The effects of regulation on competition in an emerging economy from an energy sector perspective.

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ABSTRACT

The debate of regulation and government involvement in markets has been alive for decades. With the recent economic crisis, the debate has been elevated and most developed economies have had to rely on government involvement for their survival. The most contentious point for many was whether regulation positively or negatively impacts the markets. The purpose of this study is to explore the impact of regulation on the energy sector in South Africa and whether regulation attracts new entries into the energy sector, thus creating an environment for competition.

The research methodology used was based on exploratory research which comprised of face-to-face in-depth interviews with key informers from each of the stakeholder groups. In-depth interviews provided useful and detailed information from each key informer.

The results from thirteen in-depth, face-to-face interviews with the key informers were analysed and presented. It was found that the majority of the key informers believed that regulation impacts competition and profits. Having the entire sector regulated has more of a negative impact. There is a lack of new entries into the energy sector with minimum competition created. There is an urgent need for a constructive pricing structure in the energy sector.

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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.

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1 Introduction

South Africa (SA), as the economic powerhouse of Africa, leads the continent in industrial output and mineral production and in the generation of a large proportion of Africa's electricity (South Africa info 2008). In 2004 the African National Congress adopted the policy objective to halve poverty and unemployment within a decade. Furthermore, the ruling party indicated that the growth rate needed, for the country to achieve these policy targets, was around five per cent on average between 2004 and 2014 (ANC election manifesto 2004).

The economic growth strategy devised to achieve these targets, ASGI-SA, made it clear that since government alone cannot achieve the poverty and unemployment targets, the public and private sectors needed to work in unison to ensure that government accomplishes these targets. Government needs to facilitate this compact of social partners by ensuring a growth friendly regulatory dispensation for the private sector. A preponderance of regulations, an increasing compliance burden, and inappropriate regulation would constrain the economic growth commitments and strategy of government.

It is appropriate therefore to interrogate immanent regulation to determine its likely impact on established and emerging business. Of very critical importance to the growth and competitiveness of South African business is the following:

- the environment that government created for business to operate in;
- the laws introduced to guide businesses;
- how these laws were effectively enforced.

On 16 May, 2008, the National Economic Development and Labour Council (NEDLAC), South Africa's negotiation forum on economic and labour market policy, convened a summit to discuss the electricity crisis. The major focus areas were working together to ensure that the Accelerated and Shared Growth Initiative for South Africa (AsgiSA) targets for growth, employment and poverty reduction were met, despite the electricity shortfall, so that poorer people would still have access to affordable electricity; and the development of new generation, led by the public sector but supplemented, where possible, by co-generation (NEDLAC May 2008). Co-generation is government and private sector, working in partnership to achieve common solutions.

For the African National Congress (ANC) and the South African government to successfully achieve its AsgiSA targets, the restoration of business confidence and attraction of Foreign Direct Investment (FDI) were needed. By attracting FDI:

- the government could expand the country's resource pool of both human and monetary capital;
- the South African currency would be strengthened;
- government's investments would be more focused;
- expansion and competition would be achieved.

For industry usage, the South African economy required a more stable electricity supply and energy alternatives that are comparable, both in costs and energy production, to electricity. Further, the South African government needed to create a healthy, competitive environment to attract investors into the energy sector.

1.1 PURPOSE OF THE RESEARCH

The aim of the research was to explore the implications to economic growth in the energy sector of immanent regulation to be applied to the petroleum gas and pipeline industry. In particular this study explores the impact of regulation on the energy sector in South Africa and whether regulation attracts new entries into the energy sector, thus creating an environment for competition and innovation.

This research only focused on the energy sector in South Africa: the sector overseen by the National Energy Regulator of South Africa (NERSA), and considered the following aspects:

1. As an emerging country in the global arena, do we required more or less regulation for government to achieve its objectives? To ensure that these objectives are met:
    - the market needs to support government and contribute towards its developmental objectives;
    - regulation needs to aid the market, to enable it to support government objectives.
2. Considering the history of South Africa and the change in government, what role would regulation play in assisting government achieve its objectives? South Africa had a medium size economy with deep racial cleavages, in which an ethnic majority controlled the polity, but economic power lay with an ethnic minority. Would more or less regulation ensure that the poor benefit from the markets and that jobs were created, so as to uplift the standard of living?

1.2 MOTIVATION FOR RESEARCH

The electricity sector had been regulated for the past thirteen years. The barriers to entry were extremely high and virtually impossible to overcome. Thus a monopoly had been formed in the electricity sector. The SA government decided in 2002 to also regulate the piped gas and petroleum pipeline industries. Companies would incur huge costs and their growth strategy may have needed to be amended, due to the new regulation. The energy sector was a crucial player in achieving the economic growth targets.

