch with burning concerns.

1.5 Research Questions

The study's primary research question is therefore: What are the governance mechanisms that result in agent-principal alignment as it pertains to job-creation in the REIPPPP? Drawing on Positivist Agency Theory (Eisenhardt, 1989), the related questions pertain to the factors mediating and/ moderating the expected moral hazard (conflict of interest) and adverse selection (information asymmetry). The study thus asked the following sub-questions:

- What is it about the contractual structure of REIPPPP that might lead to reduced goal-conflict between agents and principals?
- What is it about the information systems in REIPPPP that might lead to greater agent-principal alignment?

1.6 Contributions of The Study

At the core of this exploration, is the intention to deepen the articulation of the concept of 'governance mechanisms' within Agency Theory. The theory specifically proposes that outcomes-based contracts and information-sharing improve principal-agent alignment (Eisenhardt, 1989). However, since contracts and information systems are broad concepts, there is value in developing a more specific understanding of the aspects of outcomes-based contracts that generate the desired outcome. Similarly, the study's concern pertains to the particularities within information-sharing that generate alignment.

This contribution is important because it advances the technical aspects of the theory, building on general propositions to generate more specific, evidence-based propositions about the workings of the governance mechanisms that generate principal-agent alignment. In this sense, it follows in the tradition of the work done on the role of social contracts (Wiseman et al., 2012) and morality (Bosse & Phillips, 2016) in aligning the incentives and behaviours of agents and principals.

Practically, this research seeks to guide the broader infrastructure development strategy that the South African government has embarked upon, which, like REIPPPP, envisages the state in partnership with private actors in the delivery of a host of infrastructure assets (SIDSSA, 2020). This study seeks to enrich the understanding of how the state's dual imperative for employment creation or labour-intensiveness can be achieved in the context infrastructure investments. Having observed this outcome, the employment outperformance in REIPPPP projects (IPP Office, 2019), this paper seeks to make practical proposals for achieving the same in other infrastructure programmes.

2. Chapter 2: Literature Review

2.1. Introduction

Having established the problem, this Chapter sets out to detail the theory that gives life to this study. This study is anchored in Agency Theory. Agency Theory is particularly powerful for assessing PPP contexts given the often divergent incentives of developmentally-oriented public sector actors versus their profit-maximising private sector partners (Reyes & Esteve, 2019). The literature review traces Agency Theory to its earliest formulations, describing the key problems the theory seeks to resolve as well as the tensions and debates that exist amongst scholars. Having articulated the theory in general terms, this chapter will locate this study in a specific area of Agency Theory, which is deemed specifically relevant to the aims of this research. Agency Theory will then be linked to literature on Infrastructure and PPPs, to fully ground the research in the theoretical context of 'what is known' and therefore make a case for the study of 'what is less, or, not known'. The research questions are presented in Chapter 3. .

2.2. Agency Theory

Stephen Ross and Barry Mitnick are recognised as being the first scholars to articulate Agency Theory as a standalone theory (Mitnick, 2011). The two thinkers developed the two dominant strands of Agency Theory at around the same time, in the early 1970s (Mitnick, 2011). Originally, Agency Theory finds its roots in economics and has, over the past four decades, become more widely adopted in the field of Organisation Studies (Eisenhardt, 1989; Hirsch & Friedman, 1986). The theory seeks to understand collaborative situations in which one party, referred to as the Principal, delegates decision making, control, risk and/or authority to another party, commonly referred to as, the Agent (Shapiro, 2005).

Ross emphasised the question of contracting, with a specific emphasis on how contracts can be better structured through compensation, to incentivise agents to fulfil the requirements of principals (Mitnick, 2011, P.3). By framing it in this manner, Ross gave birth to a stream in Agency Theory that would become dominant (Mitnick, 2011). Mitnick on the other hand, viewed the agency problem through a different lens, focusing more on the institutions that govern the behaviour of agents, thus going beyond the contract, as the primary instrument that governs the outcomes produced by agents (Mitnick, 2011). Mitnick agreed with the definition of agents as tending towards self-interest, arguing that it is difficult to perfectly compensate agents to produce outcomes that perfectly align with the interests of principals (Mitnick, 2011). However, he saw in society, the possibilities for regulating agents, through formal and informal institutions such as professional bodies and peer pressure, inter alia, in a way that would guide agents towards better alignment with principals (Mitnick, 2011). These contrasting views, contracts versus institutions, form the essence of the scholarly debate in Agency Theory.

Outlining the practical considerations that have underpinned the genesis of the theory, Zogning (2017) provides a schematic of the key questions that have driven the theory. Starting in the 1930s in the United States, the increasing corporatisation of firms made evident the requirement to solve for the separation between ownership and control between shareholders and managers (Zogning, 2017). Considerations, related to the roots of organisations, included, how they emerged and relatedly, where the property rights associated with their evolution, resided (Zogning, 2017). From these considerations arose questions around the motivations of managers and why they would choose goals that were contrary to the interests of shareholders (Zogning, 2017). The specific relationship of managers and shareholders is thus widely documented in Agency Theory and in some ways, is the most emblematic of the principal-agent problem (Shi, Connely & Hoskisson, 2017). Questions on agency soon evolved to establish the dynamics of information sharing and management, with scholars interrogating the extent to which information asymmetries are present and the real nature of decision making in respect of the goals of firms (Zogning, 2017). Further to questions of information sharing, arose a concern for governance as researchers sought to seek a structured manner in which, through contracts, firms could govern for the alignment of interests between agents and principals (Zogning, 2017).

It stands to reason that Agency Theory did not spontaneously appear, but rather evolved from the ideas of earlier thinkers, particularly in the field of economics, who had contemplated these challenges, albeit without formulating the problem into formal theory. Most notably, Adam Smith, predicted the principle-agent problem in the Wealth of Nations, in the recognition that the separation of the owner from the asset may give rise to abuses by managers (Panda & Leepsa, 2017). Thus, early scholars referred not to the agency problem as we know it, but to elements of it such as the compensation problem and the problem of arriving at 'appropriate decisions' (Mitnick, 2011). In another field, Political Science, thinkers had also begun to appreciate the place of incentives in organisations (Mitnick, 2011). What Ross recognised, in surfacing a formal theory of agency, was that the actions and decisions of managers were products of the compensation incentives within the contracts governing the behaviours of agents.

The 'economistic' agency approach spearheaded by Ross (Mitnick, 2011) and prominently fortified by Eisenhardt (1985, 1989), places emphasis on the design of compensation systems. This branch of Agency Theory more often than not locates the principal-agent problem in the context of a firm, concerning itself with such questions as: how do shareholders, principals, ensure that managers, agents, act in their favour, when they are removed from the operations of the assets they own?(Eisenhardt, 1985b).

In line with the contracts and incentives approach, the likes of Fama and Jensen (1983) contributed thought on decision-making processes as related to the residual claimant theory i.e. the theory of who ultimately has claim to a firm's profits and thus, how they ought to protect their interests (Panda & Leepsa, 2017). Relatedly, Grossman and Hart (1983) introduced a model on conflicts of interest focused on the divergent risk preferences between principals and agents, showing that the two were differently incentivised to take certain risks, thus generating conflict (Panda & Leepsa, 2017). Eisenhardt's contribution introduced parsimony and thus, the dominant formulations in the economic agency strand, by categorising the theory into two models, the Positivist Agency Model and the Principal-Agent Model (Panda & Leepsa, 2017). The principal-agent model characterises the nature of principals and agents by articulating principals as profit-seekers who are risk-neutral and agents as risk-averse, rent seekers (Panda & Leepsa, 2017). The second model introduced by

Eisenhardt, Positivist Agency Theory, seeks to explain how the agency problem comes about and relatedly, how it can be solved, rather than articulate the identities of the two parties (Eisenhardt, 1989). In Positivist Agency Theory, Eisenhardt (1989) demonstrated the presence of two primary problems: adverse selection and moral hazard. Adverse selection refers to information asymmetries that exist between agents and principals. Fundamentally, Eisenhardt (1989) demonstrated that by virtue of being away from the operations that are intended to grow asset value, asset owners, or principals, are disadvantaged and run the risk of being undercut by agents. In terms of moral hazard, Eisenhardt demonstrated that the self-interest of agents would present a natural problem for principals as, unless aligned through contracts, agents would pursue outcomes that are not consistent with those of principals, despite their being the ultimate beneficial owners of the assets through which benefit is generated (Eisenhardt, 1989).

On the other hand, a different strand of thought had developed around agency. For example, Williamson, Wachter and Harris (1975) argued that hierarchy may be more influential in driving the behaviour of agents. This thinking aligned with the institutional agency approach espoused by Mitnick (2011), who emphasised context and the related relationships as behavioural drivers. Fundamentally, what Williamson et al (1975) surfaced was that firms were not the only site of transaction costs and therefore, that rather than thinking of compensation in the narrow sense of the firm, there was a case for considering why institutions outside the firm may be willing to incur transaction costs to enforce the desired behavioural outcomes from agents (Mitnick, 2011). An example in the context of an infrastructure project delivered through the PPP model may be a community that embarks upon a protest to pressure a construction firm to create more jobs. The costs related with the protest, time, money and human capital, are not borne by the state, but advance its interests insofar as pressuring the private actor to deliver on its desired outcomes of Job Creation. What Williamson et al (1975) surfaced is precisely this possibility, that agents are not solely governed through the contracts of the firm but that other actors may be incentivised, through different avenues, to incur the costs of ‘disciplining’ agents.

Despite this, there were still limitations in how Williamson et al and like-minded scholars understood the applicability of their finding as they limited the analysis to firms and employment contracts (Mitnick, 2011). However, the likes of Mitnick, saw in this approach, a new way of thinking about the notion of *exchange* (Mitnick, 2011). In other words, there emerged a broadened understanding of how society organises costs, beyond the firm, to govern behaviours, within and outside the firm. What Mitnick surfaced was that agency was not primarily a problem of compensation or the contracts governing transaction costs but a broader concern relating to institutions, all of which were differently incentivised to incur the costs of enforcing the behaviour of agents (Mitnick, 2011). Mitnick also built on the ideas of Alchian and Demsetz (1972) who, in appreciating the compensation problem, added that the costs entailed included those of monitoring the behaviour of managers (Mitnick, 2011). Mitnick demonstrated that these issues went beyond the firm or 'corporate governance' and instead lay at the heart of all agency relationships, thus emphasising that the issue wasn't primarily in compensation contracts but in a wide set of institutional actors and their willingness to incur transaction costs based on their own incentives (Mitnick, 2011).

Today, Agency Theory has developed into a widely used theory across a variety of fields including Economics, Management Studies, Finance, Accounting, Political Science and Sociology, inter alia (Panda & Leepsa, 2017). It is considered foundational to many disciplines given its broad applicability (Panda & Leepsa, 2017). It has also started to capture other conflicts of interest, going beyond the agent and principal. For example, Panda and Leepsa (2017) identity Principal-Principal problems, where partners of unequal standing, such as senior and junior shareholders, may act against each other (Panda & Leepsa, 2017). They also identify the Principal-Creditor problem, where creditors may not have full insight into the decisions taken by principals and how those decisions may potentially compromise their funding terms and expected returns (Panda & Leepsa, 2017). In all, there remains little contestation around the wide applicability of agency problems and therefore, some of the earlier insights requiring the theory to go beyond the firm, are now well entrenched wisdoms of the field (Panda & Leepsa, 2017).

The economic agency approach, focused on contracts and incentives, as led by Ross (1973) and solidified by Eisenhardt (1985, 1989), is indeed the dominant way of thinking about Agency Theory. However, there remains a strong drive by institutionalists to assess other explanatory factors for the behaviour of agents. Perrow (1986), for example, criticises the fundamental characterisation of agents as self-interested, stating that principals can also hold interests that are constraining to the ultimate objectives of the organisation or enterprise (Panda & Leepsa, 2017). In other words, Perrow (1986) attempts to shift focus from a narrow problematisation of the agent, arguing that principals ought to be equally scrutinised and problematised. This perspective has become strong in finance literature as scholars have espoused a form of Agency Theory referred to as Stewardship Theory (Panda & Leepsa, 2017).

In keeping with Mitnick's institutional approach, Stewardship Theory argues that managers are capable of and often act in the interests of the organisation, out of a recognition other considerations moderate the behaviour of managers such as a belief in the firm's vision or an understanding that the long-term survival of the organisation (and related ability to continue to generate employment of the manager and staff) depends on the suspension of self-interest in the short run (Bosse & Phillips, 2016)). Given its roots in economics, Agency Theory leans heavily on an understanding of behaviour that is based on the concept of rationality, which traditional economists argue is rooted in self-interest (Zogning, 2017). Thus, a critique of the dominant model formulated by Eisenhardt and the economic agency stream comes from the likes of Wiseman & Gomez-Mejia (1998) who propose a view of agents through the lens of Behavioural Agency Theory (Panda & Leepsa, 2017).

They are supported by a growing body of research that recognises the importance of Agency Theory whilst simultaneously requiring a broadened perspective on the motivations of actors. Bosse & Phillips (2016) argue, for example, that agents do not act strictly within the confines of their own interests but are further bound by norms and the expectations of a broader group of stakeholders that form part of their community. Thus, because their agency is 'bound' by the immediate details of a singular contractual relationship, they are unlikely to act in ways that do not consider their broader context (Bosse & Phillips, 2016). This does not imply alignment in the interests of agents and principals but rather seeks to surface a more complex notion of the motivations of agents. This notion of a broadened self-interest is further explored by Shapiro (2005), who seeks to bring a sociological perspective on Agency Theory. Shapiro's contention is that by thinking about institutions, social organisation, social roles, relationships of control and discipline as well as deviations, it becomes apparent that agents are more complexly formulated than the traditional perspective on their interests and behaviours (Shapiro, 2005).

These theorists, jointly emphasising institutional thinking, argue that agents are motivated by more than just self-interest and instead respond to various pressures including risk and time (Panda & Leepsa, 2017). Behaviouralists relate the behaviour of agents not solely to compensation but look broadly to their motivation and the costs entailed in achieving the requisite level of performance, arguing that if the costs of performance are reasonable, agents are likely to align with the desires of principals (Panda & Leepsa, 2017). Further, making a more traditional institutional claim, Behavioural Agency Theory argues for bounded rationality (Panda & Leepsa, 2017), challenging the idea of a rational homo economicus and instead introducing constraints on rationality that include limited cognitive ability as well as social pressures that may ultimately generate a satisfactory outcome rather than the optimal outcome for the agent (Bosse & Phillips, 2016).

In summary then, the evolution of the theory, from the practical problems initially faced by the emergence of corporate companies, has spilled over to a multitude of organisational relationships over time. The dominant contention or prediction of Agency Theory has remained largely unchanged in that it is rooted in the understanding of agents and principals as parties that, in cooperative situations find themselves to have conflicting goals, which results in agents compromising the objectives of principals (Eisenhardt, 1989). The dominant principal-agent problem is thus characterised as the consequence of both 'goal conflict' and 'information asymmetries', in which principals are not able to observe the actions of agents fully (Fama & Jensen, 1983; Zogning, 2017).

Enriched by various perspectives, Eisenhardt (1989), proposes that Agency Theory does indeed offer value and is best utilised through its application in 'relevant contexts'. Indeed, Eisenhardt (1989) concedes that in evaluating varying contexts, the research approach should concern itself with one of two focus areas: behaviour versus outcomes. The theory suggest that if the actions of agents cannot be verified, the nature of contracting must be outcomes-based and in scenarios where actions can be verified, a greater focus should be placed on behaviour (Eisenhardt, 1989).

Eisenhardt (1989) therefore presents ten research propositions as central to the study of Agency Theory. This study will focus on the two main propositions of Positivist Agency Theory, which pertain to moral hazard and adverse selection as formulated below:

- **Moral Hazard Proposition**: the alignment of interests can be achieved through outcomes-based contracts that limit the extent of the agent's self-interest.
- **Adverse Selection Proposition**: the alignment of interests can be achieved through increased access to quality information about the actions of agents.

Eisenhardt's additional propositions, which link to Principal-Agent Theory, further articulate, albeit in more mathematical terms, the contexts in which contracts should be structured in terms of outcomes versus behaviour (Kaathleen M. Eisenhardt, 1989b), namely:

- Information systems are positively correlated with behaviour-based contracts and negatively correlated with outcome-based contracts.
- Outcome-uncertainty is positively correlated with behaviour-based contracts and negatively correlated with outcome-based contracts.
- The risk aversion of agents is positively correlated with behaviour-based contracts and negatively correlated with outcome-based contracts.
- The risk aversion of principals is negatively correlated with behaviour-based contracts and negatively correlated with outcome-based contracts.
- The goal conflicts between agents and principals is negatively related to behaviour-based contracts and positively related to outcome-based contracts.
- The ability to programme tasks is positively related to behaviour-based contracts and negatively correlated with outcome-based contracts.

- Outcome measurability is positively correlated with outcome-based contracts and negatively correlated with behaviour-based contracts.
- The length of the principal-agent relationship is positively correlated with behaviour-based contracts and negatively correlated with outcome-based contracts.

Although of interest, the literature largely treats these additional propositions as secondary, placing emphasis on the moral hazard and adverse selection problems as the central ideas of Agency Theory coming from the contracts/economic agency strand (Panda & Leepsa, 2017).

This study locates itself in Positivist Agency Theory. This choice results from the practical constraints entailed in the research process. Behavioural Agency Theory, which places emphasis on social institutions would require research on Job Creation in the renewable energy sector to necessarily involve interviews with community members. Communities form an important institution in the context of the sector because agents, IPPs, are hosted in remote areas and have specific employment targets related to their host communities. As such, to understand, in comprehensive terms, how social institutions influence the behaviour of IPPs, these interviews would be crucial. Unfortunately, given the restrictions related to the COVID19 pandemic, travel was not considered a wise choice for this study.

Of greater importance in respect of the choice of theoretical framework is the emphasis placed on contracts within Positivist Agency Theory. REIPPPP is lauded for its contractual structure, predominantly from the perspective of the standardisation of contracts as well as the security the contracts give to IPPs and financiers (Eberhard et al., 2014). What is of interest to this study is the extent to which the same contracts align agents and principals. Thus, beyond the practical constraints involved in executing a study grounded in Behavioural Agency Theory, this research is guided by the emphasis on contracts that is found in Positivist Agency Theory.

It follows from a Positivist Agency Theory perspective, that the central problem relates to the *governance mechanisms* that result in agent-principal alignment

(Eisenhardt, 1989). To this end, the literature contains various studies that have undertaken to explore, in greater depth, the governance mechanisms that are necessary to attain alignment. A key theme in this literature is risk-sharing. It is stated in the literature, that optimal outcomes, reflecting agent-principal alignment, depends on the quality of risk sharing between the two parties (Iossa & Martimort, 2012). In particular, the literature, which predominantly understands agents as the driver of risk, as a function of their self-interest, places emphasis on apportioning the correct level of risk to agents to constrain them from maximising their own interests (Iossa & Martimort, 2012).

Another theme that is prominent in Positivist Agency Theory pertains to compliance costs. This strand, places less emphasis on the self-interest of agents and rather, draws attention to the costs of compliance, as designed by the principals (Zogning, 2017; Iossa & Martimort, 2012). Shleifer & Vishny (1997) assert that the monitoring of agents often comes at a cost for principals and goes on to categorise agency cost into four types of agent opportunism: (i) over investment, (ii) entrenchment strategies, (iii) insufficient effort, and (iv) self-serving behaviour.

What this strand of literature seeks to draw attention to is that agents have a dual function, which is to execute on the task given to them by the principal and then, in addition, report on that as faithfully as possible. To achieve this, it is necessary to reduce the costs of sharing information, thus incentivising agents to become compliant (Zogning, 2017).

Panda & Leepsa (2017) also draw attention to the role of financiers in governing agent-principal relationships. They argue that financiers often experience the challenge of being principal as they often have limited insight into the use of the funds that they avail to agents (Panda & Leepsa, 2017). In the context of a firm, what arises is a dual problem where the agents can effectively conceal the true operational reality from both shareholders and financiers. In thinking about governance mechanisms it is therefore important to factor in financiers as they represent a significant component of what enables organisations to function (Panda & Leepsa, 2017).

Finally, another cornerstone of the literature on governance mechanisms, pertains to penalties. It is proposed that contracts should not only account for compensation but should incorporate penalties for non-performance (Kuru & Artan, 2020). Penalties, as a governance mechanism for agent-principal relationships, bring about related questions around the optimisation of the penalty to ensure that it is at once a sufficient deterrent without becoming so onerous that agents resign themselves to their inevitability (Kuru & Artan, 2020).

It is with these concerns in mind, penalties, risk-sharing and the role of financiers, inter alia, that this paper will approach the question of governance mechanisms in principal-agent relationships. Through the application of Positivist Agency Theory, this paper seeks to expand on the known mechanisms and contribute more refined tools through which the contracts and information-sharing systems of principals and agents can be optimised to achieve alignment.

The theory on agents and principals finds further expression in the literature on Public Private Partnerships. The following section draws the connections between Agency Theory and the theory on Infrastructure PPPs, to further surface the theoretical links that drive this paper's inquiry into REIPPPP, an infrastructure PPP.

2.3 Infrastructure PPPs: A Growing Trend

Although proven to be an essential component of economic growth, there is no dominant, singular understanding of what infrastructure is. However, most definitions share an overlapping view of infrastructure as a reference to: power plants, power distribution networks, oil and gas pipelines, roads, bridges, railways, harbours, airports, water purification and treatment plants, water pipelines, potable water supply, dams, telecommunications and communication networks, sewage facilities, housing services / human settlement, urban services, and irrigation networks (Wagenvoort, De Nicola, Kappeler, Engel, Fischer, Galetovic, Bitsch, Buchner & Kaserer, 2010). The Organisation for Economic Cooperation and Development definition for infrastructure is simply 'the system of public works in a country, state or region, including roads, utility lines and public buildings' (Corfee-morlot & Kennedy, 2012).

Investors typically identify quality infrastructure assets based on their economic and financial investment characteristics, which include high barriers to entry, economies of scale, inelastic demand, lower volatility/correlation to economic swings and listed markets, predictable cash-flow yields based on long-term agreements as well as public-goods attributes linked to a tendency towards monopoly (Wagenvoort et al., 2010).

Infrastructure can also be classified into rural and urban infrastructure to distinguish between the differing needs of communities owing to their differing geographic profiles. In this sense, rural infrastructure often refers to basic services such as rural electrification, roads and housing (Wong et al., 2013). Urban infrastructure, on the other hand, includes urban transport, electricity, access to safe and clean drinking water, sewage, sanitation, gas distribution, primary health services and environmental regulations (Zhang, Chan, Feng, Duan & Ke, 2016).

It is because infrastructure is defined by public-goods attributes that government regulation is required to ensure that infrastructure is appropriately priced, inter alia (Estache & Iimi, 2011). Not all infrastructure sectors are like this, however. ICT as an example, has sufficient attributes to incentivise competitive private participation and therefore does to not require *too much* government involvement (Fuss, Chen, Jakob, Marxen, Rao & Edenhofer, 2016). Nevertheless, infrastructure projects typically have network effects benefits and address spatial inclusion (Wong et al., 2013). Thus, the net public benefit or economic gross value add from infrastructure investments exceeds their private sector return. For this reason, some infrastructure sub-sectors, such as social housing, get underprovided for by the private sector (Di Lollo & Drummond, 2019).

The need for Infrastructure is particularly pronounced in Sub-Saharan Africa (SSA), within which South Africa falls. As a region, Sub-Saharan Africa has the least amount of infrastructure in the world, measured in terms of the following key categories: paved road density, electricity generation capacity as well as telephone lines (Calzadilla et al., 2013). Furthermore, according to the Intergovernmental Panel on Climate Change (IPCC), Africa is the most vulnerable region because widespread poverty and the very lack of infrastructure limits adaptive capacity to hazardous climate (Calzadilla et al., 2013).

The dominant literature acknowledges that South Africa does indeed have an infrastructure backlog, particularly in water and electricity, albeit a regional leader (Calzadilla et al., 2013). Thus, while South Africa is amongst the most advanced economies in the Sub-Saharan Africa region and thus has a much greater share of infrastructure, it is under-performing its infrastructure investment targets by as a proportion GDP. In comparison, its fellow middle-income country peers, India and China, have been investing 8%-13% of GDP in infrastructure since the 1990s (Chong & Poole, 2013). Despite the exceptional cases such as China and India, the dominant global trend is that infrastructure is under-invested (Kumari & Kumar Sharma, 2017).

Others argue that the funding gaps in infrastructure ought not be so large as there exists private capital for co-investment into PPPs (Ehlers, 2014). Specifically, the opportunity for infrastructure investment ought attract the pension fund sector as the long-term profile of infrastructure assets matches the long-term liabilities of pension funds (Chong & Poole, 2013). Indeed, funding is not the sole challenge. Infrastructure projects present unique challenges over a long-dated investment horizon that does not align with the short-term incentives of investment managers and similarly, governments, who are themselves driven by electoral cycles (Ehlers, 2014). Additionally, low-income markets have more pronounced challenges with institutional and regulatory frameworks to enable successful infrastructure deployment (Chong & Poole, 2013). In sum, over and above funding challenges, infrastructure projects present a diverse set of risks that can be summed up as 'longer maturity, fixed and low (but positive) real returns, long sunk costs, high risk portfolios, long gestation periods, illiquid returns, high capital outlays, difficult valuations due to taxation, pricing rules, complex nature and involvement of multiple parties' (Kumari & Kumar Sharma, 2017).

However, in light of the vast complexities, for the South African government, the primary challenge is finance, hence the requirement to pool private capital into its infrastructure plans per the Sustainable Infrastructure Development Symposium. Indeed, several sources of infrastructure financing exist, such as public investments, private investments, public-private partnerships, international aid and foreign direct investments (Deep, Kim & Lee, 2019). Of these options however, public-private partnerships have emerged as the preferred risk-adjusted model to fund the construction, operations and maintenance of large-scale infrastructure projects (Deep et al., 2019). PPPs take on many forms including build-own-operate (BOO) contracts, design-bid-build (DBB) and design-build-finance-operate-transfer (DBFOT) contracts, and pure operations and management (O&M) contracts (Zhang et al., 2016).

The literature is thus clear that PPPs are necessary and effective vehicles for delivering infrastructure (Kumari & Kumar Sharma, 2017). In the first place, they ease the burden on governments to finance what are expensive projects (Ehlers, 2014). Additionally, PPPs also crowd in private sector construction and operational capabilities, which are widely accepted to be superior (Kumari & Kumar Sharma, 2017).

2.4 The Relevance of Agency Theory to Public-Private Partnerships

Agency Theory, from a contracts/economic agency perspective, is based on two main assumptions, the first, is that the principle and agent are likely to have conflicting goals, driven by self-interest; in this case the theory is used to describe governance tools to reduce self-serving behaviour for the benefit of all parties (Zogning, 2017). The second assumption of Agency Theory is that agents are often in the position of power as they often are the ones with the access to the operational information and are in a position to make the decision (Parker, Dresself, Chevers & Zeppetella, 2018).

The Job Creation results of the public-private partnerships in South Africa’s REIPPPP make evident the expected results of Positivist Agency Theory’s propositions. These propositions conclude that agents can and do act in the interests of principals when contracts are outcomes-based and information-sharing is efficient (Eisenhardt, 1989). This outcome therefore creates an opportunity to explore the governance mechanisms that resulted in this principal-agent alignment. This is an important line of inquiry because it seeks to give specificity to the otherwise broad propositions of the theory, regarding moral hazard and adverse selection problems. Understanding this is key to informing the approach taken by the state in its new SIDS programme, given the state's desire to ensure that Job Creation is integral to its planned infrastructure-led growth-path.

2.5 Conclusion

What is evident, therefore, is that renewable energy forms a constituent part of what the literature defines as a sub-category of economic infrastructure: electricity. Further, it is clear from the literature that the optimal way to deliver infrastructure projects, in a global context defined by financially constrained governments, is through Public Private Partnerships. As articulated, PPPs enable a blend of resources and capabilities from the public and private sectors.

PPPs, being comprised of governments and private companies also typify the agent-principal relationships as defined in Agency Theory. This is because PPPs are responsibility-sharing arrangements in which the government serves as the ultimate owner and/ accountable party for the infrastructure where private companies are tasked with building and/ operating the infrastructure on behalf of the government. The distance between the government and its operational asset makes it a classic principal. The intimate knowledge of the operational asset coupled with the lack of ultimate ownership and/accountability for it, makes the private company, a classic agent.

Agency Theory is thus well suited to the exploration of questions regarding he successful execution of infrastructure PPPs. This concern is defining of this study as it seeks to use Positivist Agency Theory to determine the governance mechanisms which can align agents and principals. This study, in deepening the theory, simultaneously seeks to provide practical guidance regarding South Africa's infrastructure-led growth path. To this end, the bodies of literature provide a sound theoretical understanding of agents, principals, infrastructure assets and Public-Private Partnerships. To conclude, below is a diagrammatic summary of Agency Theory, highlighting this paper's location.

Diagrammatic Summary of Agency Theory

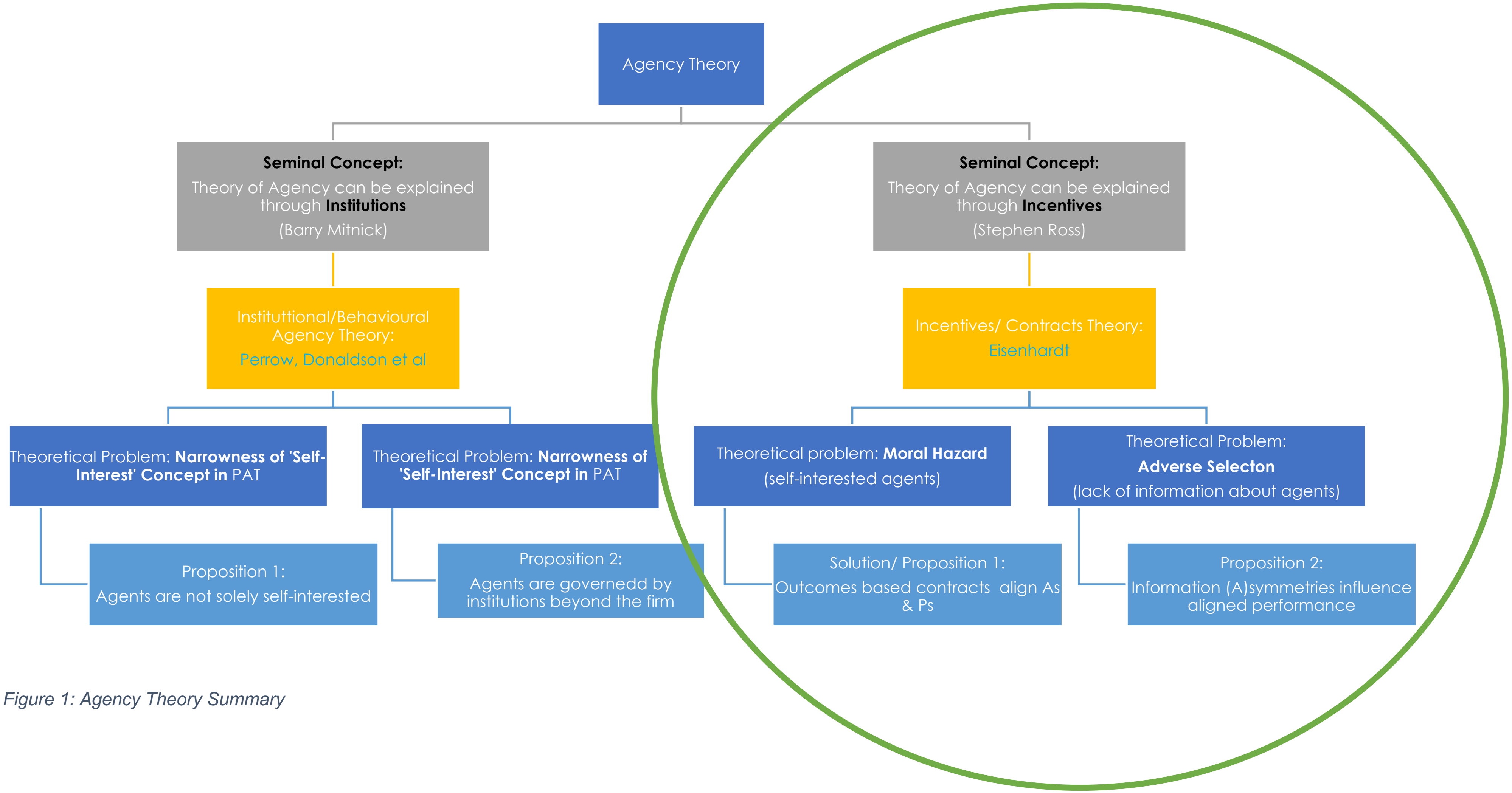

Figure 1: Agency Theory Summary

3. Chapter 3: Research Questions & Propositions

3.1 Introduction

Positivist Agency Theory concerns itself with the governance mechanisms that bring about a greater alignment between agents and principals (Eisenhardt, 1989). The theory is led by two key ideas, that agents are by definition self-interested and therefore, that, to the extent that they are required to share responsibility with principals, they are likely to undermine the interests of the principal (Panda & Leepsa, 2017). This goal conflict is formally referred to as Moral Hazard. Additionally, the theory states that by virtue of having access to information, through direct operational involvement in an organisation, agents distort the understanding of principals by providing incomplete or in worse cases, incorrect information (Panda & Leepsa, 2017). This is known as Adverse Selection.

Fundamentally then, when studying how agents and principals can be better aligned, we seek to understand the mechanisms by which goal conflict and information asymmetries can be reduced. This is the question that sits at the heart of this study. The job-creation over-performance in REIPPPP therefore creates a near-ideal context in which to study these mechanisms as the observed agent-principal alignment, addresses practical concerns for South Africa's intended growth path. Further, in unpacking the mechanisms by which agent-principal alignment becomes possible, the study makes a necessary contribution to the Agency Theory, by providing specific and concrete evidence to guide the operationalisation of some of its key propositions.

The questions are thus stated below.

- Main question: What are the governance mechanisms that result in agent-principal alignment as it pertains to job-creation in the REIPPPP?

  - Sub-question 1: what is it about the contractual structure of REIPPPP that might lead to agent-principal alignment?
  - Sub-question 2: What is it about the information systems in REIPPPP that might lead to agent-principal alignment

3.2 Theoretical Proposition 1 and Related Research Question

3.2.1 Question: What is it about the contractual structure of REIPPPP that might lead to agent-principal alignment?

3.2.2 Proposition: Moral Hazard - When the contract between the principal and agent is outcome-based, the agent is more likely to behave in the interests of the principal (Eisenhardt, 1989).

3.3 Theoretical Proposition 2 and Related Research

3.3.1 Question: What is it about the information systems in REIPPPP that might lead to agent-principal alignment?

3.3.2 Proposition: Adverse Selection - When the principal has information to verify agents' behaviour, the agent is more likely to behave in the interests of the principal (Eisenhardt, 1989).

These theoretical propositions derive from Positivist Agency Theory. The theory, which evolves out of the economics strand of Agency Theory, concerns itself with questions of incentives as driven by contracts and compensation (Mitnick, 2011). For this reason, Positivist Agency Theory targets its focus on the governance mechanisms which resolve the problems of moral hazard and adverse selection (Eisenhardt, 1989). In her formulation, Eisenhardt (1989) provides these two, broad propositions as responses to the fundamental issues at the heart of moral hazard and adverse selection, goal-conflict and information asymmetry. By exploring these propositions, this paper seeks to contribute narrow, more specific understandings of the governance mechanisms that underpin the broad theoretical propositions. This contribution intends to address a less developed aspect of the theory which has to do with the precise, technical drivers of agent-principal alignment in the context of PPPs. Below is a diagrammatic summary of the research questions and the related propositions to be explored in this stud.

Diagrammatic Overview of Research Questions

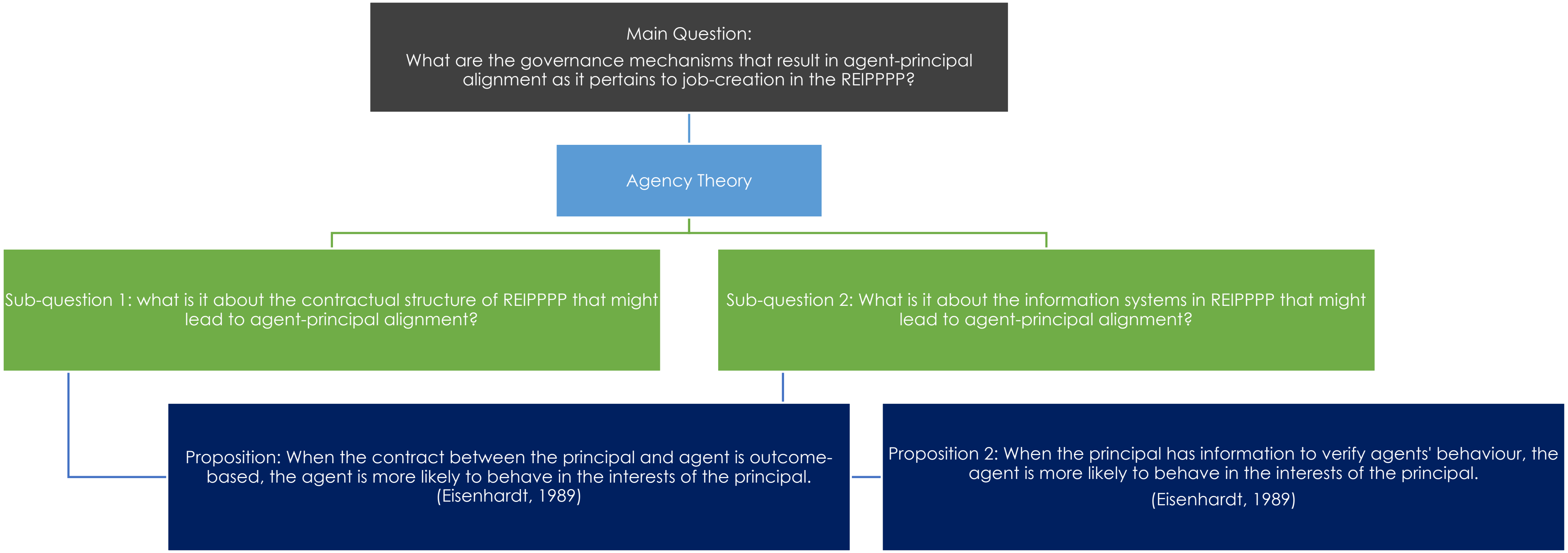

Figure 2: Research Questions Summary

4. Chapter 4: Research Methodology and Design

4.1 Introduction

This Chapter sets out to review the research philosophy, method and approach to theory development that was chosen for this study in order to answer the research question(s). In addition, the data collection and analysis processes are discussed as well as the research limitations that informed this exploratory study.

4.2 Research Design

This research was completed as a qualitative, exploratory study in an effort to contribute practical solutions to principal-agent alignment research in Public-Private Partnerships and explore the observed outperformance in Job Creation in REIPPPP (IPP Office, 2020). The research followed a pragmatic view, recognising that 'the most important determinant of the research design are the research questions' (Saunders & Lewis, 2012, p 111.).

A pragmatic review of the research questions led to the recognition that a qualitative research approach would be appropriate This executed through the separation of the research questions to ensure that the appropriate link was made between the type of question and the related data sources. Thus, a qualitative, exploratory study with two different data collection methods was executed along the following lines:

1. To answer the first question in respect of 'moral hazard' or 'goal-conflict', secondary data was reviewed and analysed. The data comprised of the standardised contracts between IPPs and the state, which form the basis of the agent-principal relationship in REIPPPP..

2. To answer the second question, regarding 'adverse selection' or 'information asymmetry', primary data was collected through semi-structured interviews with relevant stakeholders operating within REIPPPP. The data was collected via Zoom, an internet-based teleconference service. The interviews took place over a two-week period.

Saunders & Lewis (2012) recommends that the most suitable way to conduct a qualitative, exploratory study is by researching the academic literature, using semi-structured interviews and then conducting a re-analysis of secondary data. This approach was followed in the context of this study. Therefore, the literature review, which unpacked Agency Theory as well as the related theory on Infrastructure PPPs, was the starting point of the study. This literature was reintegrated into the study to evaluate and interpret the findings from the secondary data review of contracts and the primary data collected from the relevant stakeholders.

The cross-sectional, inductive approach of this study assisted in generating insights into the governance mechanisms that led to REIPPPP's Job Creation and related Economic Development outperformance (IPP Office, 2020). By interviewing, amongst others, the agents themselves (IPPs), the study was able to delve into the detailed mechanisms through which the outcomes-based contracts of the REIPPPP are given practical expression.

The purpose of the cross-sectional, qualitative inquiry in the context of this study was to go beyond the measurable construct of jobs, expressed quantitively as the amount of time and/ the number of people contracted to deliver on a certain outcome. Instead, what is of interest are the governance mechanisms by which these outcomes are produced (Gehman, Glaser, Eisenhardt, Gioia, Langley & Corley, 2018). To this end then, it was also of interest to surface the conceptual and related contractual basis upon which the state determines its Job Creation targets for the private sector. Similarly, it was worth understanding the processes by which the private sector ensures contractual compliance, which includes, the work undertaken to share information with the state. Collectively, by studying the contractual prescripts set out by the principal as well as the related actions of agents in fulfilling and reporting on them, this study sought to make a connection between the intentions of REIPPPP as set out in contracts and the actual execution of REIPPPP as evidenced in the information shared by agents.

4.1 Universe / Population

In an effort to contribute practical solutions to principal-agent alignment research in public-private partnerships. The research universe consisted of the public sector; represented by the IPP Office as well as the private sector represented by various REIPPPP industry stakeholders, including Independent Power Producers. The REIPPPP programme is one of the largest infrastructure development public-private partnership programmes in Africa with a total of 112 independent power producers that have been awarded independent power generation licenses at the time of the study (IPP Office, 2020). Collectively, these Independent Power Producers are mandated to deliver on the State's imperative of procuring affordable electricity while achieving developmental impact.

The IPP Office (a division of the Department of Mineral Resources & Energy), Independent Power Producers (represented by CEOs), Economic Development Managers (accountable for the information sharing function of IPPs and employed both directly by IPPs or as consultants) as well as representatives of industry and academia, constituted a fair representation of the various stakeholders needed to contribute to the study of the employment outperformance achieved in REIPPPP (IPP Office, 2020).

It was determined that the value of interviewing these stakeholders was primarily in understanding the information sharing aspects of an IPP, as this is the primary concern of the adverse selection challenge in Agency Theory. Thus, semi-structured interviews were designed to ascertain the kind of information shared, the regularity with which the information is shared and perhaps more pertinently, the motivation behind sharing information with the principal, the state, represented by the IPP Office in terms of the information-sharing process. The 'identity' of these actors was necessarily expected to frame their respective understandings.

4.2 Sampling Method & Sample Size

A non-probability, purposive, heterogeneous, sampling technique was used in this study. This was based on the researcher's judgement, regarding the types of research participants, who are also stakeholders and participants within REIPPPP, that would provide the best insight to the research questions (Saunders & Lewis, 2018). The research participants were chosen from four, key industry groupings:

- Two participants were recruited from the Independent Power Producer Office, also referred to as the IPP Office. The IPP Office is the central government division, within the Department of Minerals and Energy Resources, charged with the design, execution, and monitoring of the REIPPPP. The IPP Office, as the primary representative of the government, constitutes the principal, in the context of REIPPPP.
- The second group was comprised of Independent Power Producers, IPPs, who, by virtue of being the party contracted to generate power on behalf of the state, are the agents. Four Chief Executive Officers from solar, wind and CSP technology power plants were interviewed.
- Residing within the IPP or related to an IPP through a subcontracting arrangement, are the third group of interviewees, Economic Development (ED) Managers. ED Managers are charged with implementing the Job Creation commitments of the IPP and relatedly, reporting on this and other elements that constitute the IPP's Economic Development Obligations.
- The final group was comprised senior representatives of industry bodies and academia. This group, understanding REIPPPP through the lens of multiple actors and varying concerns, brought a 'birds' eye-view' to the dynamics between agents and principals.

An equal number of ED Managers to CEOs were interviewed. As a collective, these participant groups were deemed a good representation of the research population and offered insight into how principals and agents approach the question of information sharing, both in terms of their views on it as well as the practical actions undertaken as part of this work. All participants were South African.

4.3 Unit of Analysis

The primary unit of analysis is the contract between the principal and agent as required by the study of Positivist Agency Theory (Eisenhardt, 1989). In this case, the contract is comprised of a collection of related, standard contracts that constitute the legal binds between IPPs and the state, in REIPPPP. In total, the contract is comprised of six related contracts, which were evaluated for this study, namely:

1. The Implementation Agreement
2. The Power Purchase Agreement
3. The Direct Agreement
4. The Independent Engineer Agreement
5. The Transmission Agreement
6. The Distribution Agreement

The Direct Connection Agreement, which is included in the recently announced procurement round of the REIPPPP could not be studied as it is new to the programme (i.e. was not present in previous rounds) and has not yet been shared with the public.

4.4 Measurement Instrument

This research was carried out through a combination of primary data collection and analysis as well as a study of secondary data. The contracts of the REIPPPP constituted the secondary data. Positivist Agency Theory understands its primary unit of analysis as the contract. REIPPPP, which is governed by a series of standard contracts, could therefore be evaluated in this way. The assessment of contracts responds to one aspect of the agency problem, which is goal-conflict or Moral Hazard.

To understand the second aspect of the problem, Adverse Selection, semi-structured interviews were undertaken, with key stakeholders in REIPPPP, to ascertain how the information-sharing prescripts of the contracts are given practical expression, in practice. The interviews thus sought to respond to the question of how information asymmetry is dealt with in REIPPPP, in a manner that aligns agents and principals.

4.5 Data Collection Process

The initial, analysis sample for this study was determined to be ten interviews. The stopping criteria was determined to two interviews. The stopping criteria was chosen by the researcher as the point of saturation (Francis, Johnston & Robertson, 2010).

Interviews lasting 40min – 60min were held with the research participants following purposive sampling by the researcher, anonymised, and analysed on Atlas TI. A pilot interview was conducted to determine the requisite time commitment and improve the sequencing and approach to probing. The pilot interview confirmed that the timing of the interview relative to the questionnaire was appropriate. In addition, the pilot revealed that the order of questions was appropriate, however added effort would be required on the part of the researcher, to contextualise some questions as participants would not necessarily be familiar with the academic theory framing the study. Additional reading was done post the pilot interview to bolster the quality and line of questioning, including rephrasing certain questions for clarity. Given COVID19 restrictions, the interviews were conducted remotely, via video-conferencing service provider, ZOOM. An audio recording was made of each interview, for reference purposes. All interviews were transcribed by a third-party transcriber. To ensure confirmability, each research participant, signed a research consent form detailing their consent to being part of the study.

There was no requirement for a specific sequencing of the interviews. Therefore, the interviews took place over a two-week period, with an ideal spread of three interviews maximum, on any working day. This allowed for sufficient time to process each interview, transcribe it, and upload to the Atlas TI coding platform before the next interview was due.

Data saturation, as determined by the number of new codes from each interview, was reached around the 9th interview however a total of 12 interviews were conducted by the researcher (Fusch & Ness, 2015; Guest, Bunce & Johnstonel, 2006). According to Francis et al, (2010) twelve interviews are the sufficient sample size for qualitative studies with ninety two of all codes identified within twelve interviews. The table below details the number of new codes created after each meeting:

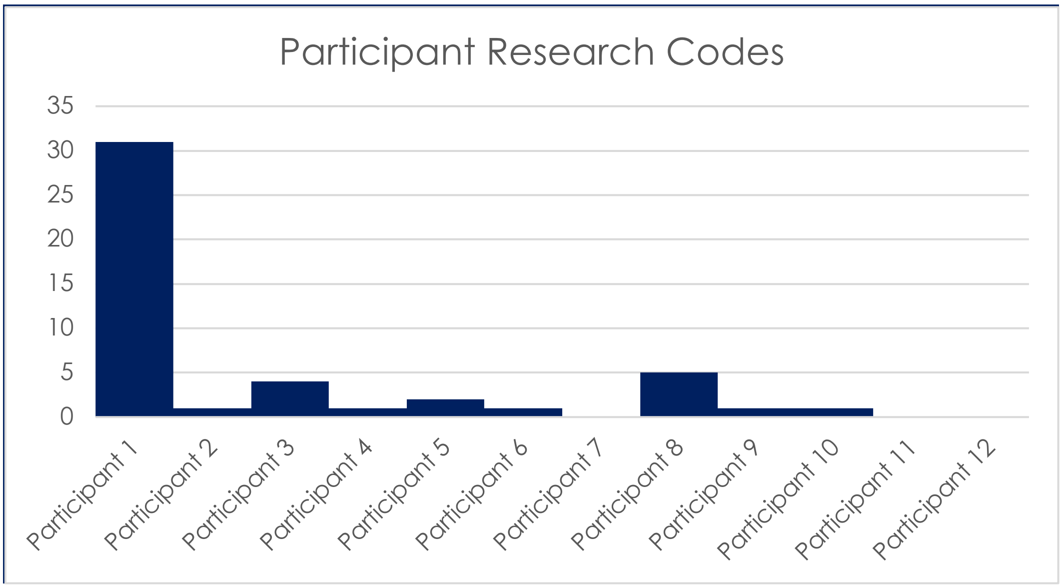

Figure 3: Research Participant Codes

4.6 Data Analysis

To code the findings and identify common themes and/or insights from the interviews ATLAS.ti, a qualitative research software, was used. ATLAS.ti is capable of combining a variety of data sources, in this case, transcriptions and the interviewer's notes into clearly organised and comprehensive themes. Through a process of induction, the themes were associated with the research questions to generate an understanding of the meaning(s) of REIPPPP's job overperformance; the nature of the agent-principal dynamic in delivering and reporting on REIPPPP jobs as well as the implications of these findings for other infrastructure sectors.