The various Acts that would have an influence in the sector were: the Gas Act of 2001, the Petroleum Pipelines Act of 2003 and Electricity Regulation Act of 2006. Industry had a grace period to ensure alignment, prior to the Acts being effective. The Gas and Petroleum Acts will be fully effective from 2013.

In 2006, Deputy President Phumzile Mlambo Ngcuka issued the first report on the progress and success of AsgiSA. The Deputy President mentioned that South Africa's ability to reach six per cent average annual growth relied upon the removal of bottlenecks to growth (AsgiSA Annual Report 2006).

One of the major bottlenecks hindering growth, that South Africa experienced, was the electricity crisis in 2008. A detailed list was reported by the Centre for Development and Enterprise (CDE) of the impacts the electricity crisis had on large and small firms. Some of the impacts were:

- a decline in productivity;
- increases in costs;
- damaged or destroyed stock;
- loss of business confidence;
- loss of jobs (Centre for Development and Enterprise July 2008).

With only the electricity sector previously being regulated, SA experienced an energy crisis. Now that the piped gas and petroleum pipeline sectors will also be regulated, will we have recurrences?

1.3 THE RESEARCH PROBLEM

The energy sector is a crucial player that would assist government to achieve its economic growth targets. If the energy sector failed to contribute optimally to the support of economic growth targets:

- would regulation enable or constrain efficacy?

- would having a regulated market create an environment for business to expand and create more jobs?
- would it encourage innovation?
- would it attract new entries into the market?
- would it lead to competitive pricing that benefits the end user?

2 Literature Review

2.1 INTRODUCTION

This chapter explores the concept and theory of regulation. It reviews the origins of regulation and when it is used; enquires how regulation encourages competition and new entries into the market and what impact regulation has on the economic environment.

2.2 WHAT IS REGULATION?

It could be argued that there are already accepted understandings of what regulation is. There are three main definitions of regulation.

1. Regulation is the promulgation of rules by government, accompanied by mechanisms for monitoring and enforcement, usually assumed to be performed through a specialist public agency.

2. It is any form of direct state intervention in the economy, whatever form that intervention might take.
3. Regulation consists of all mechanisms of social control or influence, affecting all aspects of behaviour from whatever source, whether they are intentional or not (Baldwin and Cave, 1998).

Many people understand regulation to be some form of command and control by the state or government, by means of legal rules often backed by criminal sanctions. Criminal sanctions could mean fines related to percentage of turnover, even restriction to trade or to operate. The state introduces regulation to encourage or direct behaviour, which the state assumes would not occur without the intervention of regulation. The state believed that without regulation the markets would not be competitive (Black, 2002).

In the table, Black tries to illustrate the ever-expanding understanding of regulation. Black (2002) has artificially grouped the different set of meanings and applications into five:

a. what is assumed regulation is;
b. who or what is performing it;
c. what institutional or organisational form the regulation is assumed to take;
d. with respect to what actors or areas of social life it is occurring;

e. how regulation is conducted, through what mechanisms, instruments and techniques.

Table 1: Regulation – an ever-expanding concept

(A) What is regulation?	(B) Who or what does it?	(C) What form does it take? 2.2.1	(D) With respect to what actors or area of life?	(E) How is it done, via what instruments/ techniques?
A *type of legal instrument* *2.2.2* A *Process* of: 2.2.3 ♦ 'controlling, governing or directing' (OED) ♦ 'altering or controlling with reference to some standard purpose' (OED) ♦ Enabling/ facilitating ♦ Co-ordinating ♦ Influencing ♦ Conferring a pattern on something, ordering ♦ Rendering constant 2.2.4 And the *process* is: 2.2.5 ♦ International ♦ Goal directed, problem solving 2.2.6 An *outcome* – the result of the interaction of actors/networks/'forces' 2.2.7 A *property* of self	State Institutions (regional, national, 'extra' national)	• Ministries, departments agencies • Supra-national bodies (EU) • International bodies (e.g. WTO) • courts	• economic (firms, markets) • any other (family, education, health, government etc.)	• rules (legal, quasi-legal, non-legal, universal, sectoral, bilateral) • other instruments (financial, market based, information) • monitoring • sanctioning
	Non-State institutions/actors	E.g. • associations • committees • firms • epistemic communities • networks	• economic • any other	• rules (legal, quasi-legal, non-legal; multi-lateral, bilateral, unilateral) • other instruments (financial, market based, information) • monitoring • sanctioning • trust
	Economic Forces 2.2.9	• market	• economic • any other	• interaction of rational factors
	Social Forces	e.g. • norms • institutions • language • cognitive frames • culture • systems • networks	• economic • any other	e.g. • structuring • framing • enabling • co-ordinating • ordering • translating • self-referential reproduction
	Technologies	Understandings of and inability to manipulate physical	• any	• products of those understandings, e.g. statistics, probabilities,

correction. 2.2.8 A *property* whereby the nature and growth of parts of an organism are interrelated so as to produce an integrated whole, enabling adaptation (biology)		and human environment		engineering, IT

(Black, 2002)

2.3 THE PURPOSE OF REGULATION

The task of the regulator was to respond to distributive and poverty-reduction goals, in a way that did not significantly undermine the economic efficiency objective of economic regulation. With the state trying to meet social objectives and the regulatory body trying to enforce regulation onto the markets, getting balance between efficiency and effectiveness goals of the regulatory body was very challenging in a developing country.