Specifically, the analytical approach that was followed is that proposed by Gioia et al. (2013), which promotes an iterative approach to the process of sense-making. To this end, the researcher created concepts/codes, a long list of loosely aligned ideas that initially emerge from the data. This was followed by themes, which seek to create a single idea for each set of concepts. Finally, these themes were grouped into aggregate dimensions, to produce the main findings of the primary research phase.

It is deemed important to do write-ups of the first order concepts; second order themes and aggregate dimensions and include them in the data that is uploaded to ATLAS.ti. This was done to ensure that the researcher's understanding, which will fuse the primary data and pre-existing knowledge generated through secondary data, is fully incorporated into the analysis that is software generated. In so doing, the intention was to get the full technology benefit, without negating the deeper knowledge of the researcher and attendant sense-making efforts.

The process of analysis also entailed 'creating a conversation' between the observed world and the theoretical paradigm, Agency Theory. At the theoretical level, this paper sought to understand how agent-principal problems are resolved, whether as a function of contractual incentives, information sharing systems and any other variables mediating the governance of these responsibility-sharing arrangement.

4.7 Data Reliability and Validity

Multiple sources of data enhance the reliability of results. Thus, to ensure enhanced data reliability and validity, triangulation with publicly available data from the Independent Power Producer Office, in the form of quarterly reports, was used (Fusch & Ness, 2015). Further, in an effort to ensure a credible data collection process the following additional steps were taken:

- All research participants were given an overview of the study to ensure that they were clear on the purpose and context of the study; and whether they would be able to provide the requisite insight.
- Formal consent to take part in the study was recorded via an appropriate consent form that was signed by the research participants. This is a requirement for reliability and validity (Saunders and Lewis, 2018).
- To avoid, researcher error, interview questions were asked in a manner that avoided close-ended questioning. In addition, all interview questions were asked in a similar manner, across all research participants, to ensure no unintended biases were created.

- To ensure a fair representation across all renewable energy technologies, former and current CEOs of solar PV, wind and CSP power plants were interviewed, and formed part of the study.
- Each interview was audio recorded to ensure that all the information was correctly captured.
- The recordings were transcribed by a third-party transcriber, to avoid any researcher biases and/or misrepresentation. The transcriber was required to sign a Non-Disclosure Agreement form prior to gaining access to the research content.
- Data triangulation with the publicly available reports from the IPP Office was also done to ensure validity of the assertions made by research participants.

As expected, saturation was easier to reach given the ability to triangulate reported outcomes with publicly available IPP reports (Fusch & Ness, 2015).

4.8 Limitations

The biggest limitation to this study was the inability to independently analyse the IPP Office data, which claims the Job Creation outperformance. Although largely trusted by sector actors, there is a requirement for this data to be made more transparent and for its auditing to be clarified to ensure greater reliability (Stands, 2015). This limitation is largely a function of time and scope, as an audit of the jobs data would require a significant amount of capacity to successfully execute. Another challenge that was anticipated was technology reliability. It is commonplace for internet connectivity to be unstable and for devices to present unexpected glitches. This was well-managed in the process and thus no interviews were lost.

5. Chapter 5: Results

5.1 Introduction

This research was carried out through a combination of primary data collection and analysis as well as a study of secondary data. The contracts of the REIPPPP constituted the secondary data. Positivist Agency Theory understands its primary unit of analysis as the contract. REIPPPP, which is governed by a series of standard contracts, could therefore be evaluated in this way. The assessment of contracts responds to one aspect of the agency problem, which is goal-conflict or Moral Hazard. To understand the second aspect of the problem, Adverse Selection, semi-structured interviews were undertaken, with key stakeholders in REIPPPP, to ascertain how the information-sharing prescripts of the contracts are given practical expression, in practice. The interviews thus sought to respond to the question of how information asymmetry is dealt with in REIPPPP, in a manner that aligns agents and principals.

5.2 Research Question 1: Moral Hazards

The overarching question guiding this exploration was thus: What is it about the contractual structure of REIPPPP that might lead to agent-principal alignment? This question was interrogated through an evaluation of the contracts that underpin the agent-principal relationship in REIPPPP.

5.2.1 REIPPPP Contracts

REIPPPP is comprised of seven, standardised contracts, outlined in the Legal Requirements section of the REIPPPP RFP (DMRE, 2021e):

1. Power Purchase Agreement
2. Independent Engineer Agreement
3. Direct Agreement
4. Implementation Agreement
5. Transmission Agreement
6. Distribution Agreement

It is important to understand that the state is represented by multiple parties in REIPPPP contracts. The parties, who jointly comprise the state, are as follows (DMRE, 2021c):

1. Department of Mineral Resources and Energy (DMRE): This department includes a special office that is dedicated to independent power production, referred to as the IPP Office. The DMRE and IPP Office are considered interchangeable. For purpose of contracting however, it is the DMRE that represents the department in totality.
2. Eskom: This is a state-owned entity which has sole accountability for the distribution and transmission of power onto the national energy grid. Until the establishment of REIPPPP, Eskom was also the sole entity accountable for power generation for on-grid supply. In the context REIPPPP, Eskom governs the technical specifications of the power generated by IPPs, to ensure that it complies with the transmission and distribution configuration of the national grid. Because Eskom is accountable for receiving power from a REIPPPP power plant and distributing it to the ultimate users who pay for power, Eskom is the purchasing party in REIPPPP contracts.
3. National Energy Regulator of South Africa (NERSA): NERSA, as energy regulator, is accountable for, amongst other things, approving the prices at which energy is bought and sold. NERSA therefore approves the pricing of IPPs, from the perspective of what is fair and correct in relation to the ultimate buyer of power, households and organisations.
4. Development Bank of Southern Africa (DBSA): The DBSA is accountable for the design of the REIPPPP, with a specific focus on its financial economics. Although this development financier also supports IPPs as a lender, it is primarily tasked with ensuring that the state structures the financial aspects of the programme in accordance with best practice.
5. National Treasury: National Treasury is a department within the Ministry of Finance. It is accountable for determining and managing the national budget. In the context of the REIPPPP, the National Treasury supports Eskom with a sovereign guarantee, that commits its using the country's balance sheet to meet Eskom's obligations in the event of default.

The below diagram indicates the purpose of and parties to each contract (DMRE, 2021e).

REIPPPP Contracts Summary: Purpose and Parties

Power Purchase Agreement	• Purpose: agreement in respect of the terms and conditions governing the Construction, financing, insurance of, Operation and Maintenance of the Facility, and the sale and purchase of Energy Output from the Facility • Parties: DMRE, Eskom (state energy utility) + IPP
Independent Engineer Agreement	• Purpose: The PPA and the IA require the appointment of an Independent Engineer by the Seller, and with the approval of the Buyer, to carry out certain functions and duties assigned to the Independent Engineer in the PPA. • Parties: Eskom +Independent Engineer + IPP
Direct Agreement	• Purpose: It is a suspensive condition to the Loan Agreement that the Seller, the Agent, the Department and the Buyer enter into this Agreement • Parties: DMRE + Eskom (state energy utility) + IPP + Commerical Lender
Implementation Agreement	• Purpose: Agreement between the Department (DMRE) and the Seller (IPP) for the Seller shall to undertake the Project upon and subject to the terms and conditions. • Parties: DMRE + IPP
Transmision Agreement Agreement	• Purpose: This Agreement, among other things, sets out the terms and conditions upon which the NTC and/or the CUSTOMER shall undertake the connection works which will physically connect the Customer's Facility to the Transmission System. • Parties: Eskom (state energy utility) + IPP
Distribution Agreement	• Purpose: Governs access to the energy distribution system, commiting Eskom to availing the system & IPP to compliance with terms of access • Parties: Eskom (state energy utility) + IPP

Figure 4: REIPPPP Contracts Summary

5.2.2 The Measure of Job Creation Outcomes

Since this study is primarily concerned with Job Creation, it is important to contextualise it in the context of REIPPPP contracts. Job Creation resides within a framework referred to as Economic Development (IPP Office, 2020). Economic Development is one of 3 core dimensions of a power project, with the other two being Technical and Financial (IPP Office, 2020). A successful project blends its technical credentials and financial structuring to determine the price at which it will deliver electricity to the state. In tandem with this, it commits itself to Economic Development Obligations for the full life of the project, which means the construction phase as well as the 20 year operations phase. In other words, an IPP is expected to deliver power at an agreed price, for the life of its power purchase agreement and in tandem with that, it is required to deliver on Economic Development outcomes (DMRE, 2021c). In contracting, the state commits to purchasing power from an IPP on condition that it supplies electricity and fulfils its Economic Development Obligations (DMRE, 2021a). Below is an outline of the Economic Development Obligations of IPPs as set out in the most recent bid documents issued by the Department of Minerals and Energy Resources in April 2021 (DMRE, 2021c).

What the Information Sheet refers to as the ‘unit’ is what Agency Theory refers to as the outcome - it is what the principal measures in assessing the deliverables of the agent, the IPP. The obligations pertain to both the construction phase of a project, which typically lasts 8-18 months, depending on the size of the power plant as well as the operations period, which is currently a standardised period of 20 years. The state measures ten outcomes in respect of Job Creation, during both the construction and operations phases, namely (DMRE, 2021d):

1. Total RSA Based Employees
2. RSA Based Employees who are Citizens
3. RSA Based Employees who are Black People
4. RSA Based Skilled Employees
5. RSA Based Skilled Employees who are Black People
6. RSA Based Skilled Employees who are Black People with specialised skills
7. RSA Based Employees who are Citizens who reside in Local Communities

8. RSA Based Employees who are Black Youth aged 15 to 35 years
9. RSA Based Employees who are Black Women
10. RSA Based Employees who are People with Disabilities.

For all of the above measures, the state measures the outcome in terms of person-months. Person-months are defined as ‘a total of one hundred and sixty (160) hours worked by an Employee’ (DMRE, 2021d).

Beyond commitments, the state requires evidence of Job Creation in the preparatory phase, also referred to as the bid stage, as well as in the execution phases, construction and operations. To this end, evidence of the intended jobs is outlined as follows in Appendix 5H of the latest REIPPPP bid documents (DMRE, 2021d):

"For purposes of Job Creation, Bidders are required, in relation to each of the Construction Measurement Period and the Operating Measurement Period to supply the following information:”

1. Project Activity: an indication of the activities which will be undertaken, which will contribute to the creation of jobs;
2. Entity Conducting the Project Activity: an indication of the Measured Entity through which the jobs will be created (Project Company, Contractors, Vendors);
3. Job Description: the job descriptions of the Employees undertaking the Project Activities;
4. Anticipated Level of Education and/or Skills: anticipated level of education and or skills of such Employees;
5. Actual Number of Employees in Absolute Terms: information on the actual number of Employees (in absolute terms of individual persons employed) and Person Months that the Bidders are using as a basis for their commitments on Job Creation, including in aggregate and for the respective Sub-Elements specified under Job Creation;
6. Duration of Employment;
7. Total Person Months Committed; and
    a. an undertaking that the Job Creation numbers are correct.

Once the project is in execution phase, the following are required as evidence of Job Creation, on a quarterly basis (DMRE, 2021d):

1. Employment contracts and related job descriptions for each employed person
2. Identity documents of each employed person
3. Timesheets: showing the time worked
4. Salary slip: showing the amount earned for work
5. Proof of residence e.g., utility bill
6. Proof of disability e.g., health certificate

Contractually, these requirements all reside within the Implementation Agreement, which is one of the contracts that comprise a REIPPPP project (DMRE, 2021e).

5.2.3 Finding 1: Direct Agreement Makes Financiers Party to The REIPPPP's Outcomes

One of the strengths of the REIPPPP is that agents, the IPPs expected to be self-interested parties per the theory, are governed, on the basis of outcomes by a wide range of stakeholders that constitute extensions of the primary principal, the DMRE. Of importance is the link to financiers. The Direct Agreement specifically draws the lenders into a tripartite agreement with the IPPs and the DMRE, in order to align the financing agreements with the goals of the REIPPPP (DMRE, 2021b). This standardised agreement is common to all projects, ensuring that the financial success of an IPP is contingent on its fulfilling the state's goals. Specifically, by combining the PPA and Implementation Agreement (IA) in the Direct Agreement, the state ensures that the funding agreements are contingent upon the IPP delivering electricity to the national electricity grid (core function of the PPA) in tandem with its fulfilment of all its ED obligations, which are contracted for in the IA. The undertakings of the Direct Agreement are thus (DMRE, 2021b):

- The state agrees commits to the IPP and its lender that it will honour its payment terms.
- The lender agrees to notify the state of any breeches of financial covenants that may affect the ability of the IPP to deliver power to the state.

- Requires the lender to be party to any remedial action determined by the state in the event that the seller is deemed in breach of its obligations, including the failure to deliver on committed Job Creation targets.

It is through these multi-stakeholder arrangements that bind other parties to a governance role in respect of the agents (IPPs), that the state is able to minimise self-interested behaviour on the part of agents. Specifically, by aligning lenders to its objectives, the state ensures that the profit motive of the IPP is consistent with its developmental agenda, thus resulting in reduced goal conflict. The diagram below demonstrates the contractual link to financiers.

Financiers Contractual Parties Overview

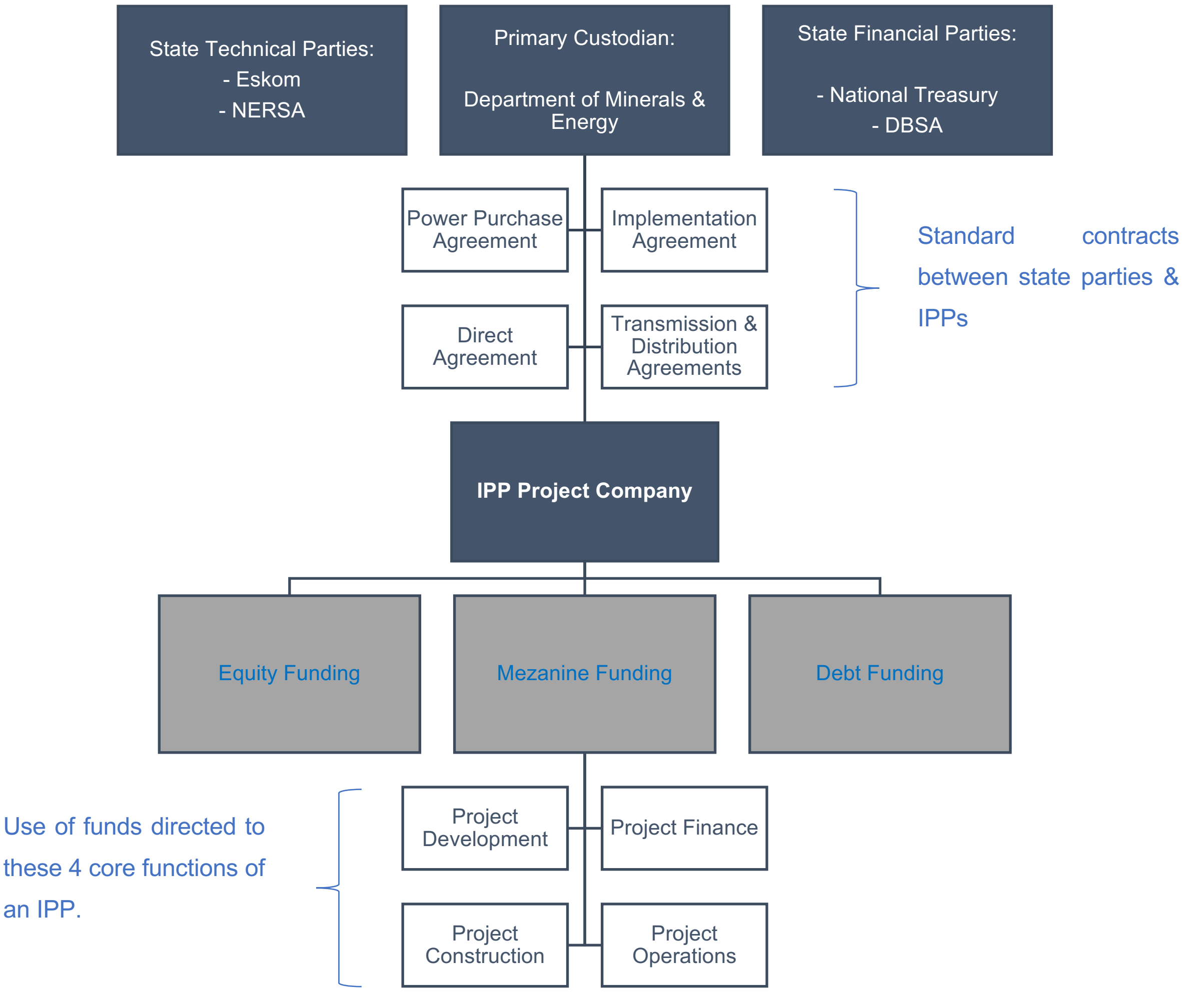

Figure 5: Financing Contractual Structure Overview

5.2.4 Finding 2: Multi-Stakeholder Contractual Structure Lends Itself To Multiple Enforcement Points

Furthermore, IPPs are required to comply with regulations relating to water use, land use and environmental affairs, straddling a variety of government departments. The requirement to maintain the various use-licenses, from varying departments, in order to carry out their ordinary course of business, creates multiple channels for enforcing the rules of the REIPPPP. The diagram below, from Eberhard & Naude (2018, p.66) outlines the various levels and departments of government that IPPs contract within the context of REIPPPP.

Government Contractual Parties Overview

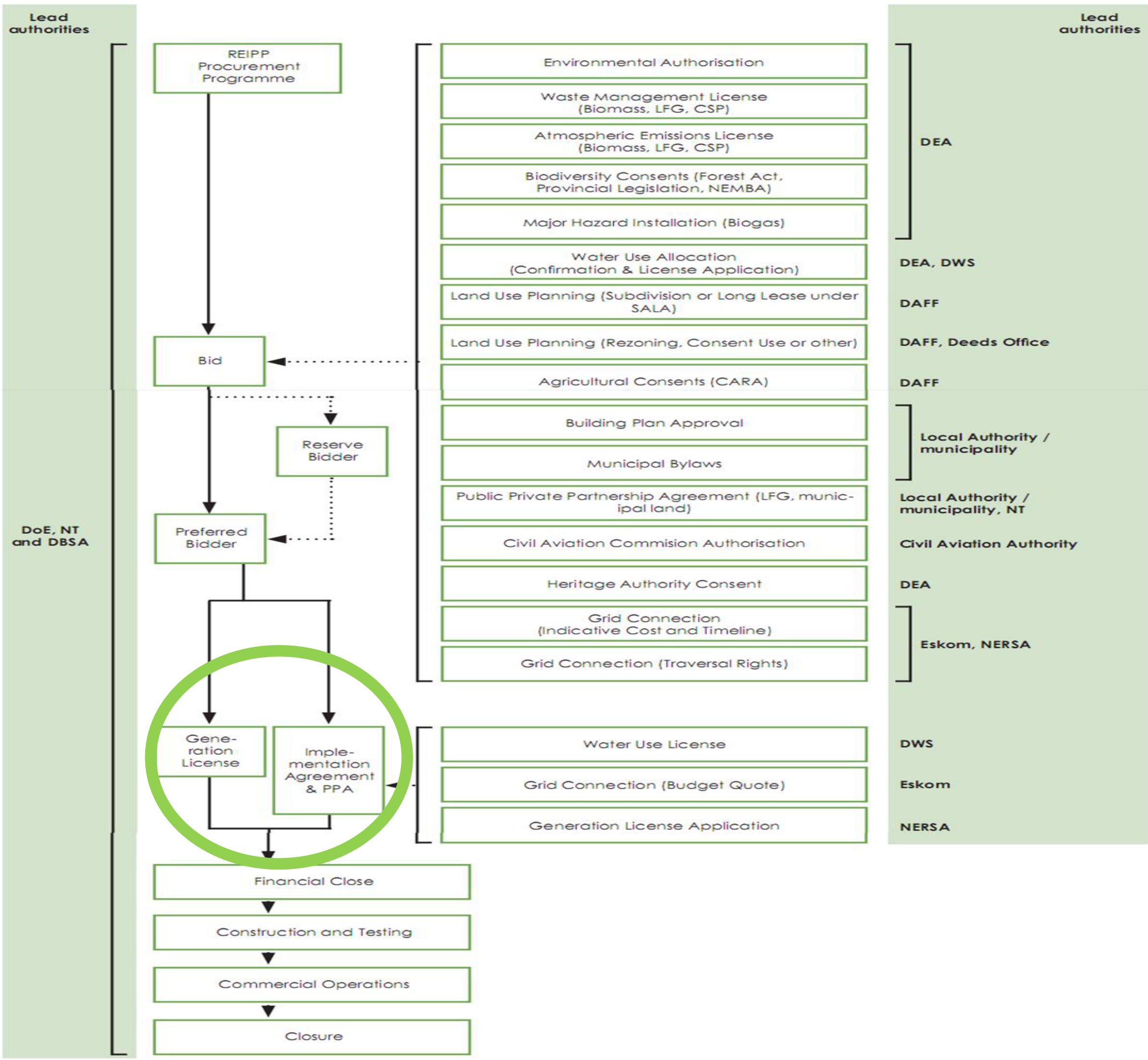

Figure 6: Mutli-stakeholder Contracts Structure

5.2.5 Finding 3: The Implementation Agreement Contracts For The Outcome of Job Creation

The Implementation Agreement should be read in conjunction with the Power Purchase Agreement. However, specifically, it addresses the Economic Development requirements that bidders will need to adhere to over the 20-year PPA term (DMRE, 2021c). The contractual obligation on the state to purchase power from IPPs depends on their ability to comply with the Economic Development Obligations spanning the seven (7) elements:

1. Job Creation
2. Local content
3. Ownership
4. Management Control
5. Preferential procurement
6. Enterprise Development
7. Socio-Economic Development

The obligations are detailed as outlined above, with Job Creation comprised of 10 different aspects that IPPs are required to comply and report on, on a quarterly basis, from the time of construction and throughout the operational life of the plant.

This contract addresses the Economic Development objectives of the state not only as desired outcomes but outcomes for which there are consequences. In the first instance, the state ensures that the commitments of IPPs, made in the competitive bid phase, are directly linked to the IA, by stipulating the following:

> *'Preferred Bidders will be required to submit their Quarterly Obligations for the purposes of inclusion in Schedule 2 (Economic Development Obligations) of the Implementation Agreement, in soft copy in MS EXCEL Format, in anticipation of finalisation of the Implementation Agreement for execution by the parties'* (DMRE, 2021d, p.24).

This baseline of commitments then serves as the basis upon which to determine whether the IPP is complying with its targeted Economic Development outcomes. To this end, the state has determined a penalty regime that is structured as follows (DMRE, 2021c):

- During construction period, the maximum penalty is is 7.5% of the construction price. Considering that projects typically cost over R1 billion, 7.5% constitutes a sizable amount.
- During operations, the maximum penalty is 3% of annual revenue.