The regulator's task was often made more difficult by existing limitations in regulatory capacity. Many developing countries lack strong regulatory capability in terms of trained personnel, sound laws and law enforcement to sustain regulatory commitment and credibility (The Singapore Economic Review, 2005).

The most direct link with regulation is that of natural monopoly, like natural gas pipelines, power generation plants and petroleum pipelines. It was argued that in some industries with significant sunk costs, the lowest costs of production will be achieved by a single firm producing for the entire market, but that this would result in all those vices associated with non-competitive markets, due to allocative inefficiency, productive inefficiency and lack of competitive pressures. It was deemed necessary that the government regulate the behaviour of monopoly firms (Chang, 1997). The conventional definition of regulation is government activity that is intended to affect directly the behaviours of private sector agents, in order to align them with the 'public interest'. This excludes from the realm of regulation the provision of public goods through budget disbursement or the operation of public enterprise, as well as tax and subsidy measures.

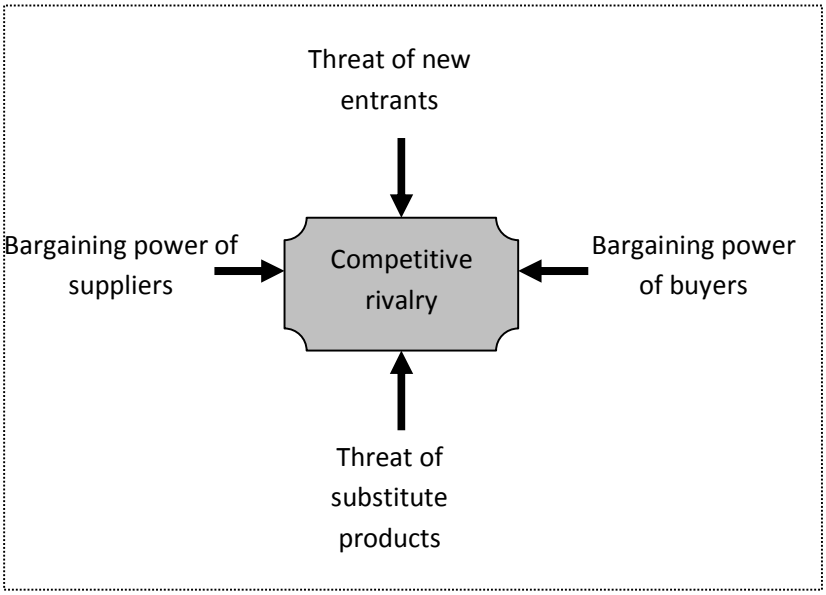
The theory of regulatory capture predicts that regulatory agencies will end up promoting producer group's interests, rather than the public's interest, by implementing regulations which effectively set up entry barriers that deter new entrants, with little positive effect on social welfare (Chang, 1997).

2.4 REGULATION AND COMPETITION

Regulatory policy has attempted to encourage competition and, where competition has been slow to emerge, or is believed to be inappropriate, in naturally monopolistic parts of utility industries, direct regulation was introduced in South Africa (Acutt *et al.* 2001). For example, the majority of the gas traded in the world is transported by pipeline. But due to its high fixed cost, long lead time and the waste implicit in its duplication, the pipeline was considered a natural monopoly. Therefore, it created the need for an effective, credible and efficient regulatory framework to promote competition and prevent anti-competitive practices (Saidu, 2008).

For organisations to obtain a sustainable edge over their competitors, they were required to position themselves. Competitive positioning leads to an organisation's strategy. Competition is more than just among rivals. Competition extends to buyers, sellers, substitute products and new entrants. Industry structure is an outcome of these five competitive forces (Porter, 1998).

FIGURE 1: PORTERS FIVE COMPETITIVE FORCES



(Porter, 1998)

Competition would require new entrants, the threat of entry in industry depends on the height on barriers to enter. If entry barriers are low, new comers can expect little retaliation from the entrenched competitors. There are seven major advantages that incumbents have as compared to new entrants. The seven are, supply side economies of scale, demand side benefits of scale, customer switching costs, capital requirements, incumbency advantages independent of size, unequal access to distribution channels and restrictive government policy (Porter, 2008).

Competitive positioning also requires companies to change. Changes could be as a result of government policy, depending on your point of view, regulation can be friend or foe. But anyone who ignores the issues of regulation and deregulation does so at his

peril. Responding to change, then, is essential if a company is to gain a competitive advantage (Stollery, 1989).

Change succeeds when an entire organization participates in the effort of change. Moving from a non regulatory environment to a regulatory environment requires companies to change and adapt. Kotter (1996) describes the steps an organization needs to follow when faced with change. The eight steps (as referred to in Appendix 1) in the transformation process can be segmented into three stages, the first of which are the first four steps in the transformation process.

The objective is to help defrost a hardened status quo, the next stage are steps five to seven where the organisation introduces new practices. The last stage anchors the corporate culture and ensures that it is embedded throughout the organisation at all levels.

2.5 THE IMPACT OF REGULATION ON PRIVATE ENTERPRISE

Regulation of private enterprise in poor countries tended to impact on business the most and 'heavier regulation typically brings bad outcomes'. The report findings were that 'cumbersome regulation', is associated with greater inefficiency in public

institutions, longer delays and higher costs and often results in higher unemployment, increased corruption and less productivity and investment (Republic of South Africa, 2003).

A study of nearly 2000 businesses carried out by the Small Business Project, a research and advocacy organisation, (Strategic partnership for business growth in Africa, 2005), found that South Africa's regulatory environment was directly responsible for stifling the growth of firms. Government regulation was just one of the many institutional and structural features which affected the performance of markets.

Yet, regulation could be an important feature, positive when it enhances market dynamism, negative when it was rigid and disruptive. When circumstances changed or political pressure built up, regulation that was originally intended to protect workers, consumers and the environment or to contribute to an efficient market process, may overshoot its aims and stifle growth and innovation (Koedijk and Kremers, 1996).

2.6 REGULATION AND MACRO ECONOMIC PERFORMANCE

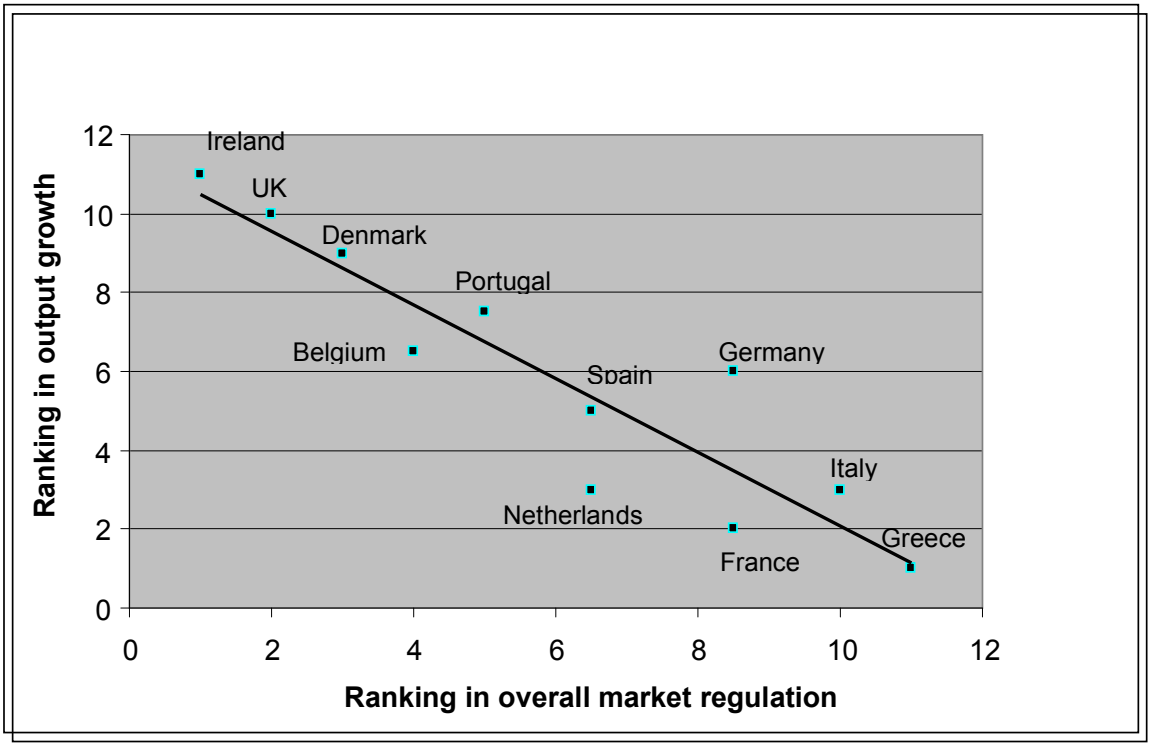
Several countries could benefit from less regulation and more market dynamism. European countries were characterised by the degree of regulation of their product and

labour markets in 1996. A significant negative link existed between the degree of regulation and economic performance. Kees Koedijk and Jeroen Kremers sampled eleven European Union member states and found that those with less regulation turned out to have a better track record of economic growth.