The IA contracts for these penalties in clear language, stipulating that failure to comply with Economic Development Obligations will result in the IPP accruing penalties (DMRE, 2021c). Should the penalties exceed 50% of its commitments and also fail to compensate the state accordingly, the IPP risks losing its procurement contract:

> *'If the Seller fails to pay the Economic Development Performance Penalty on or before the due date for payment as contemplated in clause 6.9 above or, if disputed, as determined in accordance with the dispute resolution process contemplated in clause 18 (Fast Track Dispute Resolution), within a period of ten (10) Business Days from notification in clause 6.8 or the determination in accordance with the dispute resolution process contemplated in clause 18 (Fast Track Dispute Resolution), the Department shall have the right to terminate this Agreement in accordance with clause 11.2 (Termination for Seller Default)'* (DMRE, 2021c, p. 96)

> *'If the Seller fails to pay the Economic Development Performance Penalty on or before the due date for payment as contemplated in clause 6.9 above or, if disputed, as determined in accordance with the dispute resolution process contemplated in clause 18 (Fast Track Dispute Resolution), within a period of ten (10) Business Days from notification in clause 6.8 or the determination in accordance with the dispute resolution process contemplated in clause 18 (Fast Track Dispute Resolution), the Department shall have the right to terminate this Agreement in accordance with clause 11.2 (Termination for Seller Default).'* (DMRE, 2021c, p. 96)

By clearly contracting for the desired outcome, the IA is the central tool by which the state ensures that its development objectives are not only measured but reported on and ultimately, serve as the basis for contract termination to the extent that IPPs fail to comply.

5.2.6 Finding 4: The Power Purchase Agreement Is Bankable

This contract directly addresses the payment terms of the state to the IPP. It is deemed the cornerstone contract because it guarantees payment on condition of the government's two core outcomes: electricity and Economic Development, including, inter alia, Job Creation (DMRE, 2021a). It is defined by the following features:

- Term of 20 years from Commercial Operation Date (COD).
- Seller (IPP) is paid for energy that the power plant delivers.
- Take or Pay Contract
- The IPP's risk passes at point where the facility connects with the transmission/distribution system.
- Eskom is obliged to buy ALL energy that is delivered at the delivery point.
- Where the transmission/distribution system is unavailable, then there is a deemed energy payment to the project for the electricity it would have produced.
- The National Treasury provides a sovereign guarantee in the event of Eskom default.

The Buyer (Eskom) may only terminate the PPA for an un-remedied default (subject to Lender step-in rights) (DMRE, 2021a). These events include:

- Failure to commission the plant for at least 50% of the contracted capacity.
- Failure to comply with Economic Development Obligations – NO CURE PERIOD.
- Abandonment and Insolvency of project company (180 days cure period).
- NERSA cancels project company generation licence (180 days cure period).

The most notable feature of the PPA is that it divides and allocate risks between all parties involved, with the state requiring the fulfilment of its key outcomes in return for the greatest form of offtake security it can offer, its sovereign guarantee (Naude & Eberhard, 2018). In other words, what the PPA achieves is a credible and attractive incentive for IPPs, the agents, to deliver on its desired outcomes.

5.2.7 Conclusion

The above findings demonstrate that the REIPPPP has a strong outcomes-based framework that hinges on a detailed account of what the state requires in terms of Economic Development, which includes 10 sub-elements of Job Creation.

Further, having defined, contractually, what constitutes Job Creation, the state creates a clear system of punishment and reward through its 7 contracts, all of which require the IPP as a party, whilst including other key stakeholders, ranging from financiers to independent engineers. In all, the state's outcomes-based contracts drive alignment through the following ways:

1. Multiple stakeholders who hold IPPs to account for various aspects of a project.
2. Financiers are party to the key contracts of REIPPPP, thus aligning the IPP's commercial imperatives with the state's developmental imperatives.
3. Economic Development, inclusive of Job Creation, is specifically contracted for in the IA, including penalties for failure to produce the desired outcomes.
4. The PPA is bankable yet stringent on IPPs given the state's own commitment to matching its demands with a sovereign guarantee as the ultimate incentive.

Findings Diagram: Moral Hazard Proposition

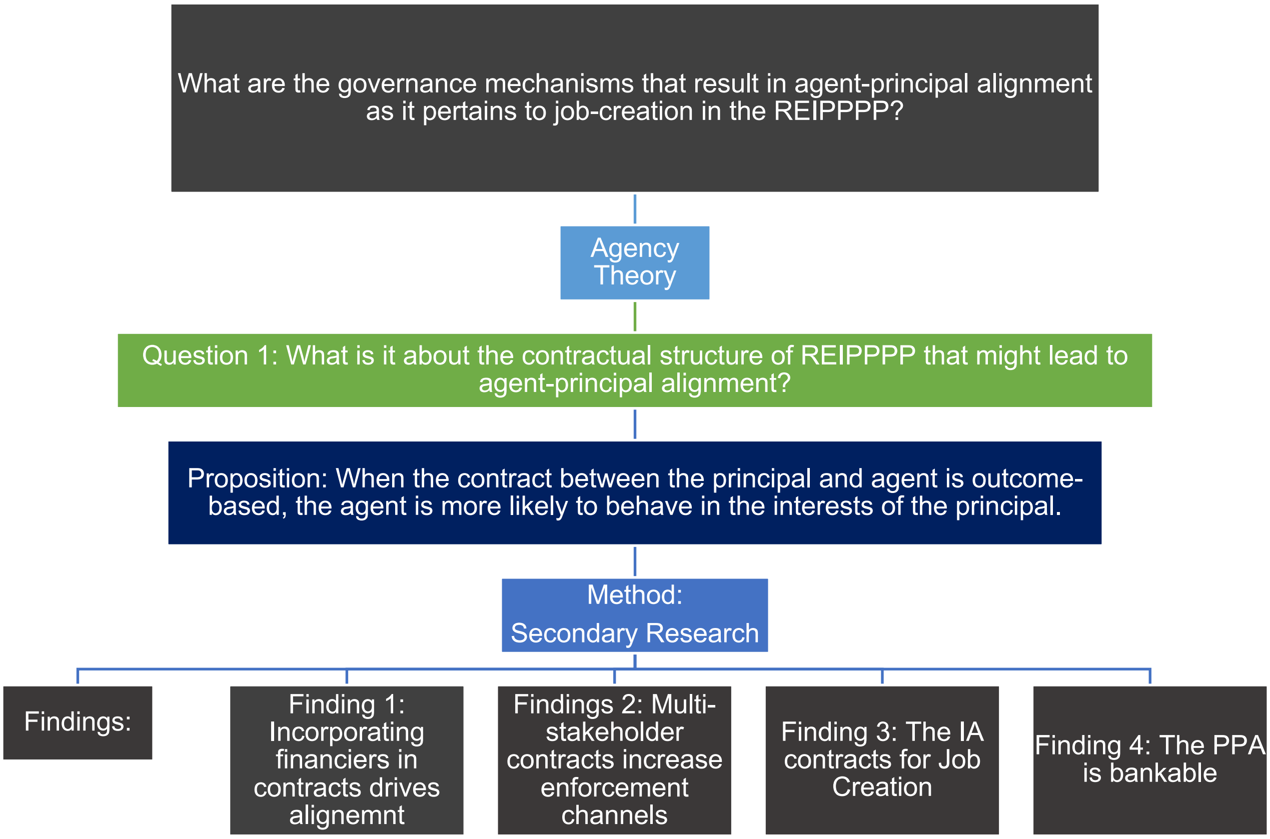

Figure 7: Moral Hazard Findings Summary

5.3 Research Question 2: Adverse Selection

The overarching question guiding this exploration was thus: what is it about the information systems in REIPPPP that might lead to agent-principal alignment? This question was interrogated through semi-structured interviews with key stakeholders.

5.3.1 Description of Participants

The participants were chosen from four, key groupings. The Independent Power Producer Office, also referred to as the IPP Office, is the central government division, within the Department of Minerals and Energy Resources, charged with the design, execution and monitoring of the REIPPPP. The IPP Office, as the primary representative of the government, constitutes the agent, in the context of REIPPPP. The second group was comprised of Independent Power Producers, IPPs, who, by virtue of being the party contracted to generate power on behalf of the state, are the principals. Residing within the IPP or related to an IPP through a subcontracting arrangement, are the third group of interviewees, Economic Development (ED) Managers. ED Managers are charged with implementing the Job Creation commitments of the IPP and relatedly, reporting on this and other elements that constitute the IPP's Economic Development Obligations. The final group was comprised of industry bodies and academia. This group, understanding REIPPPP through the lens of multiple actors and varying concerns, brought a 'birds' eye-view' to the dynamics between agents and principals. As a collective, these participant groups offered insight into how principals and agents approach the question of information sharing, both in terms of their views on it as well as the practical actions undertaken as part of this work. All participants were South African.

The IPP Office

Two participants were drawn from the IPP Office. The first was an Economic Development specialist who looks after a regional cluster of IPP projects. The participant has extensive REIPPPP experience having been in the IPP Office for over 6 years. The second participant was recently retired from an executive leadership role in the IPP Office. The participant was instrumental to the design and execution of REIPPPP, having served in the department for over 8 years.

Independent Power Producers

Four participants were drawn from varying IPPs. Three of the participants are chief executive officers of IPP projects, accountable holistically for the operations of the power projects. The participants had over 5 years' experience in REIPPPP, having advanced from managing various aspects of the IPP project to the role of the ultimate executive head. The other IPP participant was chosen from one of the country's few Black-owned IPPs, a company that develops owns and operates IPP projects. Rather than presenting a single project view, this participant's perspective spanned across the portfolio of projects that their company is invested in.

Economic Development Managers & Reporters

Four participants were Economic Development managers, ranging in focus and expertise. Two participants were executives within companies that are sub-contracted by multiple IPPs to manage their ED obligations. The other two participants had extensive experience working within IPPs as the accountable parties for reporting to the IPP Office on ED obligations. This blend of ED Management experience reflects the two aspects that contribute to information sharing, starting with the plans that reflect the design underpinning the execution on ED obligations as well as the reporting that occurs post the fact of execution. These capabilities are related although not strictly embodied in a single person. There was therefore a requirement to get both perspectives to understand the full information landscape.

Industry Bodies & Academia

Two members of industry bodies were interviewed. The one participant straddled industry body experience as well as academia. The other participant is part of the executive leadership of a prominent industry body and worked on REIPPPP from within government prior to joining the industry body. The participants thus provided an aggregated understanding of the dynamics between agents and principals in

REIPPPP, moderated also by their experiences in dealing with the programme from a macro perspective.

5.3.2 The Information Sharing Cycle

Information sharing and the related (a) symmetry in REIPPPP is based on a cycle that starts at the bidding stage. Based on accounts from participants, the information cycle is reflected in the below diagram, which correlates with the prescripts of the contracts discussed in section 5.2. The purpose of the interviews was to explore the experiences underpinning this information cycle to test the proposition that information symmetry drives better alignment between agents and principals. Participants therefore shared their thoughts on the various stages of information sharing, indicating their views on what drives or detracts from the quality of the information and therefore, the related alignment of agents and principals.

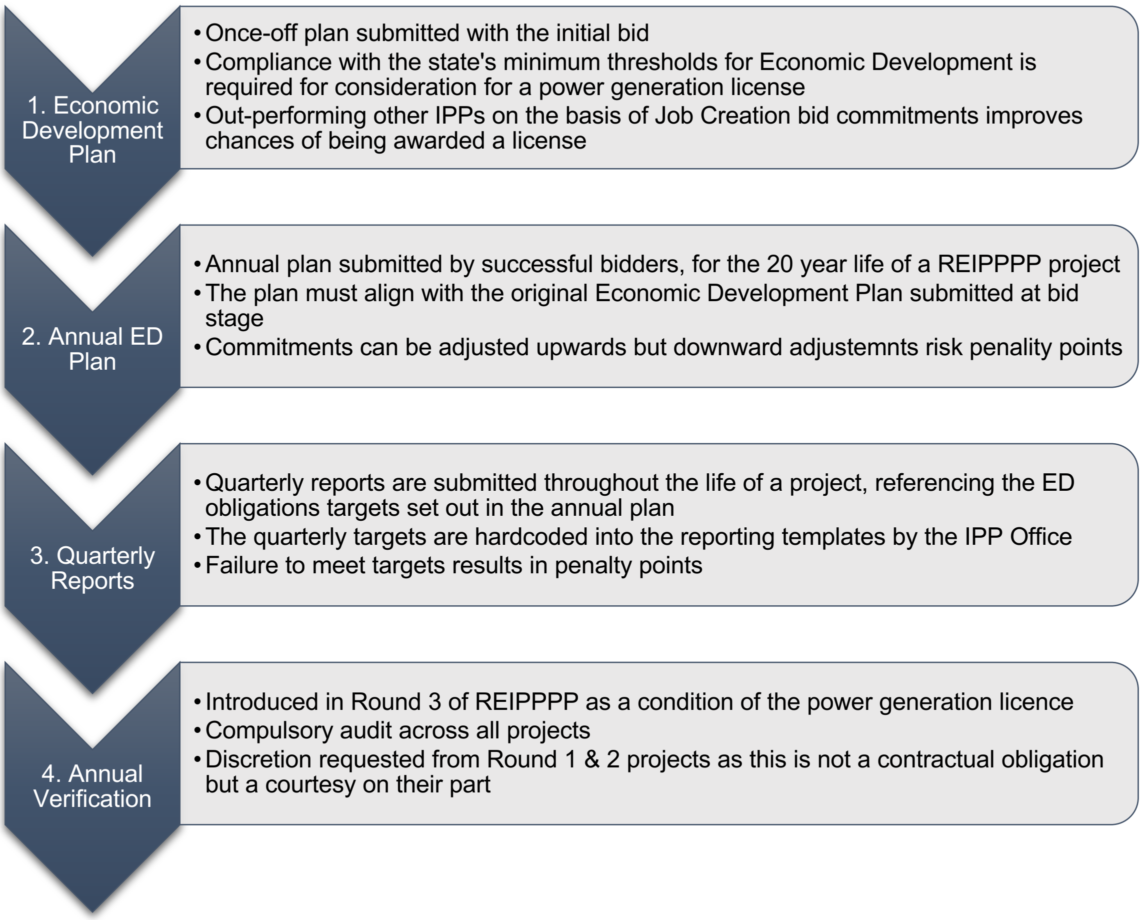

Figure 8: REIPPPP Information Sharing Cycle

5.3.3 Findings Theme 1: Bid Commitments Are Binding

The REIPPPP bid, which is the document submitted to the IPP Office, by IPPs, to present their projects and related commitments, for consideration for a power generation license, marks the start of information sharing on the part of the IPP. The bid is a direct response to the Request For Proposals (RFP), that the IPP Office makes publicly available for interested parties. In the RFP, the IPP Office indicates its minimum criteria in respect of all Economic Development Obligations. As the bidding process is competitive, IPPs are incentivised to make commitments that go beyond the minimum criteria, referred to as thresholds, in order to outdo their competitors. This document was referenced by all participants as being foundational in binding the IPP to the goals of the state. Furthermore, because the document becomes the contractual basis for the generation license, it was deemed to possibly be the most powerful information source provided by IPPs to the state.

As stated by a Participant 1:

> *'on submission of the bid, the IPP commits itself to certain targets and those targets need to be, at minimum, within the requirements of the procurement programme. Minimum means you complied, above minimum means you become competitive, So that plan which you submit to the state, upon bid submission, becomes your primary contracting basis with the state.'*

The below section outlines three key dimensions of the bid that were reported as underpinning its importance as the source of information that serves as the long-term reference point for the IPPs' commitments to aligning with the state's objectives.

30/70 Split: Higher Weighting of Economic Development Outcomes

The first driver of ambitious target-setting in REIPPPP was through a concession received by the IPP Office to increase the weighting of Economic Development Criterion. Instead of having price overwhelming dominate Economic Development impact, the REIPPPP, in rounds 1-4, weighted price at 70% instead of 90%, therefore making 30% of the evaluation criteria dependent on Economic Development commitments. Participant 8, central to the design of the programme reported that:

'when we started doing this, even in our own environment it was basically said but we are procuring electricity, we are not procuring socio Economic Development. We were able to convince them to allow us to have that socio Economic Development, Black Economic Empowerment, Job Creation, etc as part of the bid. Usually when you evaluate it is a 90/10 situation. We got the minister of Finance to agree at the 70/30. So, 30 points go to the softer issues if I can call it that, but the absolutely necessary issues.'

This point was made to emphasise that unlike the more typical government procurement structure, for REIPPPP, the government increased the social impact weighting, which drove IPPs, its agents, to place greater importance on their Economic Development activities. Thus, the bids, which serve as the initial source of information about the behaviour of the IPPs, incentivised a higher-than-usual commitment to the job-creation objectives of the state.

Competition Criteria

There was consensus amongst participants that competition drives the high, performance obligations that IPPs commit themselves to at bid stage. Therefore, the initial information source that serves as the reference instrument for measuring the IPP's behaviour, is itself the product of a process that incentivises the highest possible form of alignment with the state's Job Creation objectives. Participant 1 stated simply:

'the genius of the state is that it has made agents compete on the basis of Job Creation'

Participant 3 added:

'[IPPs] base the targets based on their hunger to get the bid.'

The over-performance of IPPs has however raised questions around whether the minimum compliance requirements of the state, in respect of Job Creation, are high enough. Participant 5 states of the state's target-setting approach:

> *'I think within REIPPPP itself, we just kind of threw a dice you know, when we rolled out the first bid window. We did not have enough information, we did not have enough understanding. Because we had never done it before, right? So the targets were set I guess based on some probably BEE standards, but at a lighter level, right? Because we did not want to impose too stringent requirements then because we did not know what can be done, what can be achieved and what is difficult to achieve.'* Supporting this perspective, another participant added, '*I mean for the first bid window, we basically got a consultant to help us to work out some of those things. Obviously when you have consultants [the outcome is imperfect] – and we have all learned that lesson over and over and over again – but at least it gives you some benchmark.'*

The sentiment of doubt, regarding the state's ability to set their jobs requirements was also expressed in relation to the manner in which it evaluates the performance of IPPs over time and in turn, resets targets that may be too low. Participant 11 stated in this regard:

> '*I really don't know, and I wonder if they have a number in mind when they issue out a round and they kind of look at the scale of submissions from all the different submitters, to say 'based on our assumptions this falls within our assumptions and therefore is acceptable.' I don't know.'*

The participant further added that their own experience suggested there is scope to increase Job Creation targets:

> *'now [that] I have more information I would say that government must look at the data and say, do we need to be into it a little bit more in terms of jobs because I mean obviously those jobs that we put down on the scorecard are not the jobs in totality of the plant, because there are expat jobs and other things. So do we claw back and say we want more local jobs relative to the total package of jobs?'*

Despite concerns that job targets can possibly be increased, there was acknowledgement that the state has continued to sharpen its pen by bolstering the manner in which it recognises Job Creation, therefore creating further competition. In the third bidding round, a key change was made, articulated by Participant 1 as follows:

> *'by introducing the jobs per megawatt criterion, the state is saying we don't just care about the percentage, but we care about the total number of jobs.* The participant further added that, as a consequence of competitive bidding, *'IPPs find themselves creating three times the number of jobs in certain areas, not because they are necessary [jobs] but because they think they are looking to win'*

The sentiment around competition is thus encapsulated in the following response by Participant 1:

> *'in the absence of competition, I am not certain the extent to which [IPPs] could have been incentivised to fulfil the state's requirements.'*

Mutually Reinforcing Risk & Reward Structures

Related to the initial commitments made by IPPs in their bid documents, the primary source of information which aligns them as agents, to the state, a theme emanating from the participants was mutuality. There seems to be a sense that the two parties understand their respective roles and because of this, they each bring what is needed to make the programme work. In this sense, the commitments in the bids were framed as the product of something more than rules of the programme but rather, more tacit aspects of the programme's design.

From a government perspective, there is clear acknowledgement of the strengths of the private sector and how best to incorporate them into the delivery of public services. Participant 8 summed this up in the following way:

> *'government does not have that strict discipline in the way they do infrastructure. I mean you can look at anything and any state entity and/or government department – it just does not exist. And I think it has a lot to do with the fact that on the [the IPP's end] you are talking, it is your money or*

your equity shareholder's money that is put into your company and you need to report their returns and the efficient way of using their money. On the government side you do not have any of that. It is a big budget and if you do not finish it this year you can do it that year, the next year. For me it is almost that understanding [on the part of IPPs] that every day that you lose has got an impact on your project.'

A similar acknowledgement of the government's limitations was expressed as follows by Participant 1:

'the ability to source private capital to support the government's objectives is critical, particularly in resource-constrained environments and South Africa is one of them.'

Therefore, having conceded to the state's weaknesses in the project execution principles that are required to deliver infrastructure projects on time and within budget, the state correctly articulated a role for itself related to its unique offering: security of offtake. The REIPPPP assures IPPs that, to the extent that they deliver on their obligations, Eskom, the national energy utility, will procure their power and further, that if Eskom is unable to fulfil its purchasing obligations, the National Treasury will step in and fulfil payments to IPPs. In other words, there is guaranteed security of purchase as the government's full balance sheet stands behind Eskom. To this end, Participant 9 stated:

'I think the most unique value from the state would be the sovereign guarantees that are provided to back up the contracts, because otherwise by nature of this being a fairly new sector with a lot of uncertainties, I don't think it would have been successful, especially in the [early] stages, without the government guarantees.'

An added perspective from Participant 11 stated, of IPPs:

'obviously the objectives are different: private sector is not going to go and develop projects for the sake of providing electricity to the people because they are not in the business of service delivery. The state is in the business

of service delivery. But if somebody is willing to pay for the service delivery, the private sector is able to close the gap, then there is a good partnership and I don't see no competing objectives.'

Thus, this concept, that the state has correctly understood its role and taken on the correct level of risk, is met by a mutual view of IPPs.

All participants accepted that IPPs are different from the state and therefore do not approach their obligation from the same mandate as it were. This was expressed in the following manner by Participant 1:

'unlike the state, they do not have a developmental agenda when they create jobs, they have a commercial agenda and that agenda is getting the job done.'

However, this commercial imperative to deliver on jobs was understood not as an indictment but rather as the precise manner in which this should occur. Indeed, Participant 5 reflected a view that aligns with the theory about the desires of agents to have the least possible control by principals, given their self-interest:

'*now on the other hand, the interest of the private sector obviously they are there to make money, so to be told who to hire, who to buy from and to be told where to buy from, how much, etc, it would be a little bit of an inconvenience because they would really ideally want to buy from whoever they want to buy from, wherever they are in the world – as long as it makes more economic sense.'*

However, rather than the desire for less control to morph into outright non-compliance, participants reported that there are internal drivers within IPPs that result in their coming to the party, as it were. The first is humanity and the other is corporate citizenship as reflected by Participant 5:

'I think you have human beings – let's put it that way – you have human beings that went into certain areas to do engineering work and build a power plant, and then I think we have the same human beings who were then confronted

probably with the reality of poverty in certain areas you know, the reality of joblessness, the reality of hopelessness that exists in those areas – that perhaps one could not just ignore and want to close your eyes and just go there to the minimum. That is also what we hear from what IPPs are saying; they are confronted with the reality.

An under-appreciated constraint of IPPs, which are mostly majority-owned by foreign entities, is that they do not make a lucrative enough amount in South Africa to expatriate their gains. Participant 8 stated:

'I mean comments like 'well they take everything overseas, out of the country'. That is nonsense! If you just think about the volatility of the rand, those guys can almost not take anything out of the country. Because if you start when the rand was 9 to the dollar or 10 to the dollar – today it is 15 or 16 to the dollar, how on earth would they take out their dividends and still get the dividend return that they were hoping for? It has to stay here. So, most of them reinvest it in the country.'

Participant 11, head of an IPP, reported that they understood their Economic Development commitments and therefore Job Creation, as a risk mitigant, thus addressing their internal concerns as a company:

'*So…maybe I am being a bit naïve but you know if I am a business owner I want to work with my stakeholders. So to secure my business I think it is good to go out of your way and to engage with government and to say 'look, where can we assist you in policy implementation or policy easing?' – because if government gets something that makes them look good, ie. jobs, you know, local manufacturing, and all these other things it makes my life easier.'*

Furthermore, on the importance of corporate citizenship, participants argued that businesses think beyond profit in considering their role. Participant 11 continued to state:

> *'when I look at the ED scorecard, if you are a well-meaning company, you would also want to balance yourself to say 'I want to make money but I also want to make sure that I employ the right people and procure from the right sources.' But that said, if that goes unchecked, companies can default to their typical financial KPIs.'*

In sum, the alignment between the state and IPPs, certainly in terms of the information shared at bid-stage, is driven by more than the rules. Participants consistently referenced mutuality as a design principle inherent to the REIPPPP, in which both parties understand their roles, capabilities and in turn, take the commensurate risks. This was affirmed by the following statement by Participant 8:

> '*I am not saying all risks should be taken away and make it very easy for government, no, not at all. I am saying it must go with risk and reward.'*

This section therefore demonstrates a strong theme around the power of the bid documents as the first source of information shared by IPPs. This information, committing agents to the objectives of the state, it is argued by participants, demonstrates the competitiveness of IPPs as they seek, first and foremost, to outperform their competitors. Furthermore, the bid commitments reflect strong alignment because the government and private sector embrace their roles and related risks, with IPPs being additionally motivated by a form of corporate citizenship that extends beyond profit-seeking.