If state regulation was to have the best chance of promoting economic and social welfare, it needed to be both effective and efficient: effective in the sense of achieving its planned goals and efficient in the sense of achieving these goals at least cost. The costs included administration expenses and the costs imposed on the economy in terms of complying with regulations (The Singapore Economic Review, 2005).

Kees Koedijk and Jeroen Kremers confirm the existence of a link between regulation and economic growth. One channel through which competition could enhance economic growth was by improving productivity. The economic growth and overall market regulation figure below illustrates the cluster with the lightest overall regulation and its growth with the overall highest regulation.

FIGURE 2: ECONOMIC GROWTH AND OVERALL MARKET REGULATION



(Koedijk and Kremers, 1996)

Ireland (UK) had the least regulated markets and the best economic growth rate, compared to Greece or Italy, which had the most regulated markets. Just like a labour market geared towards participation and a macroeconomic framework geared towards stability, dynamic markets were an important ingredient of a well functioning economy.

Without flexibility in adapting to new circumstances, agility in exploiting new opportunities and resistance to vested interests, rents could be accrued, prices could be high and/or inflexible, growth could be low, outsiders could be kept out and opportunities for new activities and new jobs could be missed. Government regulation

was just one of the many institutional and structural features which affect the performance of the markets (Koedijk and Kremers, 1996).

2.7 ENERGY AND ECONOMIC PERFORMANCE

The manufacturing sector contributed greatly to the South African economy. The health of this sector was vital to both growth and employment creation in South Africa (Rodrik, 2008). The two major input costs, confronting the manufacturing sector, were labour and power usage (electricity). With the recent shortage of electricity and Eskom's inability to provide the country with a reliable power supply, all South Africans were encouraged to reduce their electricity consumption and, in addition, to use alternative power sources. In January 2008 more than 20 per cent of South Africa's electricity was out of commission. In order to prevent the entire national electricity grid from crashing, mines were forced to stop all production for five days.

On 25 January 2008, a date known as Black Friday in the mining industry (Centre for Development and Enterprise July 2008), the mines stopped production. This had a huge impact on the country. The mining sector experienced a 22.1 per cent contraction in output and 5 000 workers lost their jobs. Gross Domestic Product (GDP) growth fell to its lowest rate in more than six years and business confidence reached a 24-year low. In June 2008, NERSA and the Department of Minerals and Energy hosted a summit

focusing on electricity distribution and maintenance. The main points from this summit were that there had been far too little investment in South Africa's electricity distribution system over the past decade and the distribution network required around R26-billion to avoid major failures (Centre for Development and Enterprise July 2008).

It is important to maintain sustainable levels of, the sources of potential economic growth in Africa (electricity and transport) because it is widely recognized that sustaining high income growth is a necessary condition for a significant reduction in poverty, although it is not a sufficient condition in countries with high inequality. It is estimated that reaching the Millennium Development Goals would require real GDP of African countries to grow by at least 6 percent per year, or slightly less if inequality improves. Only four countries—Botswana, Mauritius, Mozambique and Uganda—sustained growth rates close to this target in the past decade, thanks to strong industry and services (Kessides, 2005).

South Africa's infrastructure, although good by regional standards, requires upgrading. This was stated in the Global Competitiveness Report published for 2008/09. The infrastructure was ranked 48th with particular concerns about the quality of the electricity supply that has been getting worse in recent years, is now ranked at 101, down from 83rd last year (World Economic Forum 2008).

2.8 ENERGY SECTOR REGULATION IN SA

The energy sector of South Africa was regulated by the National Energy Regulator of South Africa (NERSA). The questions raised by the Centre for Development and Enterprise, during the electricity crisis, to NERSA were:

- where was NERSA in all of this?
- why didn't they alert us to the looming disaster?
- why couldn't they insist that Eskom start building new power stations?

Response from NERSA was:

- The model of regulation adopted by South Africa was designed to regulate industries in which private owners were operating with assets that were correctly valued. Neither of those conditions was satisfied in this country.
- The regulator had no authority to make Eskom invest. There were lots of behind-the-scenes communications with government, both from Eskom and from the regulator.
- The fact that Eskom didn't build for so long and reduced its net debt to almost zero, meant that if the regulator had increased prices without Eskom investing in new capacity, it would have resulted in hugely increased profits. It showed that the government arrangements for this industry were not well designed (Centre for Development and Enterprise July 2008).

While the electricity industry had been regulated for the previous thirteen years, the piped-gas and petroleum pipeline industries in South Africa were to be regulated for the first time. In 2002, the Cabinet decided that the NER would be used as the basis to create the National Energy Regulator. In anticipation of the future development of these industries the Gas Act of 2001 and the Petroleum Pipelines Act of 2003 were passed, to promote the orderly development of the piped-gas and petroleum pipeline industries. Both Acts mandated the establishment of a regulator, NERSA. The Electricity Regulation has four focused sections, Licensing and Compliance Department, Pricing and Tariffs, Electricity Infrastructure Planning, Regulatory Reform.

The aim of the Electricity Regulation was to establish a national regulatory framework, to make the National Energy Regulator the custodian and enforcer of the national electricity regulatory framework, to provide for licences and registration as the means by which generation, transmission, distribution, trading, the import and export of electricity were regulated, Electricity Regulation Act (2006).

Petroleum pipelines were regulated by the Petroleum Pipelines Act (2003) and the Petroleum Pipelines Levies Act (2004). Piped gas was regulated by the Gas Act (2001). These Acts gave guidance to the conditions of licence, tariff adjustments including loading and storage, pricing strategy, operations and levies.

2.9 PRIVATISATION

The positives for privatisation lay in the belief that state-owned enterprises, which have traditionally been the dominant suppliers of infrastructure services, were a major cause of service failures, due to their inefficiency and disregard for consumers. Privatisation, at the other extreme, was expected to promote more efficient operation, increase investment and service coverage and reduce the financial burden on government budgets (World Bank, 1995).

Private infrastructure projects have taken a number of forms.

- Management and lease contracts. A private entity takes over the management of the state-owned enterprise for a given period. The facility is owned by the public sector and investment decisions and financial responsibilities usually remain with the government
- Concessions. A private entity takes over the management of a state-owned enterprise for a given period, during which it also assumes significant investment risk. Typically, the ownership of the facility reverts back to the public sector at the end of the concession period.
- Greenfield projects. A private entity or a public-private joint venture builds and operates a new facility for the period specified in the project contract. The facility

may return to the public sector at the end of the contract period or may remain in private ownership.

- Divestures. A private entity buys an equity stake in a state-owned enterprise during an asset sale or public offering.

(World Bank, 1995).

The California energy crisis provided a good learning opportunity for governments to understand restructuring and reforming the electricity sector, from a regulated system to a de-regulated system. There were ten important lessons learnt from the crisis.

1. A careful comparison of the costs and benefits of the old regulated system and the new deregulated system was essential before dismantling the old and ushering in the new.
2. The extent of competition must be monitored and it must be shown that there is indeed effective competition.
3. The case for unbundling the power sector must not be made merely on economic grounds. The restructuring must also be justified on convincing technical grounds.
4. The policy for technical and institutional measures to ensure safe reserve margins was extremely important.

5. The reliability price forecasting needed to be tested. Having the consumer price frozen or not, if the retail price rises above the consumer price, that is not financially sustainable.
6. It was important to have mechanisms in place to ensure adequate reserve margins to cope with sudden peaks of demand and shortfalls of supply. The market alone could not take care or provide adequate reserves.
7. Deregulation under conditions of shortage was not the proven success being touted; it was very much an unproven experiment.
8. Instead of trying to build new power plants and also handling the 'Not in my backyard' (NIMBY) attitude, energy conservation measures provided the quickest way out of the crisis.
9. It was unwise to go ahead with restructuring or reform without specifying the criteria by which the success or failure of the restructuring and reform process would be judged.
10. Dependence on external power must be a strategy of last resort. No deregulation of electricity sector unless government has no other option.

Reddy (2001)

A significant danger is that privatization may simply lead to a substitution of public sector monopolies by private monopolies, which would arguably reduce social welfare, as unlike in the case of the public sector, the private sector is usually under no formal injunction to advance people's well being. In addition, the experience of privatization in the United Kingdom and many other countries suggests that it is not ownership itself

which affects performance, but rather the external environment, particularly as regards to competition which is the more important factor (Singh, 2002).

Davidson (2005) points out that South Africa's economy had little experience with free markets, due to its history of apartheid. The lack of experience translated into the inability to harness the potential benefits of competition. He went on to argue that the absence of experience with a free market generally means that non-market actors made decisions about price, market entry, property rights, contract enforceability and intellectual property rights. In some economies, the decisions were made by government decree, which might have set prices or output quotas. In other economies, private individuals, with or without government authority, might have monopolised the sale or purchase of particular goods. Sometimes these monopoly arrangements were based on local traditions, while others were enforced through government regulation or private violence (Davidson, 2005).