5.3.4 Findings Theme 2: Quarterly Reporting Is Effective

The participants, without fail, referenced the quarterly reporting cycle as the most critical measure of IPP compliance in relation to their own bid commitments and ultimately, with the state's requirements. Participant 1 indicated that:

> '*when you are awarded a PPA, the requirement is that you then report against that ED plan, on a quarterly basis.'*

The concern then was not so much whether IPPs comply with quarterly reporting, but the lengths that they go to to ensure that their performance meets or exceeds their targets. In this respect, Participant 5 reported that:

> *‘what we have seen [IPPs] doing in trying to meet these targets is to employ maybe a local Economic Development manager or a local community liaison officer, and we have also seen them working with employment agents.’*

Talking directly to the perceived consequences of failing to meet targets, Participant 9 noted that:

> *‘Job Creation is attainable but I can say that sometimes I would say the industry might end up creating jobs for the sake of creating jobs, even though there isn’t a need for a job, it’s just because we want to make the numbers. It costs us more to pay a penalty for not creating this job, than to have someone.’*

The sentiment regarding the effort to comply with these targets was reinforced by an IPP, stating that it was correct for government to require the attainment of and even more, over-performance, in respect of Economic Development Obligations. Participant 11 stated that:

> *‘I think what government needs to push for, is that these private companies not only contribute to energy security but that they contribute to some kind of economic contribution to the country – whether it is foreign direct investment, whether it is jobs – and also just pushing a more localised energy market.’*

There is thus an understanding of Job Creation as a composite piece of the development of South Africa’s energy market. Therefore, a push for compliance on Job Creation targets is perceived as contributing to a broader sectoral objective.

Speaking directly to the rigour of the quarterly reporting process, Participant 5 outlined it as follows:

> *'IPPs need to report on a quarterly basis. That already is an onerous reporting requirement and when they report, they need to go into detail to say who they have in their employ – to prove that [for example] Sakhile actually is black, to prove that Sakhile is actually coming from a particular local community.'* The participant added, *'On our side, on the continuous monitoring and evaluation side, we do the quarterly monitoring, quarterly assessment. And sometimes we do the reasonability test and all of that, with supporting documents.'*

The proof referred to in the above statement is formally defined as 'substantiating evidence'. In other words, for every job created, IPPs are required to provide evidence of the individual's identity in the form of an identity document and further, must submit signed time-sheets as well as a salary slip, confirming that the individual worked and was duly remunerated.

It was also emphasised that the quality of reporting is high. From a state perspective, this was based on the substantiating data and reasonability tests conducted by the IPP Office. Speaking from the perspective of an IPP or the 'seller' (of electricity), Participant 11 added:

> *'as a well-meaning seller, [quarterly reporting] is almost like your financials, you want to have your numbers correct. There is an obligation to do something, it's contractual, it's got implications if you get it wrong – you want to make sure that your numbers are correct.'*

Quarterly reporting is thus something that finds practical expression in the lives of IPPs. What is evident is that there is a link between the bid targets that win IPPs their generation licenses and the quarterly reports that are required to maintain them. Therefore, meeting targets and reporting on them is not perceived as a challenge. It is something that all IPPs comply with in order to maintain their licenses. Indeed, a participant indicated that the bigger challenge as it pertains to Job Creation is skills for complex technologies and senior/ technical roles. However, creating jobs specifically, and reporting accurately on the matter, did not seem challenging. Rather, Participant 11's sentiment captures the views in this respect:

'I mean we have got challenges from an ED perspective, but we had a high performance credit and it just showed quarter and quarter we were over-shooting on the different obligations that we had committed and agreed to with government. Where I see the challenge is [not] necessarily that the government over-imposing, but the one challenge can be the skills issue.'

There was also the sense that the reporting intervals are particularly appropriate for the context. Specifically, because renewable energy projects have short construction periods, it was understood that anything exceeding a quarterly interval would potentially result in performance issues being raised at a point beyond which corrective intervention would be possible. This was articulated by Participant 3, as follows:

'I can see the value of the quarterly reporting because if you are placing the pressure on the IPP to consistently monitor what they are doing and set targets. If you are government and you only figure out that they are behind on their commitments [by] up to six months, when sometimes with some of the [solar] PV's construction was completed in eleven months…if you [as government] were monitoring them half yearly, at the time that you figure they haven't actually done any of the things that they should do, they have [not] got sufficient time to recoup that.'

5.3.5 Findings Theme 3: Capacity for Verification Audits Is Low

The ED Plan as well as quarterly reports are information outputs that go from the IPP to the government. They are governed by the state's compliance requirements and therefore, they follow a set template and must meet minimum requirements. The participants indicated that they believed these outputs to be rigorous on account of the structure of the bidding process as well as the quality of reporting and substantiating data required by the state on a quarterly basis. There is an additional component to the information flow, led by the state, the annual verification audits.

The purpose of and approach to verification was explained by Participant 5 as follows*:*

> *'the first goalkeeper is there is a mandatory audit that has to happen. So there is a mandatory requirement in the Implementation Agreement that there will be an annual by an independent entity. So essentially we have someone come in annually to look at the entire scorecard…and submit that to the IPP office.'* This is further supported by a participant, articulating the audit process from the perspective of the state, *'it is correctly audited in [the] sense that every quarter right, they have to submit these things and then on paper we can verify those. We also do certain site visits to do certain verifications and there is no way to escape our stringent audit process. There is actually a separate auditing department, independent audit department that looks at each and every one, we don't even do sample auditing, we do 100% auditing. So that tells you how strict our auditing is.'*

Whilst participants found the bidding and quarterly reporting information outputs credible, they expressed concerns about the state's verification capacity. The concern was framed in a variety of ways, one of them being competence. To this end, Participant 3 reported:

> *'Whenever, and in all the times I have been audited, it has always been extremely poor. In any case I got the sense that they actually do not know what they are looking for, they did not have the right work processes in place. Like I sat there, and I would have prepared A, B and C and then the questions that they were asking weren't about even the areas of underperformance.'*

Additionally, the limited capacity was deemed as reflected in the absence of audit queries from the state. Participant 11 made this observation in this regard:

> *'I think the mandatory audit helps, but to be quite honest I don't know how that information is then used by the IPP office. You know, do they have a unit – I think they do have a unit – that looks at all the data to make sure it is*

correct, but I don't know what the follow up is. I mean obviously if there have been any findings and any IPPs have been fined, we don't know; so we don't know whether this process is indeed happening and that there is a check by the IPP office to ensure that everything is correct and that there is integrity in the entire process.'

Thus, as it pertains to auditing, it appears that there is doubt about whether the state can follow through on its audits. This concern was echoed by Participant 8:

'I believe that the area where government is very short is in skills and capacity for monitoring. So in my opinion, if I were in government, I would put a lot of emphasis and investment and capacity building in monitoring these projects and contracts.'

In the same vein, Participant 1 added that:

'the IPP Office lacks the muscle to verify information from IPPs. The fundamental constraint of the IPP Office is that they simply do not have the capacity to do site visits and verification on site.'

A recurring theme was that the implications of the audit process had not been observed, thus casting doubt on whether auditing, despite it happening, results in any consequences. To this end, Participant 9 added that:

'I think the point of emphasis there is if you report on jobs you have to put in the ID numbers of people that you have employed. Because then should there be random audits I suppose the IPP office doesn't have capacity to audit everyone, but I think on a random basis they do audit the numbers. Then they should be able to find a Sakhile on the Home Affairs data base and say 'this person actually is alive, first of all exists, is alive and is employed on this particular project.' So that will be that. And then I am not quite aware of other additional auditing processes that the IPP goes through. I haven't heard of any particular project that has gone through that random audit that they always talk about, but I suppose they are, so I can't confirm that.'

Despite a fair amount of questioning, a participant from the IPP Office took the consistent stance that the audit process is sufficient in its current form, stating that the use of technology suffices and possibly creates the impression that monitoring is limited, when it is in fact sufficient. Participant 5's was the only perspective that viewed the state as having sufficient capacity, encapsulated in this statement:

> *'I know a lot of people would love for us to be in each and every small town and there every day watching that the entities are doing what they are supposed to be doing, but that is not a smart way of doing things.'*

Instead, the sentiment of Participant 3 seemed more reflective of the general consensus:

> *'I got the sense that they just doing it because you know they must be seen to be auditing but they are not sure what they are looking for.'*

5.3.6 Findings Theme 4: The Threat of Penalties Is Credible

Despite misgivings about the quality of the state's verification process, participants all referenced the penalty points as a sufficient deterrent against under-performing and/ misrepresenting performance. Said of the government's role in pursuing punishment for under-performance, *'the government needs to focus on social impact and its social responsibility to the people is to create jobs.'* It is thus understood as justifiable, that the state has a framework that results in potential punishment should non-compliance be discovered.

Participant 5 added:

> *'in terms of our monitoring process and all of that, yes, they are delivering on those because if they don't deliver there are penalties that are built into the contracts, so we will immediately unleash those penalty regimes. And so to avoid those penalties they will deliver on the Economic Developments given to them.'*

This sentiment was supported by another view, expressed by Participant 3:

> *'there is no ways that IPPs are not going to deliver. Because they get measured and they report on a quarterly basis, right? Let's take for instance the socio-Economic Development and Job Creation, they have to report to the IPP office on a quarterly basis – what they have spent, what they have spent it on, how many people they have employed, and with the ID numbers of people because we don't want to account for ghosts so to speak. And so it is that kind of requirement. So IPPs will get penalties if they don't comply.'*

Relatedly, a participant indicated that compliance is not just driven by the state, but through financiers. Because the project's contracts with the state, which include delivering on Job Creation, are comprehensive and all-encompassing, IPPs are required to perform so as to not jeopardise the license agreement as well as agreements with key stakeholders, such as equity owners. To this end, Participant 8 noted:

> *'it is important to deliver projects on time and within budget because if you don't do it, the equity participant must make it good and that brings down their financial return.'*

5.3.7 Conclusion

Through semi-structured interviews with key stakeholders, it was established that information asymmetry in REIPPPP is minimised through credibility of information flows, both ways. In the first instance, the government, as principal, is considered credible in the manner in which is defines its role and assumes related risks and responsibilities. To this end, participants identified the state's willingness to offer sovereign guarantees to assure its procurement as the key information output that drives its credibility. Thus, in making commitments to Job Creation and other facets of Economic Development, IPPs aim to be both compliant and competitive.

The information submitted by IPPs in respect of their commitments is binding as at bid stage and therefore, IPPs ensure that it is credible. IPPs further comply with their

Job Creation obligations because of a quarterly reporting process which is deemed effective and comprehensive. Concerns were raised about the ability of the state to verify information through audits, as a function of its limited capacity. This was understood as a risk area. However, participants also noted that the existence of a penalty system for under-performance is a sufficient deterrent against non-compliance or misrepresentation of performance.

Thus, on the balance of factors that govern information sharing, there is limited evidence of information asymmetry. Per the proposition underpinning this exploration of adverse selection as a dimension of principal-agent problems, the data confirms the expected outcome i.e. When the principal has information to verify agents' behaviour, the agent is more likely to behave in the interests of the principal.

These findings are summarised below in a diagram representing the flow of ideas from the question, to the theory, the proposition tested as well as the key findings.

Findings Diagram: Adverse Selection Proposition

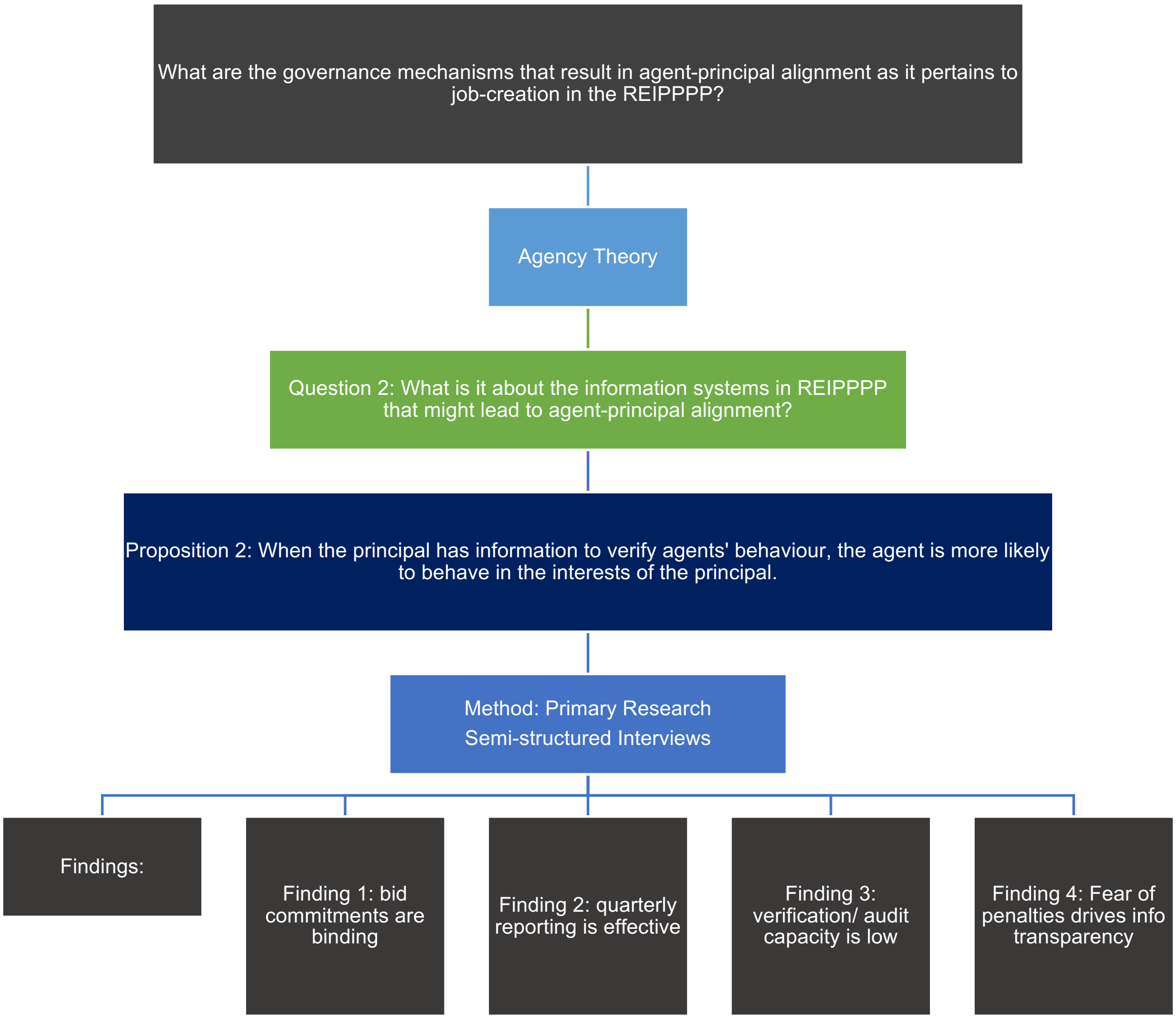

Figure 9: Adverse Selecting Findings Summary

5.5. Conclusion

The study explored the two propositions in two different ways. The first proposition pertaining to moral hazard, was explored through the study of REIPPPP contracts. Contracts are considered to be the primary unit of analysis in Agency Theory. Furthermore, the specific proposition in relation to moral hazard pertains to the alignment value of outcomes-based contracts. To this end, by studying the contractual structure as well the contractual prescripts, the following findings were established:

1. REIPPPP contracts include the financier as a contractual party. Specifically, the Direct Agreement is a tripartite agreement that includes the financier, the IPP and the DMRE. It binds all parties to the requirements of the Implementation Agreement and Power Purchase Agreement, thus linking the financier's profit motive to the Economic Development (contained in IA) and technical commitments (contained in PPA) of the IPP.
2. REIPPPP contracts involve multiple stakeholders, directly and indirectly. This multistakeholder structure increases the number of enforcement parties and related enforcement levers.
3. Job Creation is specifically contracted for in the Implementation Agreement, which is a contract that forms a composite piece of the power generation license. This makes Job Creation and related Economic Development outcomes integral to the IPP's license to operate.
4. The Power Purchase Agreement is bankable, which means that it provides the IPP with security of income. The REIPPPP takes the extraordinary step of not only confirming the state's purchase of the electricity generated by the IPP, but also attaching a sovereign guarantee to allay concerns of default. The state assumes the highest degree of risk by offering its balance sheet to avoid default. This, in turn, incentivises the IPP to assume a commensurate level of risk and commitment.

The second proposition is with respect to adverse selection. This was explored through semi-structured interviews with key stakeholders in the REIPPPP. They ranged in role, from senior executive within government to heads of IPPs and managers of Economic Development Obligations. The participants all offered their perspectives on the nature and quality of REIPPPP information systems. The findings in this respect were thus:

1. The commitments made to secure a license, also referred to as bid commitments, are binding, for the life of the power project. Given that these commitments are made in a competitive bidding process, they ensure that the IPP's targets are set at the most competitive level, thus driving high commitments to Economic Development.
2. Quarterly reporting against Economic Development Obligations, which are inclusive of Job Creation, was found to be effective because it not only drives transparency but ensures that the IPP Office can closely monitor IPPs. This is especially important where urgent corrective action is required.
3. Despite an effective quarterly reporting system, doubts were cast upon the state's capacity to verify information through its annual audit. It was acknowledged as positive that audits are a contractual requirement of REIPPPP, however, the practical execution thereof left practitioners uncertain of the state's capacity to, in the course of the audit, ask the right questions and, on that basis, determine instances of non-compliance. To this end, capacity was deemed a constraint on the effectiveness of verification.
4. The gaps in verification were however overcome through a system of credible penalties. Participants concurred that the fear of penalties drove compliance because the penalty costs, if incurred, would result in significant revenue losses for IPPs. Therefore, despite weak audits, the quarterly reports, which make information available to the state on a regular basis, make the penalty points system tangible and credible.

The next section will critically analyse these findings to establish the extent to which they confirm or deny the theory and its related propositions. Since the study is ultimately concerned with the governance mechanisms that enable agent- principal alignment, the analysis section will also discuss the quality of the mechanisms discovered in REIPPPP. In other words, the discussion will extend beyond assessing theoretical veracity. Included, will be arguments for the building of theory in accordance with the aims of this study, which were set out in the first chapter as ‘building on general propositions to generate more specific, evidence-based propositions about the workings of the governance mechanisms that generate principal-agent alignment.’

6. Chapter 6: Discussion of Results

6.1 Introduction

This study set out to explore the workings of REIPPPP contracts and information-sharing systems to ascertain whether and how these factors drive agent-principal alignment. The choice of REIPPPP, as a context, was a function of the over-performance, on the part of agents, IPPs, in relation to the state's objectives. To explore the REIPPPP outcome of agent-principal alignment, a qualitative approach was chosen, which sought to evaluate two propositions in Agency Theory, namely:

- Outcomes based contracts drive agent-principal alignment and
- Information sharing drives drive agent-principal alignment

These propositions, drawn from Positivist Agency Theory, are broad responses to the theoretical dilemmas underpinning them. To this end, outcome-based contracts are a response to moral hazard or the expected goal-conflict that arises out of principal-agent relationships. The proposition therefore posits that by structing contracts in terms of outcomes, goal conflict can be reduced if not completely eliminated. The second proposition regarding information sharing is a direct response to the dilemma of adverse selection. The concept of adverse selection pertains to information asymmetries that result in undue leverage for one party over another. The proposition therefore envisages that through information sharing, information asymmetries can be reduced, therefore minimising the negative impacts of adverse selection.

This section seeks to interrogate the findings to establish the extent to which they validate or deny the theoretical propositions underpinning them. Furthermore, this section will build arguments for more granular propositions that can be applied to the governance mechanisms of agent-principal relationships with respect to contracts and information systems. Therefore, for each finding, a variety of analytical concerns are incorporated, as outlined below:

1. **Finding:** REIPPPP contracts include the financier as a contractual party. The analytical concerns are thus:

   a. **Analytical question:** Are financiers bound to the outcomes that the state, in its capacity as the principal, requires?

2. **Finding:** REIPPPP contracts involve multiple stakeholders, directly and indirectly.
   a. **Analytical question:** Do the multitude of stakeholders bind IPPs to the outcomes of REIPPPP contracts?

3. **Finding:** Job Creation is specifically contracted for in the Implementation Agreement, which is a contract that forms a composite piece of the power generation license.
   a. **Analytical question:** Are the Job Creation outcomes that are measured in the IA, sufficient as employment outcomes? In other words, are REIPPPP contracts accounting for the correct outcomes?
   b. **Analytical question:** Is the Implementation Agreement a valid or meaningful contract such that the outcomes contained therein are binding?

4. **Finding:** The Power Purchase Agreement is bankable, which means that it provides the IPP with security of income.
   a. **Analytical question:** Does the assumption of risk on the part of the state incentivise a commensurate assumption of risk on the part of the IPP, thus ensuring that commitments to the state are fulfilled?

5. **Finding:** The commitments made to secure a license, also referred to as bid commitments, are binding, for the life of the power project.
   a. **Analytical question:** What makes the bid commitments binding and therefore constitutive of sound information sharing?

6. **Finding:** Quarterly reporting against Economic Development Obligations, which are inclusive of Job Creation, was found to be effective because it not only drives transparency but ensures that the IPP Office can closely monitor IPPs.
   a. **Analytical question:** Is the quality of quarterly reporting sufficient to ensure information transparency?

7. **Finding:** Despite an effective quarterly reporting system, doubts were cast upon the state's verification by audit.
    a. **Analytical question:** What are the implications of poor verification systems and how does that impact the quality of information sharing?

8. **Finding:** The gaps in verification were however overcome through a system of credible penalties.
    a. **Analytical question:** What makes the threat of financial penalties credible?

By analysing the findings through the lines of inquiry set above, this section intends to generate specific formulations or propositions to deepen the two, broad propositions from which this study emanates.

6.2 Analysing Moral Hazards

REIPPPP Contracts Include The Financier As A Contractual Party

The Direct Agreement is the REIPPPP contract which includes the financier. It is a tripartite agreement between the financier, the IPP and the state (DMRE, 2021a). Furthermore, as an agreement, it binds the parties to the Power Purchase Agreement, which contains the technical specifications for the delivery of power as well as the Implementation Agreement, which contains the Economic Development commitments of an IPP, inclusive of Job Creation targets (DMRE, 2021a). The question is whether the Direct Agreement, in its inclusion of the financier, strengthens the outcomes-based requirements for agent-principal alignment. This issue is analysed below.

Are financiers bound to the outcomes that the state, in its capacity as the principal, requires?

The first consideration is whether the Direct Agreement binds financiers to the outcomes that are desired by the state. Specifically, for the purpose of this study, the question pertains to Job Creation and whether, through the Direct Agreement, the financier is bound to deliver on this outcome. The evaluation of the Direct Agreement revealed that its ingenuity is in linking the financing conditions of a power project, which strictly reside in the Direct Agreement, to two other contracts, the PPA and IA DMRE, 2021a). In this way, the Direct Agreement is not limited to financing but incorporates, the contractual terms in the PPA and IA (DMRE, 2021a). The Direct Agreement explicitly outlines in its recitals, the following (DMRE, 2021a, p.4).:

> *Also pursuant to the IPP Programme, the Department and the Seller have entered into an implementation agreement (the "IA") dated on or about the date of this Agreement, in terms of which, amongst other things, the Department undertakes to provide certain support to the Buyer's payment obligations under the PPA and the Seller undertakes certain Economic Development Obligations*.