2.10 HOW DOES PRIVATE ENTERPRISE RESPOND

FIGURE 3: ENGAGING THE REGULATOR

	Arm's length	Constructive engagement	Collaborative partnership
The regulator . . .	. . . protects consumers and promotes competition—but at the expense of industry efficiency and long-term sustainability.	. . . makes the industry function effectively and efficiently, balances multiple stakeholder interests, has a clear vision for the future of the industry.	. . . is a key partner in ensuring optimum industry outcomes.
Company lets the regulator see . . .	. . . the legal minimum.	. . . as much as it can, while maintaining a small "walled garden" to allow private internal company discussions.	. . . anything it wants to know. The company is open about problems with data.
The company communicates with the regulator . . .	. . . only through the regulatory department, in a limited and very controlled way.	. . . directly at senior levels across the organization—eg, quarterly board-to-board interactions.	. . . openly and informally at many levels of the organization, relying on the regulatory department as a source of expertise.
Conflict with the regulator . . .	. . . is frequent, public, and normal—including going to court.	. . . is something the company has processes in place to avoid if at all possible—especially going to court.	. . . is something the company goes out of its way to avoid—even to the extent of admitting fault preemptively.
Transparency with the regulator . . .	. . . is limited to responding to formal requests for information.	. . . involves proactively sharing models with it to establish common fact base.	. . . means the full, open-book approach.

(Beardsley, Enriquez & Nuttall, 2008)

The above diagram illustrates the different approaches companies can take when they engage with the regulator. Constructive engagement is the most appropriate guide to follow, as a company or as a regulator. Both parties find common understanding and have mutual sharing with each other. There is no issue of trust and openness between

parties. Transparency with the regulator and constructive engagement will be the most advisable response for both parties.

2.11 SIMILAR RESEARCH

Mula, (2002) has done research in the power sector reforms and regulation. He focussed on Southern African countries and how the utilities performed in each country. He also looked into the reforms that were suggested, with regard to legislation that governed the sector. He found that very little success was achieved by private investors in generation where competition was considered possible.

3 RESEARCH QUESTIONS

3.1 INTRODUCTION

This study explored the impact that regulation has on the energy sector in South Africa and whether regulation creates an environment for competition from new entries into the energy sector. The findings discovered through exploratory research, lead to a definitive formulation for a course of action. It may lead to new ideas and may guide in policy generation. Exploratory research generates insights and clarifies if there is a business problem.

3.2 RESEARCH QUESTION 1

Does regulation encourage growth?

3.3 RESEARCH QUESTION 2

Has regulation encouraged innovation in your business?

3.4 RESEARCH QUESTION 3

Has regulation increased competition in the industry?

3.5 RESEARCH QUESTION 4

Has compliance to regulation affected your financial positioning?

4 Research Methodology

The research process, in general, can be described as follows:

- Design problem: the research and the justification for doing research on the problem were set out in Chapter 1.

- Unit of analysis: Zikmund (2003), states that the researcher must specify whether the level of investigation will focus on the collection of data about the entire organisation, departments, work groups, individuals or objects.

- Population: who or what is the source of the data.

- Sampling Method: to complement the desired outcome.

- Data Gathering Process: who will gather the data and how long the data gathering will take.

- Analysis Approach: to make the data usable, this information must be organised and summarised.

- Research Limitations: the boundaries of the research

- Interpretation of findings: understanding the data and translating the data into useful information.

- Writing of report.

Qualitative data are in the form of text, written words, phrases, or symbols describing or representing people, actions and events in social life. There are four aspects that differentiate qualitative from quantitative research. Quantitative researchers choose from a specialised, standardised set of data analysis techniques. Quantitative researchers do not begin data analysis until they have collected all of the data and condensed them into numbers. Qualitative researchers begin data analysis early in the research, while still collecting data (Neuman, 2003).

Quantitative researchers manipulate numbers that represent empirical facts, in order to test an abstract hypothesis with variable constructs, whereas qualitative researchers create new concepts and theories by blending together empirical evidence and abstract concepts. The last difference is the degree of abstraction or distance from the details of social life (Neuman, 2003).

4.1 DESIGN

Exploratory research is not on numbers but on words and observations, stories, visual portrayals, meaningful characterisations, interpretations and other expressive descriptions (Zikmund, 2003). The research methodology used was based on exploratory research comprised of face-to-face in-depth interviews with key informers from each of the stakeholder groups. In-depth interviews were useful when detailed information was required about a person's thoughts and behaviours or exploration needed of new issues in depth. Experience surveys consisted of interviews with some formal questions. The purpose of surveying key informers was to help formulate problems and clarify concepts (Zikmund, 2003).

The interviews were recorded with permission from each key informer and key words and statements identified during the interview. The recordings were backed up and will be stored for a period of ten years. The primary advantage of in-depth interviews was that they provided much more detailed information than was available through other data collection methods, such as surveys. They also may have provided a more relaxed atmosphere in which to collect information; people may have felt more comfortable having a conversation about their program as opposed to filling out a survey.

4.2 UNIT OF ANALYSIS

The units of analysis were key informers in the energy sector. People interviewed were individuals who advise and or influence the key informers on regulation, within their area of responsibility.

4.3 POPULATION

The stakeholders were defined as key informers in the energy sector. These key informers were from NERSA, Transnet pipelines, Eskom, Sasol Gas, Sasol Synfuels, Sustainable Energy Group, sector economists and government.