The above contractual clause is a categorical linkage of financiers, who are parties to the Direct Agreement, to the terms outlined in the PPA and IA. Further detail, the Direct Agreement makes direct reference to Economic Development Obligations (DMRE, 2021a). Economic Development Obligations are inclusive of Job Creation. What is therefore evident is that the Direct Agreement binds financiers to the Job Creation targets of IPPs. In so doing, the state, as principal, aligns its desired outcomes, to the terms upon which IPPs, as agents, are financed. Similarly, because the agreement is a tripartite agreement, it makes the requirements of the state, shared concerns for the IPP and financier.

The structure of the Direct Agreement thus validates the general proposition that outcomes-based contracts align agents and principals (Eisenhardt, 1989). The contract goes further, by recognising that financiers represent a significant source of power and influence in relation to IPPs and therefore, although funding flows from the financier to the IPP, the contract draws the financier into the state's requirements, expanding a funding contract that typically focuses on interest rates and payment terms (between IPP and financier), into one that incorporates the state's desired outcomes in respect of Economic Development. In this sense, the REIPPPP provides for an added governance mechanism, which involves an expanded understanding of who constitutes the agent, in the context of PPPs. Rather than evaluate the agent, an IPP, as a single party, the REIPPPP recognises the power of financiers over IPPs and therefore treats them as one, in the context of the Direct Agreement. This acknowledgement of financiers in particular, is also recognised in the theory, although with a bias towards the financier's own agency constraints in managing its borrowers (Panda & Leepsa, 2017). The unique lesson from REIPPPP is that in broadening of the identity of the agent, the principal ensures that the agent holistically assumes accountability for the contractual outcomes required by the principal.

REIPPPP Contracts Involve Multiple Indirect Stakeholders

Outside of financiers, REIPPPP involves a multitude of stakeholders, who are directly and indirectly contracted. On the direct front, the generation license is entered into with the National Energy Regulator (NERSA). Eskom, the state utility, is also party to all agreements pertaining to the technical aspects of energy production and ultimately, the purchase of power. Indirectly, there are various contracts to which the IPP is bound, which are critical for the attainment and maintenance of its contracts with state. These include the water generation license, which is awarded by the Department of Water Affairs, the land lease agreement which is entered into with the owner of the property that the power project is located on as well as environmental permits granted by the Department of Environmental Affairs. The question is whether these additional contracts strengthen the core, outcomes-based contracts of REIPPPP.

Do the multitude of indirect stakeholders bind IPPs to the outcomes of REIPPPP contracts?

Whilst parties such as the departments of water and environmental affairs do not enter into any of the six core contracts of the REIPPPP, the contractual obligations that the IPP makes in respect of these stakeholders, are included in the Implementation Agreement. For example, in relation to water, the IA requires the water use license and agreement to be appended to it as a condition of the license (DMRE, 2021c). The IA goes further in respect of environmental issues, asserting the state's rights to access information about the IPP's environmental compliance:

The Department shall have the right to request, without cause, any information in respect of the Seller's, Contractors' or Equipment Suppliers' compliance or non-compliance with the Facility's environmental and or health and safety obligations pursuant to any Consents in respect of environmental and or health and safety matters in respect of the Project. The information requested under this clause 9.1.6 may be used by the Department for purposes of reporting as envisaged in clause 25.9 (Public relations and Publicity). (DMRE, 2021c, p.24).

In so doing, the state binds the IPP to commitments in respect of its indirect agreements, establishing itself as an enforcement arm of the respective departments and/ stakeholders. The difference in relation to indirect agreements is that, unlike the agreement involving financiers, indirect stakeholders are not themselves party to or bound by the outcomes of the REIPPPP. Instead, the state, in recognising the importance of the indirect agreements to the outcomes it seeks to achieve, gives itself enforcement rights in respect of those agreements. In this way, it strengthens the indirect agreements as they gain, through REIPPPP, an added enforcement agent. The corollary also becomes true as, by requiring compliance with indirect stakeholders, the REIPPPP gains enforcement partners in other parts of government and/ regulatory authorities.

In the strict sense of the theory however, whilst indirect stakeholders support the general enforcement of REIPPPP, by virtue of not stipulating the outcomes of the REIPPPP as contractual conditions, they do not fulfil the conditions of the theoretical proposition (Eisenhardt, 1989). Viewed on a standalone basis and also, appreciating the growing importance of environmental issues in the context of global climate change (Giordano, 2012) as well as water conservation given the specific scarcity challenge faced by South Africa (Calderón et al., 2018), there is value in considering, for the purposes of improving governance mechanisms, contractual structures akin to the Direct Agreement, which binds parties that are currently viewed as indirect, to the conditions of the PPA and the IA. The implication thereof would be that a violation of environmental permits has a direct impact on the IPP’s license. This would mean that the state takes on a more comprehensive view of itself and the inter-relationship of its functions and aims. Therefore, just as it views the IPP and its financiers as jointly representative of the agent, the state can also see its status of principal as further comprised of regulators and departments that currently play an indirect role. As with Direct Agreements, the agreements devised for these added parties can be standardised. The benefit of doing this is to broaden accountability for contractual outcomes, thus further strengthening agent-principal alignment.

Job Creation Is Specifically Contracted For In The Implementation Agreement

The theory concerns itself with the alignment of interests through outcomes-based contracts. Given its general nature, it does not delve into the specific outcomes that are measured as those are specific to a context. In this particular context, there is merit in asking whether the outcomes that are measured in respect of Job Creation, are, in the first place, appropriate? This question is pertinent given that, on the surface, IPPs outperform the Job Creation targets of the state. Whilst this outperformance is not understood as questionable, the analytical concern is about the quality of the outcomes that the state measures.

Is the Implementation Agreement an effective outcomes-based contract?

The IA, as the primary contract driving the state's desired outcomes, has proven to be extremely effective. It has not only resulted in a Job Creation outperformance, but has driven over-performance across all other Economic Development Obligations. The graph below shows the aggregate, actual outcomes achieved by IPPs relative to the compliance thresholds set by the state. On this basis, it is clear that by contracting for outcomes, the state correctly aligns its interests with the behaviour of its agents, IPPs, confirming the theory (Eisenhardt, 1989).

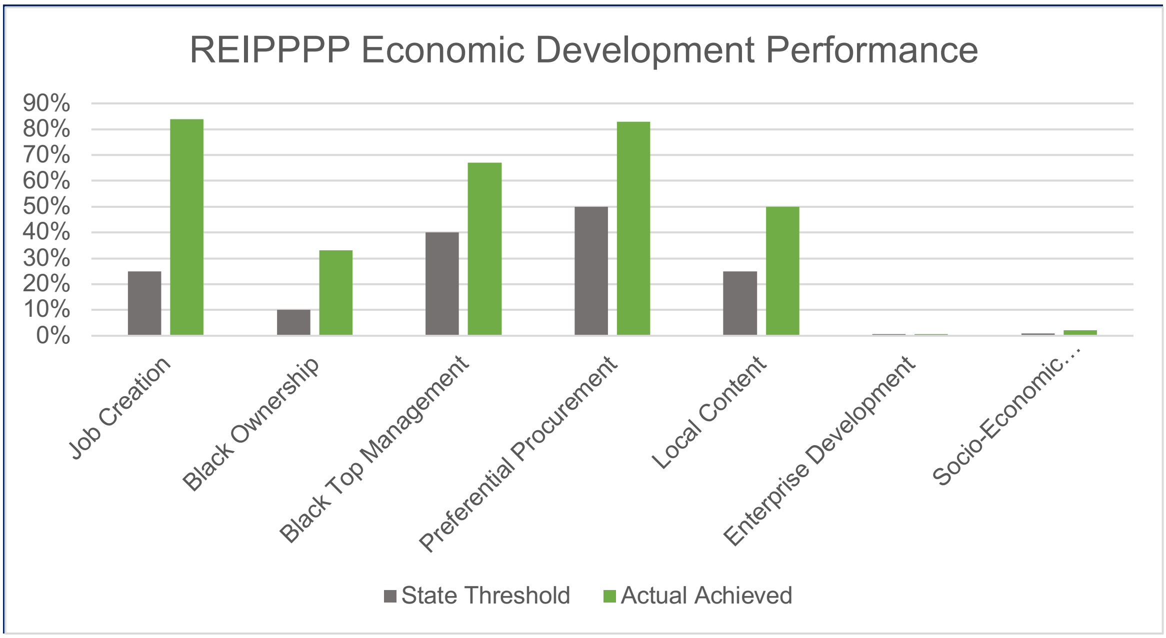

Figure 10: REIPPPP ED Performance State Threshold (min) vs IPP Actual

Are the Job Creation outcomes in REIPPPP contracts accounting for the correct outcomes?

This question emerges out of what is now firmly established, that the outcome of Job Creation is comprehensively incorporated into the Implementation Agreement, which is one of the six core contracts that result in an agent-principal relationship between IPPs and the state. Furthermore, the contract comprehensively addresses Job Creation by ensuring that all the measures are reflected in the IA (DMRE, 2021c).

The unit for calculating performance in respect of Job Creation measures is referred as person-months. A person-month is calculated as 160 hours of work. A job is therefore calculated as 12 person months (DMRE, 2021d). This measure therefore accounts for employment through the perspective of *time* and not *people*. Whilst this generates an accurate understanding of the work-effort entailed in delivering an IPP project, it does not account for employment in terms of the number of individuals who are party to a project. Person-months, as a system of accounting, therefore, goes against the popular understanding of a job as related to a single body. Indeed, the National Development Plan, which emphasises the requirement for employment creation, states that the country is targeting the creation of 11 million new jobs by

2030 (National Planning Commission, 2010). In alignment with the national statistical authority, the NDP's understanding of a *job* is an aggregate outcome of 11 million additional *people* consistently reporting that they have been in employment (Department of Statistics South Africa, 2020).

Instead, through the REIPPPP person-months calculation, a job can be comprised of multiple individuals who worked for short periods at a time, that, collectively amount to a job. For example, if 4 people, each work 3 person-months, their combined effort will result in a single job being created. Similarly, an individual who consistently works more than 160 hours a month, for a period of a year, can appear to constitute more than one job. This is to say that the person-months calculation does not provide a clear understanding of how many actual individuals are employed and for how long. This distortion is further compounded by the operations phase, which, in having a stable group of permanent employees for a 20-year period, can recognise the same individual, who is employed on a full-time basis, throughout the 20 years, as 20 jobs (because each 12-month cycle they work is counted as a job). In this sense, unless attuned to the specific definition of a job in the context of REIPPPP, it is possible to overstate the employment outcomes of the programme through the double-counting of individuals as representative of multiple jobs. This outcome is referred to by Mthembi (2015) as the dissonance between compliance and development, which makes it possible for IPPs to comply with outcomes that meet the requirements of the state, but do not serve, in the broader sense of the National Development Plan, the full developmental outcomes that are sought.

The additional consideration, as it pertains to the broader intent with respect to Job Creation is the requirement for skills development (Mthembi, 2015). Unlike the traditional, legislated, Economic Development scorecard applied to organisations in other parts of the economy, the Broad Based Black Economic Empowerment (BBBEE) scorecard, the REIPPPP, in its first 4 bidding rounds, did not require skills development to go hand-in-hand with Job Creation (Mthembi, 2015). As a consequence, the programme was criticised for making it possible for key skills to remain in the hands of experienced, foreign entities, whilst locals perform basic work or functions that are not unique to the renewable energy sector (Mthembi, 2015).

Therefore, the outcomes measured in REIPPPP contracts confirm the validity of the proposition that outcomes-based contracts align agents and principals (Eisenhardt, 1985). However, looking specifically at the measure of Job Creation as an outcome, there is room for strengthening the measures to better align with the National Development objectives. This finding speaks to theoretical developments that have argued for a less economistic view of outcomes in favour of a more socially-embedded view of what ought to be governed for, including a more generous perspective on agent willingness to contribute to broad social objectives (Wiseman et al., 2012). Practically, this would mean avoiding double-counting individuals who work more than 12 person-months. In addition, it would require skills development to become integral to the Job Creation measure, to ensure that the jobs created fulfil the longer-term aspiration of the country, which is the emergence of a workforce that is capable of developing, owning and operating renewable energy power plants. This is to say that in deepening the theoretical proposition, there must be a consideration, insofar as governance mechanisms are concerned, of the *appropriateness of the measures* that are applied to outcomes-based contracts to ensure that principals *count outcomes* which are *measured* and *material.*

The Power Purchase Agreement Is Bankable

The bankability of the Power Purchase Agreement is a crucial aspect of the REIPPPP. This contract involves the DMRE, the IPP and Eskom, the state utility. In it, Eskom commits to purchasing power from the IPP, provided that it complies with Eskom's technical specifications (DMRE, 2021a). In the contract, Eskom offers security of purchase by including the sovereign guarantee that National Treasury has given it, which ensures that Eskom is able to meet its obligations to IPPs, should its own revenues not suffice to meet its contractual commitment (DMRE, 2021a). In other words, the IPP is assured that there is an additional party who will step in, to fulfil Eskom's obligations, should Eskom default. It is the inclusion of the sovereign guarantee from National Treasury that conveys the commitment of the state, as ultimately, it is willing to offer the most valuable balance sheet in the country, the government's, as security of the purchase agreement.

The question is whether, in structuring its purchasing commitments in this manner, the state drives a greater commitment to its desired outcomes in the IPP?

Does the assumption of risk on the part of the state incentivise a commensurate assumption of risk on the part of the IPP, thus ensuring that commitments to the state are fulfilled?

That the sovereign guarantee is an important feature of the REIPPPP is a widely studied and accepted outlook (Naude & Eberhard, 2018). What is less known is whether the programme could have achieved its aims without the guarantee, given that it is not a commonplace assurance in energy procurement. In the absence of the counterfactual, it is difficult to argue that the state has potentially over-committed itself in the context of REIPPPP. What is however evident is that by virtue of giving security of purchase, IPPs are better able to secure funding for their projects (Eberhard et al., 2014). Financiers, are in turn, committed to the outcomes of the REIPPPP in the Direct Agreement (Naude & Eberhard, 2018). What can therefore be said is that the state secures the outcomes it desires by taking up a commensurate level of risk and therefore assuring the agent, of its willingness to fulfil its procurement obligation, to the extent that its outcomes, electricity and Economic Development, are fulfilled by the agent. What a bankable PPA therefore does is to add credence to the state's commitments, which in turn incentivises IPPs to comply with their commitments.

This finding confirms the theoretical proposition in respect of outcomes-based contracts as drivers of alignment between agents and principals (Eisenhardt, 1989). It also addresses another aspect of the theory which deals with risk-sharing as a necessary condition for alignment and credibility (Shi et al., 2020). The theory argues that it is not agents alone who are self-interested and that, by virtue of the principal's self-interest, risk can be skewed against the agent, thus resulting in further misalignment (Pouryousefi & Frooman, 2017). By taking its fair portion of the risk, the state incentivises the IPP to fulfil its obligations to the state. As a governance mechanism therefore, it follows that outcomes-based contracts benefit from appropriate risk-sharing as, by sharing risk, principals incentivise agents, to comply with the desired outcomes.

6.3 Analysing Adverse Selection

Adverse selection refers to information asymmetries between agents and principals. The theory expects that because principals are removed from operations, they receive partial or inaccurate information from agents (Panda & Leepsa, 2017). Thus, the proposition explored states that through increased information sharing, principal-agent alignment becomes more possible (Eisenhardt, 1989). The REIPPPP's information sharing requirements are in 3 stages, the bid, which is submitted in the competition phase of an IPP's life. Thereafter, having succeeded to win a license on the basis of the bid, the IPP submits quarterly reports on its performance against its bid commitments. Thirdly, on an annual basis, the IPP is subjected to an audit, which serves to verify the results of the quarterly reports. To study this question, key stakeholders were interviewed, which generated 4 key findings. These findings are analysed below to determine the lessons that either validate/invalidate the theoretical propositions as well as to identify the governance mechanisms which can be surmised from the operationalisation of the REIPPPP's information systems.

Competitive Bids Drive Competitive Performance and Effective Quarterly Reporting

The bid commitments of IPPs determine their scoring in the competition to earn a license (DMRE, 2021d). However, these commitments also serve as the basis for the expected performance of IPPs throughout the life of the project, which is comprised of the construction phase (varies in length depending on the scale of the project) as well as the standard, 20-year operations period (DMRE, 2021c). The question pertaining to competitive bidding is whether the information supplied by agents, IPPs, is valid and binding. Bid commitments are intimately connected to quarterly reporting as this is the instrument through which the commitment of IPPs is constantly measured and verified. The two findings are therefore analysed together in the section below, to ascertain whether the nature and quality of information-sharing, at project inception or bid, is related to the nature and quality of information-sharing throughout the construction and operations phases of IPP projects.

What makes the bid commitments binding and therefore constitutive of sound information sharing?

Participants indicated that the bid constituted a valid information source as it is bid commitments that form the ongoing obligations of IPPs, in respect of the project's Economic Development outcomes. This claim was triangulated with a review of the the bid commitment template, referred to as a JB annexure (see annex 2). It was found that the JB annexure which is required for bid purposes is the same template that the IPP Office uses to track performance on a quarterly basis (DMRE, 2021c). This ensure that the state is able to continuously track the performance of the IPP, against its initial commitments. What the participants confirmed, by virtue of emphasising the importance of quarterly reporting, is that the state's contracts are actioned. It is often the case with policy, that implementation is poor or lacking (Devkar et al., 2020). In the context of REIPPPP, that does not appear to be the case. Specifically, the IA states in respect of bid commitments (DMRE, 2021c, p.57):

> *' the Seller has submitted a proposal with certain Economic Development commitments that will be given effect in the implementation of the Project and has been appointed by the Department, based, inter alia, on such Economic Development proposal; and'*
>
> *'The Parties wish to record the terms of the Seller's Economic Development commitments in this Schedule 2 (Economic Development Obligations), with the intention that they be contractually binding on the Seller.'*

Therefore, the contractual requirement outlined in the IA, is supported by the experiences of key stakeholders, who are practitioners in the sector. It follows from triangulating the claims of participants that bid commitments are indeed legally binding and, furthermore, constitute the basis for information-sharing. To this end, it is clear that the proposition pertaining to information sharing as a driver of principal-agent alignment is valid in the context of REIPPPP (Eisenhardt, 1989). With respect to the governance mechanisms that strengthen the information-sharing regime, REIPPPP's standardisation of the information inputs, serves as particularly useful. Theory also indicates the value of standardisation as it reduces the costs of compliance for both agents and principals (Zogning, 2017). REIPPPP consistently measures the same outcomes through the same information sources, which ensures that information is comparable in terms of a single IPP's performance over time, as well as the comparative performance of IPPs in relation to one another. Furthermore, by deriving the IPP's commitment through a competitive process, the state ensures that the IPP makes the maximum effort in achieving its desired goals. The literature acknowledges the importance of competition as an incentive for least-cost bidders to enter the fray, whilst giving the government the ultimate say through its stringent sifting mechanisms (Shleifer & Vishny, 1997). The lessons for governance mechanisms in reference to information sharing are thus two-pronged. Firstly, standardisation of baseline data inputs and the long-term data requirements to measure performance reduces compliance costs. Secondly, the use of competition drives the highest possible commitment to the principal's objectives, thus further enhancing alignment.

Doubtful State Verification

Participants in the study were critical of the state's data verification capability, despite expressing reverence for competitive bidding and the related, quarterly reporting system. In general, they cited the absence of audit queries as evidence that the state was not sufficiently capacitated to interpret and question the results of the annual audits. The analysis therefore seeks to understand what the implications of poor verification are for the quality of information systems in REIPPPP.

What are the implications of poor verification systems?

The finding regarding poor information verification capacity was interesting insofar as it was treated as separate from poor information. Participants indicated that they were sufficiently motivated to share information that is accurate about their operations because of the threat of penalty points. Therefore, verification was treated as a necessary capability of the state but not as so insufficient that it threatens the information sharing system. In some respects, audits came across as something the state does out of compulsion but not necessity as there was no reported evidence of IPPs misleading the state, intentionally or not.

As far as governance mechanisms go, it was clear that, if supported by a sound reporting system and related penalties, data audits may not be a necessary part of the information system. This analytical result goes against the theoretical proposition if viewed on a standalone basis. However, since information is shared at various stages and supported by additional enforcement mechanisms, the general proposition stands.

The Gaps In Verification Are Overcome Through A System Of Credible Penalties

The REIPPPP's penalty system is based on the IPP's performance in relation to its Economic Development Obligations (Naude & Eberhard, 2018). If the IPP over-performs in respect of specific elements, it earns credits and if it under-performs, it is given penalty points (Eberhard et al., 2014). At the end of each year, the credits and penalty points are combined to generate a total score. If the score is, on balance, positive, the IPP suffers no negative consequences. If the score is negative, the IPP is issued penalty points, which have a financial value. During construction, the maximum penalty is 7.5% of the construction price (DMRE, 2021c). During operations, the maximum penalty is 3% of annual revenue (DMRE, 2021c). Participants cited their fear of penalty points, which are contracted for in the IA, as the driver of compliance, in project execution as well as the reporting thereof. The analytical questions therefore relate to the credibility of penalty points.

How does the link between information sharing and penalties result in compliance?

The financial threat of penalty points, linked to the quarterly performance of IPPs, makes the risk of default a constant and imminent pressure. Unlike other sectors, where non-compliance results in a poor but inconsequential score, fulfilling the Economic Development Obligations is a quarterly requirement which is reviewed by the state with the view to calculate penalty points or credits in favour of the IPP. Therefore, the threat of earning penalties is ever-present. Furthermore, penalty points are specifically associated with Economic Development Obligations (DMRE, 2021c). The Implementation Agreement (DMRE, 2021c) also recognises other events that may lead to contractual termination, namely:

- Failure to pay project development fees and to contribute to the rehabilitation trust (a trust set up for the rehabilitation of land following the decommissioning of a power plant)
- Failure to provide key warranties in respect of the plant's performance and
- Failure to notify the state of the commencement of construction

Penalty points only convert into a termination event if the IPP under-performs its targets by more than 50%. That means the financial penalties that are incurred do not serve as a termination event but rather as punishment for under-performance (DMRE, 2021c). Anything below 50% achievement invites the termination of the procurement agreement with the state (DMRE, 2021c). Penalty points and the financial ramifications thereof are thus directly linked to the Economic Development outcomes and the reporting thereof. Thus, with specific reference to Job Creation as an element of Economic Development, it is evident that by attaching a financial penalty to under-performance, as reflected in the quarterly reports which provide information to the state, the principal creates credibility around the implications of poor information. Furthermore, since the penalties are directly related to Economic Development outcomes and not other aspects, such as electrical output, they also force a specific focus on these outcomes.

This analysis makes it evident that information sharing does indeed align agents and principles (Eisenhardt, 1989). It also confirms research that emphasises the importance of penalties in driving alignment between agents and principals (Kuru & Artan, 2020). Specifically, it is proven that appropriate compensation, matched with appropriate penalty systems, result in better outcomes in PPP projects, which are characterised by the agent-principal problem (Kuru & Artan, 2020). What is particularly powerful as a governance mechanism in REIPPPP is the isolation of termination events and their related consequences. By attaching specific penalties to issues that are within the same thematic umbrella, as it were, the agent is forced to pay attention to the various 'baskets' of outcomes rather than under-performing in some areas, with the view to compensate for such underperformance through other areas. As a governance mechanism, the isolation of outcomes into specific pockets of information with specific forms of penalties, makes the penalties credible. Further, by evaluating such information on a regular basis, the principal incentivises the agent to pay constant attention to the outcomes that are desired by the agent.

6.4 Conclusion

The study of the governance mechanisms by which agent-principal alignment is achieved sits at the heart of the contribution that this paper seeks to make. As outlined in the literature review, the theoretical propositions that are dominant in Positivist Agency Theory, take a broad perspective on how alignment can be achieved. These propositions respond to two dilemmas that define the agent-principal problem. The first proposition addresses the dilemma of moral hazard, proposing that it can be overcome by outcomes-based contracts. The second proposition addresses the dilemma of adverse selection, proposing that it can be overcome through information sharing.

By selecting a context in which agent-principal alignment was evident, REIPPPP and its attendant Job Creation outcomes, this study sought to determine what it is about REIPPPP's governance mechanisms that generates alignment. In other words, the alignment observed in REIPPPP was not taken at face-value. Instead, it was understood as an opportunity to explore, in granular fashion, the governance mechanisms that produce the observed alignment between the agents, IPPs and their shared principal, the state. Through this exploration, the research intended to deepen the two, broad theoretical propositions by providing insight into the specific levers which result in agent-principal alignment. Further, the literature review included case-specific studies of Agency Theory, particularly in the context of PPPs. These cases pointed to other specific issues which drive alignment, including risk-sharing (Iossa & Martimort, 2012); the role and limitations of financiers (Panda & Leepsa, 2017); compliance cost reduction (Zogning, 2017); improving measurement (Mthembi, 2015); assuming a broader social concern on the part of agents (Bosse & Phillips, 2016) as well as the importance of penalties (Kuru & Artan, 2020). All of these added dimensions were incorporated in the analysis, with the view to assess the relationship between the theory and the lived reality observed in the study of REIPPPP.

By assessing REIPPPP contracts as well as through interviews with stakeholders, the two propositions were evaluated and yielded 8 distinct findings. The findings are outlined below, relative to their respective propositions.

Moral Hazard Proposition: Outcomes-based contracts drive principal-agent alignment.

Findings

1. REIPPPP contracts include the financier as a contractual party.
2. REIPPPP contracts involve multiple stakeholders, directly and indirectly.
3. Job Creation is specifically contracted for in the Implementation Agreement, which is a contract that forms a composite piece of the power generation license.
4. The Power Purchase Agreement is bankable, which means that it provides the IPP with security of income.

Adverse Selection Proposition: Information-sharing drives principal-agent alignment.

Findings

5. The commitments made to secure a license, also referred to as bid commitments, are binding, for the life of the power project.
6. Quarterly reporting against Economic Development Obligations, which are inclusive of Job Creation, was found to be effective because it not only drives transparency but ensures that the IPP Office can closely monitor IPPs.
7. Despite an effective quarterly reporting system, doubts were cast upon the state's verification by audit.
8. The gaps in verification were however overcome through a system of credible penalties.

These findings have been shown in the detailed analysis above, to point to a variety of specific governance mechanisms that support the theoretical propositions. These mechanisms are summarised below, in the form of key themes.

Theme 1: Identity Matters

In outlining the importance of outcomes-based contracts, the theory does not delve further into the question of identity. In other words, the theory takes the broad categorisation of the identities of the agent and principal as given, focusing more on the nature of the contract rather than the nature of the contracting parties. What REIPPPP reveals is that principal-agent alignment is also driven by holistically viewing each party and ensuring that all facets of he agent and/ principal, are represented in the contract. To this end, REIPPPP includes financiers in the contractual structure, making them a composite part of the agent. Similarly, on the side of the state, REIPPPP incorporates a variety of actors, directly and indirectly, to ensure that all government and regulatory bodies are aligned. There is further scope in the context of REIPPPP, to make more government entities direct parties to the contracts. However, in general, the finding demonstrates the importance of contracting parties when defining an outcomes-based contract.

The emergent proposition is thus: the holistic inclusion of all parties that constitute the agent and principal, in outcomes based contracts, drives agent-principal alignment.

Theme 2: Count What Matters

REIPPPP contracts were shown to comply with the theory as they are indeed outcomes-based and as a consequence, have generated agent-principal alignment. What the analysis questioned is the quality of the outcomes that are measured. With specific reference to Job Creation, it was found the outcomes measured in REIPPPP can, at times, result in misleading information. An example shown in the analysis is that a single person can be counted as more than one job, given that REIPPPP calculates jobs as time worked rather than individuals employed. There is value then in taking the theory further by proposing a greater focus on the quality of the measured outcomes. This is an important governance mechanism as it ensures that the outcomes captured in contracts are not superficial, but rather address the problems that the agent seeks to solve, in a substantive manner.

The proposition that emerges out of this finding is thus: measures that are defined in terms of the longer-term strategic objectives of the agent, in outcomes-based contracts, drive greater agent-principal alignment.

Theme 3: Sharing Risk Matters

The security of REIPPPP contracts derives from the use of a sovereign guarantee to assure IPP's of the state's purchasing commitment. In the literature, this theme is located in discussions that seek to identify the agent as more than just self-interested (Bosse & Phillips, 2016). Rather, it is understood that principals can also act in self-interested ways, thus unduly constraining agents (Bosse & Phillips, 2016). What the analysis reveals is the power of guaranteeing the principal's commitment. The extent of the state's commitment in REIPPPP empowers it to make high demands of the agent whilst simultaneously incentivising the agent to fulfil their end of the contract. Thus, where the dominant thinking in theory emphasises the requirement to ensure that agents assume their fair share of risk, this analysis reveals the value generated when the principal assumes the appropriate level of risk.

This study thus yields the following proposition in respect of risk: when principals guarantee their commitment, they are empowered to drive agents to achieve high performance levels, in outcomes-based contracts.

Theme 4: Compliance Costs Matter

This study's evaluation of information sharing revealed that the information shared by agents is not only valid but also standardised. This standardisation of information requirements, across multiple agents, where the state acts as the sole principal has the benefit of reducing the costs involved in collecting, analysing and verifying information. This cost reduction applies to both the agent and principal as IPPs benefit from using standardised templates throughout the project cycle, from bidding through to operations. Thus, this study found that information-sharing is made more efficient and effective when the costs are reduced. This aligns with the broader aspects of theory that identify the importance of containing costs (Iossa & Martimort, 2012). Unlike the Iossa & Martimort (2012), this study does not propose bundling project phases to reduce costs but rather, standardising reporting templates as the cost reduction tool.

The related proposition is thus: standardising information inputs and outputs reduces information-sharing costs, thus aligning agents and principals.

Theme 5: Competition Matters

REIPPPP uses the tool of competition to get agents to commit to their highest possible performance standards. It further uses the competitive bid commitments as the baseline data against which to measure the ongoing compliance of IPPs. What this draws attention to is the importance of competition in driving agents to commit themselves, at the highest level, to the goals of the principal. In other words, competition improves the quality of information and in turn, the quality of outcomes. Therefore, the goal of information sharing should not only be transparency but also, competition. The related governance mechanism is the use of competitive bid outcomes as binding, long-term commitments.

This finding yields the following proposition, which gives further substance to the theory: information sharing, within a competitive context for agents, improves agent-principal alignment.

Theme 6: Targeted Penalties Matter

The final theme emerges out of the concept of penalties. Penalties are understood to be necessary and effective in principal-agent relationships (Kuru & Artan, 2020). What the proposition on information-sharing does not capture is the importance of linking specific categories of information with specific forms of penalties. It was found that in REIPPPP, a special set of penalties are attached to non-performance in the context of Economic Development, which is inclusive of Job Creation. These penalties do not apply to other aspects of the IPP’s performance such as total electrical output. In doing this, the state fosters a specific focus on Economic Development and the specific ramifications for under-performance.

The resultant proposition is thus: targeted penalties for information pertaining to specific outcomes, drives better alignment between agents and principals.

In all, through the analysis of the research findings, thus study has generated five, evidence-based propositions, that serve as governance mechanisms for agent-principal relationships. These propositions, generated from the detailed analysis of the context, contribute a deepening of the propositions of Positivist Agency Theory.

7 Chapter 7: Conclusion and Recommendations

Introduction

This study sought to explore the governance mechanisms that result in agent-principal alignment in Public Private Partnerships (PPPs), with specific reference to Job Creation.

Public Private Partnerships are responsibility-sharing arrangements between the state and private companies, in the execution of projects and/ delivery of government services (Sahani et al., 2020). PPPs are thus typified by agent-principal dynamics as the principal, being the state, depends on the agent, the private actor, to execute its functions (Shrestha et al., 2019). The theory on agents and principals suggests that the principal's distance from direct operations opens it to exploitation by the agent (Mitnick, 2011). Given the importance of PPPs to South Africa's economic growth strategy (SIDSSA, 2020), it was important to understand how the misalignment between agents and principals can be overcome in a manner that supports the public good. In addition, this study sought to understand how Job Creation objectives can be advanced in agent-principal relationships within the context of PPPs. Unemployment sits at over 30% in South Africa, making it one of the most important socio-economic challenges faced by the country (Department of Statistics South Africa, 2020). Thus, when evaluating an infrastructure-led growth path, it is also important to ascertain the extent to which the anticipated growth will advance the developmental objective of Job Creation.

Therefore, this study set out to generate more targeted or specific propositions related to the governance mechanisms of agent-principal relationships. This was understood as important in relation to the practical challenge of structuring meaningful PPP arrangements. It was also deemed important for the deepening of Positivist Agency Theory, which contains broad propositions that require enrichment through detailed and specific propositions (Eisenhardt, 1989).

The Research Context

The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), a decade-old PPP, was identified as the ideal context given its consistent job-creation alignment between the state and its agents, Independent Power Producers (IPPs). In the context of REIPPPP, the state procures electricity from private companies, IPPs, who in turn deliver both electricity and defined economic development outcomes. Indeed, REIPPPP has demonstrated alignment between the agents, IPPs and the principal, the state, across all of its Economic Development Obligations (IPP Office, 2020). ED Obligations are defined by the state as comprised of seven elements: Job Creation, Black Ownership, Black Top Management, Local Content, Preferential Procurement, Enterprise Development and Socio-economic Development (DMRE, 2021d). The state runs a competitive bidding process for its procurement contracts and Economic Development constitutes an aspect of the evaluation criteria (IPP Office, 2020). The winners of the procurement contracts must achieve the best blended score in terms of Economic Development (weighted at 30%) as well as Price (a combination of financial and technical credentials, weighted at 70%) (Eberhard et al., 2014). REIPPPP was thus deemed the ideal context for this study because it is a PPP that exhibits agent-principal responsibility-sharing attributes. Importantly, REIPPPP is also a case in which agents align with principals, as demonstrated by the over-performance of agents, in relation to the Economic Development Goals of the state. Perhaps more fundamentally, it was Job Creation over performance that made REIPPPP an ideal PPP to study, as this research project was specifically motivated to understand how job creation outcomes can be optimised in a PPP context.

Positivist Agency Theory

Agency Theory posits that agents are inherently self-interested and thus unlikely to act in the interests of principals (Panda & Leepsa, 2017). This misalignment derives from the separation of the principal from their asset. The theory finds its roots in the field of economic but has gained prominence in organisation studies given its value in articulating the challenge of shareholding versus management (Mitnick, 2011). The theory predominantly focuses on the management of agents, however it has been challenged by other perspectives. One body of work focuses on agents as social-embedded individuals, who, as a function of social connection, are not strictly self-interested (Bosse & Phillips, 2016). In a similar vein, other bodies of work emphasise the need to problematise principals, stating that they too can act as a constraint on the desired objectives of responsibility-sharing (Mitnick, 2011). In general however, the conflicting positions of agents and principals and resultant misalignment, are understood as characteristic of the relationship (Panda & Leepsa, 2017). Thus, a growing body of work has concerned itself with the levers that are necessary for the attainment of agent-principal alignment. This work addresses rick-sharing risk-sharing (Iossa & Martimort, 2012); compliance costs (Zogning, 2017); measurement challenges (Mthembi, 2015) and the role of penalties (Kuru & Artan, 2020), inter alia.

For this study, a branch of Agency Theory, referred to as Positivist Agency Theory, was identified as the appropriate theoretical lens. Positivist Agency Theory concerns itself with overcoming the challenges of moral hazard and adverse selection (Eisenhardt, 1989). Moral hazard refers to goal-conflict between agents and principals where adverse selection refers to information asymmetry between the two parties (Panda & Leepsa, 2017). Eisenhardt (1989) defines two propositions in response to this challenge, namely:

1. **Moral Hazard Proposition**: the alignment of interests can be achieved through outcomes-based contracts that limit the extent of the agent's self-interest.
2. **Adverse Selection Proposition**: the alignment of interests can be achieved through increased access to quality information about the actions of agents.

These propositions were chosen for the purpose of this study. They formed the basis of the exploration into the agent-principal dynamics that yield alignment in the study's context, REIPPPP. This research sought to deepen these propositions, by making a contribution to the theory that is more specific in nature. Thus, where Positivist Agency Theory acknowledges the importance of governance mechanisms for agent-principal alignment (Eisenhardt, 1989), it requires further building insofar as the articulation of the types of governance mechanisms that validate and expand upon its propositions. The theoretical contribution of this study was thus in relation to the question of governance mechanisms.

Study Questions and Methodology

The study's primary question was : What are the governance mechanisms that result in agent-principal alignment as it pertains to job-creation in the REIPPPP?

The related sub-questions, drawn from the theoretical propositions were thus:

- Sub-question 1: what is it about the contractual structure of REIPPPP that might lead to agent-principal alignment?
- Sub-question 2: What is it about the information systems in REIPPPP that might lead to agent-principal alignment?

To explore these questions, a qualitative research approach was taken. The questions were each assigned a different research approach. Since the first sub-question pertains to contractual structures, the unit of analysis was deemed to be REIPPPP contracts. A detailed document analysis was thus undertaken to determine the place and nature of outcomes-based contracting in REIPPPP. The second question, which sought to ascertain the nature and quality of information-sharing in REIPPPP, was explored through semi-structured interviews with key stakeholders. The purpose of the interviews was to determine the quality of information-sharing, including such concerns as transparency and data validity.

Findings

The study yielded 4 findings per proposition. In all, in terms of moral hazard, it was found that agent-principal alignment is indeed generated through outcomes-based contracts. Additionally, unique features of the REIPPPP included the incorporation of financiers into the core contracts and the involvement of a multiple stakeholders in direct and indirect contracting. Specific to the question of Job Creation, the REIPPPP demonstrated that this outcome was detailed in the core agreements, thus ensuring that the REIPPPP correctly couples the goal of electricity generation wth the programmes Economic Development objectives. It was also found that the commitment of principals is an important driver of alignment, as evidenced through the bankable Power Purchase Agreement of the REIPPPP.

In respect of adverse selection, it was found that the REIPPPP confirms the proposition regarding information-sharing as a tool of principal-agent alignment. In addition, the REIPPPP demonstrated the value of using competition to set the information and thus, performance baseline and the use of effective, regular reporting to ensure alignment. It was also found that whilst the state has limited verification capacity, this was overcome through credible penalties related to Economic Development reporting, which is inclusive of Job Creation.

Interpretation and The Contribution To Scholarship

The findings, when analysed, resulted in the generation of new propositions. These propositions address the core question of this study, which is about the identification of specific governance mechanisms that result in agent-principal alignment. On a high-level, this study has contributed an appreciation of the following aspects of agent-principal relationships:

1. Identity matters: agents and principals must be correctly identified
2. Measures matter: to get the right outcomes, the right items must be measured
3. Risk-sharing matters: specifically, principals must commit to drive the performance of agents
4. Competition matters: agents who are in direct competition share more reliable information
5. Costs matters: reducing the costs of collecting and sharing information is crucial
6. Targeted Penalties matter: focusing the penalty-regime results in focused attention on the goals if agents

Below is an outline of the propositions generated through thus study, presented in terms of the original propositions through which they emerged.

Deepening The Moral Hazard Proposition

1. The holistic inclusion of all parties that constitute the agent and principal, in outcomes-based contracts, drives agent-principal alignment.
2. Measures that are defined in terms of the longer-term strategic objectives of the agent, in outcomes-based contracts, drive greater agent-principal alignment.
3. When principals guarantee their commitment, they are empowered to drive agents to achieve high performance levels, in outcomes-based contracts.

Deepening The Adverse Selection Proposition

4. Information sharing, within a competitive context for agents, improves agent-principal alignment.
5. Standardising information inputs and outputs reduces information-sharing costs, thus aligning agents and principals.
6. Targeted penalties for information pertaining to specific outcomes, drives better alignment between agents and principals.

The contribution of this study is thus a deeper articulation of the broad propositions of Positivist Agency Theory. This depth is considered important as a tool to guide both theoretical development as well as the practical execution of PPP projects. In other words, this study did not change the parameters of the scholarly debate, but contributed more technical guidelines that strengthen the overarching propositions regarding the dilemmas of moral hazard and adverse selection.

The knowledge generated through this study matters for theoretical and practical reasons. As indicated, agent-principal dilemmas are ever-present in organisations and uniquely pronounced in PPPs. In the immediate sense of South Africa's PPP aspirations, these findings are important to guide the design of future state procurement programmes. Given South Africa's specific need to incorporate developmental concerns into state procurement, the study provides important and specific guidelines regarding how to contract for and monitor the performance of agents in relation to socio-economic development in general and Job Creation, in particular.

A crucial limitation of the study was the inability to subject the findings and related, emergent propositions, to a comparable context to determine their rigour. This is a necessary piece of work as it will make the propositions more generalisable. Therefore, as it pertains to theory, the study matters insofar as it advances the understanding of the specific governance mechanisms that are required to drive agent-principal alignment. The concluding diagram below summarises the contribution of the study, which, through the formulation of new propositions, opens the door to the further interrogation of the governance mechanisms which are required to overcome principal-agent misalignment in PPPs as well as other relevant contexts.

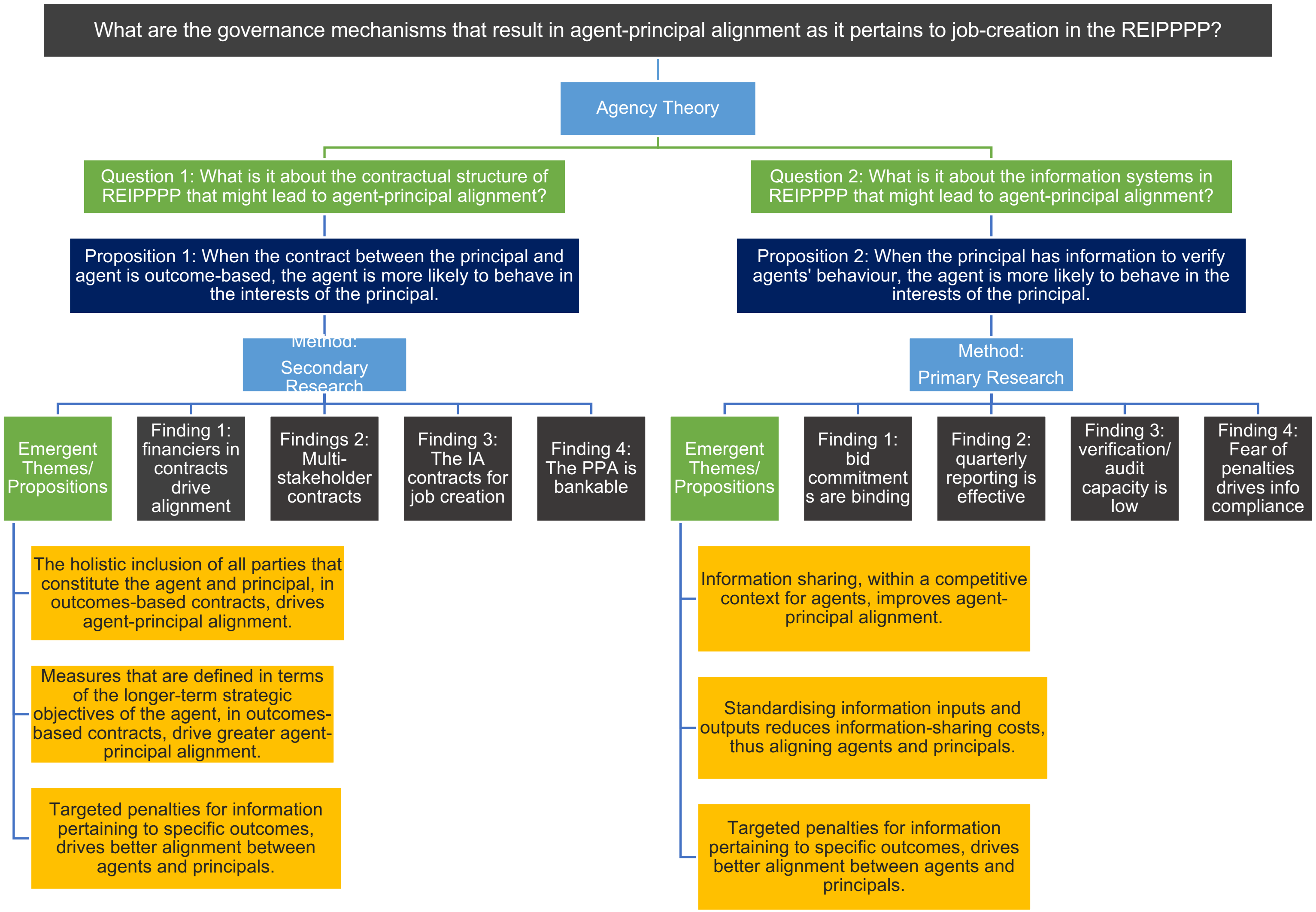

Figure 11: Summary of Findings & Emergent Themes/ Propositions

Reference List

Alchian, A., & Demsetz, H. (1972). Production, Information Costs, and Economic Organisation. *The American Economic Review*, *26*(5), 777–795. https://doi.org/10.1108/eb032428

Aldieri, L., Grafström, J., Sundström, K., & Vinci, C. P. (2020). Wind power and job creation. *Sustainability (Switzerland)*, *12*(1), 1–23. https://doi.org/10.3390/SU12010045

Aschauer, D. A. (1990). Why is infrastructure important? *Industry Week*, 21–68.

Barnard, C. I. (1938). *The Functions Of The Executive*. Cambridge, Mass: Harvard University Press.

Belloumi, M., & Achour, H. (2016). Investigating the causal relationship between transport infrastructure, transport energy consumption and economic growth in Tunisia. *Renewable and Sustainable Energy Reviews2*, *October*. https://doi.org/10.13140/RG.2.1.2310.7040

Bosse, D. A., & Phillips, R. A. (2016). Agency theory and bounded self-interest. *Academy of Management Review*, *41*(2), 276–297. https://doi.org/10.5465/amr.2013.0420

Byrne, J., Taminiau, J., Kim, K. N., Seo, J., & Lee, J. (2016). A solar city strategy applied to six municipalities: Integrating market, finance, and policy factors for infrastructure-scale photovoltaic development in Amsterdam, London, Munich, New York, Seoul, and Tokyo. *Wiley Interdisciplinary Reviews: Energy and Environment*, *5*(1), 68–88. https://doi.org/10.1002/wene.182

Calderón, C., Cantú, C., & Chuhan-Pole, P. (2018). Infrastructure Development in Sub-Saharan Africa: A Scorecard. *World Bank Publications*, *8425*(May), 1–45. https://doi.org/10.1596/1813-9450-8425

Calderón, C., & Servén, L. (2004). The Effects of Infrastructure on Growth and Income Distribution. *Central Bank of Chile Working Papers*, *270*.

Calzadilla, A., Zhu, T., Rehdanz, K., Tol, R. S. J., & Ringler, C. (2013). Economywide impacts of climate change on agriculture in Sub-Saharan

Africa. *Ecological Economics*, *93*, 150–165. https://doi.org/10.1016/j.ecolecon.2013.05.006

Cepiku, D. (2011). Two ships passing in the night? Practice and academia in public management. *Public Money and Management*, *31*(2), 131–138. https://doi.org/10.1080/09540962.2011.560711

Chong, S., & Poole, E. (2013). Financing Infrastructure : A Spectrum of Country Approaches. *Reserve Bank of Australia Bulletin*, *Septermber Quarter*, 65–76.

Clausen, L. T., & Rudolph, D. (2020). Renewable energy for sustainable rural development: Synergies and mismatches. *Energy Policy*, *138*. https://doi.org/10.1016/j.enpol.2020.111289

Corfee-morlot, J., & Kennedy, C. (2012). Mobilising Private Investment in Low Carbon , Resilient Infrastructure. *OECD Environment Working Papers*, *46*.

Deep, A., Kim, J., & Lee, M. (2019). *Realizing the Potential of Public-Private Partnerships to Advance Asia's Infrastructure Development* (Issue January). Asian Development Bank, Korea Development Institute. https://doi.org/http://dx.doi.org/10.22617/TCS189648-2

Department of Minerals and Energy. (2019). *Integrated Resource Plan 2019*. http://www.energy.gov.za/IRP/2019/IRP-2019.pdf

Department of Statistics South Africa. (2020). Quarterly Labour Force Survey Quarter 4: 2020. *Quarterly Labour Force Survey*, *September*, 1–70. http://www.statssa.gov.za/publications/P0211/P02111stQuarter2019.pdf

Devkar, G., Palliyaguru, R., & Oyegoke, A. S. (2020). The effects of institutional frameworks on implementation of PPP projects: a comparative perspective in Australia and India. *International Journal of Construction Management*, *20*(6), 720–736. https://doi.org/10.1080/15623599.2020.1769255

Di Lollo, Adrian; Drummond, M. (2019). Housing Finance in South Africa. *Centre for Affordable Housing in Africa 2019 Yearbook*, *816*(April 2019), 235–238. https://doi.org/10.4135/9781412953979.n572

DMRE. (2021a). *The Republic of South Africa Department of Mineral Resources and Energy REQUEST FOR QUALIFICATION AND PROPOSALS FOR NEW GENERATION CAPACITY UNDER THE REIPP PROCUREMENT PROGRAMME VOLUME 2 : APPENDIX K1 – POWER PURCHASE AGREEMENT - PHOTOVOLTAIC PROJECTS*. *2*(b).

DMRE. (2021b). *The Republic of South Africa Department of Mineral Resources and Energy REQUEST FOR QUALIFICATION AND PROPOSALS FOR NEW GENERATION CAPACITY UNDER THE REIPP PROCUREMENT PROGRAMME VOLUME 2 : APPENDIX L – DIRECT AGREEMENT*. *a*, 1–25.

DMRE. (2021c). *The Republic of South Africa Department of Mineral Resources and Energy REQUEST FOR QUALIFICATION AND PROPOSALS FOR NEW GENERATION CAPACITY UNDER THE REIPP PROCUREMENT PROGRAMME VOLUME 2 : APPENDIX M – IMPLEMENTATION AGREEMENT*. *2*(c).

DMRE. (2021d). *The Republic of South Africa Department of Mineral Resources and Energy REQUEST FOR QUALIFICATION AND PROPOSALS FOR NEW GENERATION CAPACITY UNDER THE REIPP PROCUREMENT PROGRAMME VOLUME 5 : PART 1*. *5*, 1–33.

DMRE. (2021e). *The Republic of South Africa Department of Mineral Resources and Energy VOLUME 2 : LEGAL REQUIREMENTS*. *2*(e), 2–3.

Eberhard, A., Kolker, J., & Leighland, J. (2014). South Africa's renewable energy IPP procurement program: success factors and lessons, May 2014. *WBIRP Africa Report No: ACS8826 Republic of South Africa. Review of the South Africa Renewable Energy IPP Process. Public-Private Infrastructure Advisory Facility (PPIAF)*, *May*.

Ehlers, T. (2014). Understanding the challenges for infrastructure finance. *BIS Working Papers*, *454*, *August 2014*, 29.

Eisenhardt, Kaathleen M. (1989a). Eisenhardt (1989) - Agency theory.pdf. In *Academy of Management Review* (Vol. 14, Issue 1, pp. 57–74).

Eisenhardt, Kaathleen M. (1989b). Eisenhardt (1989) - Agency theory.pdf. In *Academy of Management Review* (Vol. 14, Issue 1, pp. 57–74). http://www.petersvmd.com/PrincipalAgent/short principal agent/agency.pdf

Eisenhardt, Kathleen M. (1985a). Control: Organizational and Economic Approaches. *Management Science*, *31*(2), 134–149. https://doi.org/10.1287/mnsc.31.2.134

Eisenhardt, Kathleen M. (1985b). CONTROL: ORGANIZATIONAL AND ECONOMIC APPROACHES. *Management Science*, *31*(2), 134–149. https://doi.org/10.1287/mnsc.31.2.134

Eisenhardt, Kathleen M. (1989). Agency Theory: An Assessment and Review. *Academy of Management Review*, *14*(1), 57–74. https://doi.org/10.5465/amr.1989.4279003

Estache, A., & Iimi, A. (2011). (Un)bundling infrastructure procurement: Evidence from water supply and sewage projects. *Utilities Policy*, *19*(2), 104–114. https://doi.org/10.1016/j.jup.2010.12.003

Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control Separation of Ownership and Control. *Journal of Law and Economics*, *26*(2), 301–325. https://doi.org/10.1086/467037

Francis, J. J., Johnston, M., Robertson, C., Glidewell, L., Entwistle, V., Eccles, M. P., & Grimshaw, J. M. (2010). What is an adequate sample size? Operationalising data saturation for theory-based interview studies. *Psychology and Health*, *25*(10), 1229–1245. https://doi.org/10.1080/08870440903194015

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *Qualitative Report*, *20*(9), 1408–1416.

Fuss, S., Chen, C., Jakob, M., Marxen, A., Rao, N. D., & Edenhofer, O. (2016). Could resource rents finance universal access to infrastructure? A first exploration of needs and rents. *Environment and Development Economics*, *21*(6), 691–712. https://doi.org/10.1017/S1355770X16000139

Gehman, J., Glaser, V. L., Eisenhardt, K. M., Gioia, D., Langley, A., & Corley, K. G. (2018). Finding Theory–Method Fit: A Comparison of Three Qualitative Approaches to Theory Building. *Journal of Management Inquiry*, *27*(3), 284–300. https://doi.org/10.1177/1056492617706029

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods*, *16*(1), 15–31. https://doi.org/10.1177/1094428112452151

Giordano, T. (2012). *Adaptive planning for climate-resilient , long-lived infrastructure*. *30*.

Grimsey, D., & Lewis, M. K. (2002). Evaluating the risks of public private partnerships for infrastructure projects. *International Journal of Project Management*, *20*(2), 107–118. https://doi.org/10.1016/S0263-7863(00)00040-5

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods*, *18*(1), 59–82. https://doi.org/10.1177/1525822X05279903

Hirsch, P., & Friedman, R. (1986). Collaboration or Paradigm Shift?: Economic vs. Behavioral Thinking About Policy? *Academy of Management Proceedings*, *1986*(1), 31–35. https://doi.org/10.5465/ambpp.1986.4978491

Iossa, E., & Martimort, D. (2012). Risk allocation and the costs and benefits of public--private partnerships. *RAND Journal of Economics*, *43*(3), 442–474. https://doi.org/10.1111/j.1756-2171.2012.00181.x

IPP Office. (2019). *Independent Power Producers Procurement Programme (REIPPP): An Overview - December 2019*. *December*. https://doi.org/http://dx.doi.org/10.1016/S1553-4650(13)01241-7

IPP Office. (2020). *Independent Power Producers Procurement Programme (REIPPP): An Overview - September 2020*. *March*.

Kumari, A., & Kumar Sharma, A. (2017). Infrastructure financing and development: A bibliometric review. *International Journal of Critical Infrastructure Protection*, *16*, 49–65. https://doi.org/10.1016/j.ijcip.2016.11.005

Kuru, K., & Artan, D. (2020). A canvas model for risk assessment and performance estimation in public–private partnerships. *International Journal of Construction Management*, *20*(6), 704–719. https://doi.org/10.1080/15623599.2020.1763898

Meltzer, J. (2016). Financing Low Carbon, Climate Resilient Infrastructure: The Role of Climate Finance and Green Financial Systems. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2841918

Milly, P. C. D., Betancourt, J., Falkenmark, M., Hirsch, R. M., Kundzewicz, Z. W., Lettenmaier, D. P., & Stouffer, R. J. (2008). Climate change: Stationarity is dead: Whither water management? *Science*, *319*(5863), 573–574. https://doi.org/10.1126/science.1151915

Mitnick, B. M. (2011). Origin of the Theory of Agency: An Account By One of the Theory's Originators. *SSRN Electronic Journal*, *November 2006*. https://doi.org/10.2139/ssrn.1020378

Mthembi, F. (2015). Lost In Procurement. In R. MYTELKA, L., MSIMANG, V. AND PERROT (Ed.), *Earth, Wind and Fire: unpacking the political, economic and security implications of discourse on the Green Economy* (Issue 31). Mapungubwe Institute for Strategic Reflection, Real African Publishers.

National Planning Commission. (2010). Our future - make it work: National Development Plan. In *National Development Plan (2030)*.

Naude, R., & Eberhard, A. (2018). THE SOUTH AFRICAN RENEWABLE ENERGY IPP PROCUREMENT PROGRAMME. *Africa's Competitiveness in the Global Economy*, 303–330. https://doi.org/10.1007/978-3-319-67014-0_12

Panda, B., & Leepsa, N. M. (2017). Agency theory: Review of Theory and Evidence on Problems and Perspectives. *Indian Journal of Corporate Governance*, *10*(1), 74–95. https://doi.org/10.1177/0974686217701467

Parker, D. W., Dressel, U., Chevers, D., & Zeppetella, L. (2018). Agency theory perspective on public-private-partnerships: international development project. *International Journal of Productivity and Performance Management*, *67*(2), 239–259. https://doi.org/10.1108/IJPPM-09-2016-0191

Pouryousefi, S., & Frooman, J. (2017). The Problem of Unilateralism in Agency Theory: Towards a Bilateral Formulation. *Business Ethics Quarterly*, *27*(2), 163–182. https://doi.org/10.1017/beq.2016.77

Reyes, J., & Esteve, M. (2019). Key Mechanisms of the Accountability Process in Public-private Partnerships. *Spanish Accounting Review*, *23*(2), 210–223.

Ross, S. (1973). The Economic Theory of Agency: The Principal's Problem on JSTOR. *The American Economic Review*, *63*(2), 134–139. https://www.jstor.org/stable/1817064?seq=1

Sahani, J. N., W.M., C. D., & Mohan, K. (2020). A systematic literature review and analysis towards developing PPP models for delivering smart infrastructure. In *Built Environment Project and Asset Management: Vol. ahead-of-p* (Issue ahead-of-print). https://doi.org/10.1108/BEPAM-11-2019-0124

Shapiro, S. P. (2005). Agency theory. *Annual Review of Sociology*, *31*, 263–284. https://doi.org/10.1146/annurev.soc.31.041304.122159

Sharpton, T., Lawrence, T., & Hall, M. (2020). Drivers and barriers to public acceptance of future energy sources and grid expansion in the United States. *Renewable and Sustainable Energy Reviews*, *126*. https://doi.org/10.1016/j.rser.2020.109826

Shi, L., Li, W., & He, Y. (2020). An Incentive Analysis of Availability Payment Mechanism in PPP Projects. *IEEE Access*, *8*, 106046–106058. https://doi.org/10.1109/ACCESS.2020.2999932

Shi, W., Connelly, B. L., & Hoskisson, R. E. (2017). External corporate governance and financial fraud: cognitive evaluation theory insights on agency theory prescriptions. In *Strategic Management Journal* (Vol. 38, Issue 6). https://doi.org/10.1002/smj.2560

Shleifer, A., & Vishny, R. W. (1997). A Survey Of Corporate Governance. In *The Journal Of Finance* (Vol. 52, Issue 2, pp. 737–783).

Shrestha, A., Tamošaitiene, J., Martek, I., Hosseini, M. R., & Edwards, D. J. (2019). A principal-agent theory perspective on PPP risk allocation. *Sustainability (Switzerland)*, *11*(22), 1–18. https://doi.org/10.3390/su11226455

SIDSSA. (2020). Sustainable Infrastructure Development South Africa Editorial. *SIDSSA Editorial*, *June*.

Stands, S. R. (2015). Utility-Scale Renewable Energy Job Creation: An investigation of the South African Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). *Master Thesis, Stellenbosch University, South Africa*, *March*.

STATSSA. (2020). Quarterly Labour Force Survey Q1:2020. *Quarterly Labour Force Survey*, *PO211*(May), 1–70.

Treasury. (2018). Economic transformation, inclusive growth, and competitiveness: Towards an Economic Strategy for South Africa Prepared by Economic Policy, National Treasury. *National Treasury*, 1–62. http://www.treasury.gov.za/

Treasury. (2020). *BRIEFING BY NATIONAL TREASURY ON FINANCIAL IMPLICATIONS OF COVID-19 ON BOTH THE ECONOMY AND BUDGET JT STANDING COMMITTEE AND SELECT COMMITTEE ON FINANCE AND APPROPRIATIONS 30 APRIL 2020*.

UNFCC. (2015). *ADOPTION OF THE PARIS AGREEMENT - Paris Agreement text English*.

United Nations. (2015). *TRANSFORMING OUR WORLD: THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT UNITED NATIONS UNITED NATIONS TRANSFORMING OUR WORLD: THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT*.

Vakulchuk, R., Overland, I., & Scholten, D. (2020). Renewable energy and geopolitics: A review. In *Renewable and Sustainable Energy Reviews* (Vol. 122, p. 109547). Elsevier Ltd. https://doi.org/10.1016/j.rser.2019.109547

Wagenvoort, R., De Nicola, C., Kappeler, A., Engel, E., Fischer, R., Galetovic, A., Bitsch, F., Buchner, A., & Kaserer, C. (2010). EIB Papers Public and private financing of infrastructure Evolution and economics of private infrastructure finance. *EIB Papers •*, *15*. www.eib.org/efs/

Wallace-Wells, D. (2019). *The Uninhabitable Earth: Life After Warming*. Random House LCC US. https://books.google.co.za/books/about/The_Uninhabitable_Earth.html?id=6ULIvwEACAAJ&redir_esc=y

Williamson, O. E., Wachter, M. L., & Harris, J. E. (1975). Understanding the Employment Relation: The Analysis of Idiosyncratic Exchange. *The Bell Journal of Economics*, *6*(1), 250. https://doi.org/10.2307/3003224

Wiseman, R. M., Cuevas-Rodríguez, G., & Gomez-Mejia, L. R. (2012). Towards a social theory of agency. *Journal of Management Studies*, *49*(1), 202–222. https://doi.org/10.1111/j.1467-6486.2011.01016.x

Wolsink, M. (2020). Distributed energy systems as common goods: Socio-political acceptance of renewables in intelligent microgrids. In *Renewable and Sustainable Energy Reviews* (Vol. 127, p. 109841). Elsevier Ltd. https://doi.org/10.1016/j.rser.2020.109841

Wong, H. L., Luo, R., Zhang, L., & Rozelle, S. (2013). Providing quality infrastructure in rural villages: The case of rural roads in China. *Journal of Development Economics*, *103*(1), 262–274. https://doi.org/10.1016/j.jdeveco.2013.03.002

World Bank Group. (2020). *Unemployment, total (% of total labor force) (modeled ILO estimate) | Data*. https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS

Zhang, S., Chan, A. P. C., Feng, Y., Duan, H., & Ke, Y. (2016). Critical review on PPP Research - A search from the Chinese and International Journals. *International Journal of Project Management*, *34*(4), 597–612. https://doi.org/10.1016/j.ijproman.2016.02.008

Zogning, F. (2017). Agency Theory : A Critical Review. *European Journal of Business and Management*, *9*(2), 1–8.

Appendices

Annex A: Interview Questionnaire

Administration Overview

Name:	
Name of Organisation:	
Position:	
Time in Role:	
Contact details:	
Venue:	
Date:	
Interviewer:	
Confirmation of Informed Consent Reading & Understanding:	

- Express Gratitude
- Share Personal Story- the MBA journey so far
- Introduce Research Question

Core Questions

1. I'd like to start by discussing the place and value of infrastructure PPPs and REIPPPP.
2. Do you think there is value in the PPP model as it pertains to infrastructure in general and REIPPPP in particular?

3. What do you think the private sector and IPPs bring to the table that is unique to them, in infrastructure PPPs and REIPPPP in particular?
4. What do you think the state brings to the table that is unique to it, in infrastructure PPPs and REIPPPP in particular?
5. The requirement for state involvement in making infrastructure investments viable.
6. The theory suggests that the state and private sector should have different interests and/ incentives. I'd like to discuss this in the context of REIPPPP.
7. Do you believe that the state and IPPs have different/ competing interest and if so, in what ways?
8. Do you think IPPs reliably deliver on the development aims of REIPPPP?
    a. Why and how?
9. Do you believe the state's ED requirements onerous and/ expensive to implement?
    a. Why and how?
10. What processes are in place to ensure that reporting in ED and Job Creation in particular, is accurate?
    a. Is this sufficient- why/why not?
11. What processes are in place to ensure that reporting in ED and Job Creation in particular, is correctly audited?
    a. Is this sufficient- why/why not?
12. The Just Transition agenda: Do you believe that is possible to make sustainable infrastructure investments labour intensive?
    a. Why/why not?
13. Do you believe that is possible to make REIPPPP more labour intensive?
    a. Why/why not?
14. The what extent do you believe that REIPPPP and infrastructure jobs qualify as decent jobs? Elaborate.
15. Do you believe that the jobs to be lost from traditional sectors can be 'recovered' in sustainable infrastructure projects?
    a. Why/ why not?
16. State/ Capacity: What knowledge does the state draw on to determine its employment targets?
17. Which state and non-state actors are involved in this process? (why them?)

18. What is the process by which employment targets are set?
19. How often are targets reviewed?
20. Does the state have the capacity to monitor the private sector's reported performance?
21. Private Sector/ Capacity: What knowledge does the private sector draw on to determine its employment targets?
22. Which actors, internal and external, are involved in this process? (why them?)
23. What is the process by which employment targets are set?
24. How often are targets reviewed?
25. Does the private sector have the capacity to deliver and report on the state's employment targets?
26. Given that there has been over-performance in respect of employment creation in REIPPPP, what additional factors might explain this- perhaps cite examples based on specific observed contexts.

Annex 2: REIPPPP Contract- ED Bid & Quarterly Reporting Tool

REIPP BID WINDOW 5 PROCUREMENT PROGRAMME

Appendix 5B: Economic Development Information Sheet

DESCRIPTION	UNIT
Contracted Capacity	
Contracted Capacity	MW
Job Creation	
Job Creation during the Construction Measurement Period	
Total RSA Based Employees during the Construction Measurement Period	Person-months
RSA Based Employees who are Citizens during the Construction Measurement Period	Person-months
RSA Based Employees who are Black People during the Construction Measurement Period	Person-months
RSA Based Skilled Employees during the Construction Measurement Period	Person-months
RSA Based Skilled Employees who are Black People during the Construction Measurement Period	Person-months
RSA Based Skilled Employees who are Black People with specialised skills during the Construction Measurement Period	Person-months
RSA Based Employees who are Citizens who reside in Local Communities during the Construction Measurement Period	Person-months
RSA Based Employees who are Black Youth aged 15 to 35 years during the Construction Measurement Period	Person-months
RSA Based Employees who are Black Women during the Construction Measurement Period	Person-months
RSA Based Employees who are People with Disabilities during the Construction Measurement Period	Person-months
Job Creation during the Operating Measurement Period	
Total RSA Based Employees during the Operating Measurement Period	Person-months

DESCRIPTION	UNIT
RSA Based Employees who are Citizens during the Operating Measurement Period	Person-months
RSA Based Employees who are Black People during the Operating Measurement Period	Person-months
RSA Based Skilled Employees during the Operating Measurement Period	Person-months
RSA Based Skilled Employees who are Black People during the Operating Measurement Period	Person-months
RSA Based Skilled Employees who are Black People with specialized skills during the Operating Measurement Period	Person-months
RSA Based Employees who are Citizens who reside in Local Communities during the Operating Measurement Period	Person-months
RSA Based Employees who are Black Youth aged 15 to 35 years during the Operating Measurement Period	Person-months
RSA Based Employees who are Black Women during the Operating Measurement Period	Person-months
RSA Based Employees who are People with Disabilities during the Operating Measurement Period	Person-months
Local Content *(all values must be discounted to the base date by CPI indexation prescribed in clause 2.7 of Volume 4, Part 2)*	
Value of Local Content Spend during the Construction Measurement Period	
Total Project Value during the Construction Measurement Period	Rand
Spend on Imported Content during the Construction Measurement Period	Rand
Local Content Spend during the Construction Measurement Period	Rand
Value of Local Content Spend during the Operating Measurement Period	
Total Project Value during the Operating Measurement Period	Rand
Spend on Imported Content during the Operating Measurement Period	Rand
Local Content Spend during the Operating Measurement Period	Rand
Ownership	

DESCRIPTION	UNIT
Shareholding (%) by Citizens in the Seller	%
Shareholding (%) by Black People in the Seller	%
Shareholding (%) by Local Communities in the Seller	%
Shareholding (%) by Black People in the Construction Contractor	%
Shareholding (%) by Black People in the Operations Contractor	%
Shareholding (%) by Black Women in the Seller	%
Shareholding (%) by Black Women in the Construction Contractor	%
Shareholding (%) by Black Women in the Operations Contractor	%
Management Control	
Top Management during the Construction Measurement Period	
Total Board of Directors during the Construction Measurement Period	Person-months
Black People who are Men in Board Directorship during the Construction Measurement Period	Person-months
Black People who are Women in Board Directorship during the Construction Measurement Period	Person-months
Total Executive Managers during the Construction Measurement Period	Person-months
Black People who are Men in Executive Management during the Construction Measurement Period	Person-months
Black People who are Women in Executive Management during the Construction Measurement Period	Person-months
Total Senior Managers during the Construction Measurement Period	Person-months
Black People who are Men in Senior Management during the Construction Measurement Period	Person-months
Black People who are Women in Senior Management during the Construction Measurement Period	Person-months
Top Management during the Operating Measurement Period	
Total Board of Directors during the Operating Measurement Period	Person-months
Black People who are Men in Board Directorship during the Operating Measurement Period	Person-months

DESCRIPTION	UNIT
Black People who are Women in Board Directorship during the Operating Measurement Period	Person-months
Total Executive Managers during the Operating Measurement Period	Person-months
Black People who are Men in Executive Management during the Operating Measurement Period	Person-months
Black People who are Women in Executive Management during the Operating Measurement Period	Person-months
Total Senior Managers during the Operating Measurement Period	Person-months
Black People who are Men in Senior Management during the Operating Measurement Period	Person-months
Black People who are Women in Senior Management during the Construction Measurement Period	Person-months
Skills Development	
Value of Total Revenues received during the Operating Measurement Period	Rand
Each of the three Skills Development Contribution line items below are mutually exclusive	
Skills Development Contributions Spend to Citizens on learning programmes specified in the Learning Programme Matrix during the Operating Measurement Period	Rand
Skills Development Contributions Spend on Bursaries for Black Students at Higher Education Institutions during the Operating Measurement Period	Rand
Skills Development Contributions Spend to Black Disabled Employees on learning programmes specified in the Learning Programme Matrix during the Operating Measurement Period	Rand
Enterprise and Supplier Development	
Preferential Procurement	
Preferential Procurement during the Construction Measurement Period	

DESCRIPTION	UNIT
Value of Total Amount of Measured Procurement Spend during the Construction Measurement Period	Rand
Value of B-BBEE Procurement Spend during the Construction Measurement Period	Rand
Value of Procurement Spend on Black Enterprises during the Construction Measurement Period	Rand
Value of B-BBEE Procurement Spend on QSEs and EMEs during the Construction Measurement Period	Rand
Value of B-BBEE Procurement Spend on Black Women-Owned Vendors during the Construction Measurement Period	Rand
Preferential Procurement during the Operating Measurement Period	
Value of Total Amount of Measured Procurement Spend during the Operating Measurement Period	Rand
Value of B-BBEE Procurement Spend during the Operating Measurement Period	Rand
Value of Procurement Spend on Black Enterprises during the Operating Measurement Period	Rand
Value of B-BBEE Procurement Spend on QSEs and EMEs during the Operating Measurement Period	Rand
Value of B-BBEE Procurement Spend on Women-Owned Vendors during the Operating Measurement Period	Rand
Supplier Development	
Supplier Development during the Construction Measurement Period	
Supplier Development Contributions during the Construction Measurement Period	Rand
Supplier Development during the Operating Measurement Period	
Supplier Development Contributions during the Operating Measurement Period	Rand
Enterprise Development	
Each of the three Enterprise Development Contribution line items below are mutually exclusive	
Enterprise Development Contributions Spend during the Operating Measurement Period in Local Communities	Rand

DESCRIPTION	UNIT
Enterprise Development Contributions Spend during the Operating Measurement Period in Province(s) where Project is located	Rand
Enterprise Development Contributions Spend during the Operating Measurement Period in rest of RSA	Rand
Socio-Economic Development	
Each of the three Socio-Economic Development Contribution line items below are mutually exclusive	
Socio-Economic Development Contributions Spend during the Operating Measurement Period in Local Communities	Rand
Socio-Economic Development Contributions Spend during the Operating Measurement Period in Province(s) where Project is located	Rand
Socio-Economic Development Contributions Spend during the Operating Measurement Period in rest of RSA	Rand

Annex 3: Consistency Matrix

Proposition	Research Question
Proposition 1: When the contract between the principal and agent is outcome-based, the agent is more likely to behave in the interests of the principal.	**Research Question 2:** What is it about the contractual structure of REIPPPP that might lead to agent-principal alignment?
Proposition 2: When the principal has information to verify agents' behaviour, the agent is more likely to behave in the interests of the principal.	**Research Question 2:** What is it about the information systems in REIPPPP that might lead to agent-principal alignment?