4.4 SAMPLING METHOD

It was purposive sampling due to only the key informers being interviewed. The cluster sampled was the energy sector, comprised of electricity, pipeline gas and petroleum pipelines (Zikmund, 2003).

4.5 DATA GATHERING PROCESS

In-depth interviewing is a qualitative research technique that involves conducting intensive individual interviews with a small number of respondents, to explore their perspectives on a particular idea, program, or situation. Respondents were identified and briefed with regard to the study and its purpose. Face-to-face in-depth interviews were conducted. Eight questions were posed to each key informer and their responses captured. The interview was recorded, provided that permission was granted by the key informers.

4.6 ANALYSIS APPROACH

The data were analysed through a combination of content and frequency distribution analysis.

4.7 RESEARCH LIMITATIONS

The research focused specifically on the energy sector in South Africa and not the other sectors. The results depended on the availability and information shared from the key informers. Only the major organisations in the energy sector, electricity, pipeline gas

and petroleum pipelines, were interviewed. Because the research is exploratory in nature nothing conclusive can be posited in response to the research questions. However the conclusions are informed and indicative of the indicative of the sector response to and consequences of the immanent regulatory regime. The research results are therefore useful to inform policy formulation and strategic planning processes.

5 Results

This chapter displays the sample of the results obtained from exploratory research. There were various themes identified during the qualitative research and the data has been clustered into a few themes. The results varied among the key informers and examples will be used to illustrate the variance.

NERSA faced a number of challenges according to respondents, the most prominent of which included:

1. addressing the severe environmental risks posed by the sector;
2. stabilising its role as regulator within the existing legal framework;
3. promoting the developmental goals of government within a market-oriented sector;
4. striking the correct balance between regulatory intervention and promoting market mechanisms to correct market failures.

5.1 REGULATION HURDLES

Industry players strongly felt that NERSA did not do enough to promote alternative energy generation and to attract independent power producers in South Africa. The delays in publishing the new feeder tariffs, which were still not substantial, contributed to this notion. "It is still filled with constitutional barriers, so there is still a lot of work to be done in these areas before we can see emerging sustainable energy in this country."

Independent power producers (IPPs) were very active in most other countries, but in South Africa IPPs found it very challenging to operate or gain market entry. The monopoly in the energy sector made it challenging for IPPs to enter and play a vital role. Industry was very hesitant to invest or commit, due to the uncertainty of the tariffs and the way the buy-back proposal was to be conducted. Chang (1997) stated that by implementing regulation, one would effectively set up barriers that deter new entrants.

Looking at the current situation and the economic downturn, NERSA had its work cut out to change industry's views and to attract investments. "Well, at the moment you don't have a market so you don't actually compete. If we had a market model, a

prerequisite for competition would be that the playing field was level and that's one of the reasons why the IPPs didn't come."

There needed to be clear guidelines on how the IPPs would gain access into the energy grid. There must be agreements between NERSA, Eskom and the IPPs committing to the energy buy-back. "There is no reason why it could not have worked in South Africa. If the playing fields were level, in terms of getting the prices to a level before the markets kick in, because if the IPPs or the prospective IPP could see that the prices were going to be at the right level, by the time they were ready to start selling from the power stations, they would be willing to build, because they would see, at that stage, they would compete against Eskom stations. The final regulatory price is going to be very close to what the market would have wanted anyway."

5.2 PRICE OF COAL V CLEANER ENERGY

Coal was the cheapest fuel for energy production and it would be very difficult for any IPP to compete. Burning coal for power generation has a huge impact on the environment. NERSA and government have to decide whether we continue investing in coal- fired power stations and develop the technology to reduce carbon dioxide emissions, or consider power generation from an alternative source. Industry and public were concerned about carbon dioxide and other emissions and they would like to see a

strategic plan from government for the reduction of the carbon footprint. There was no incentive for people to choose cleaner energy.

"Now is the time, it's hugely important we know what is happening. The way people are talking of growth, the way that carbon dioxide is being released in this country. If you look at the graph it's actually quite frightening and you look at what's required by science and yet they're building more coal power stations".

All South Africans had to be educated and informed on the advantages of using renewable energy. The drive to use cleaner energy was a global initiative and we as South Africans must support this drive. South Africa must contribute to the reduction of carbon emissions. As consumers, if we demanded cleaner energy, a market would be developed for it, but as consumers, we must also be willing initially to pay a small premium for cleaner energy. As the market becomes more mature, the prices for cleaner energy will reduce and the demand increase. "Renewable can't compete with the price but you might, as a renewable IPP, find a market with people who are willing to pay the premiums for green power, for carbon credits".

NERSA had to get the pricing right, the importance of the right pricing could not be over- emphasised. If any investment were to happen, it would be encouraged by favourable pricing structures.

"The gap from that point to the price of electricity from renewables will have been significant but manageable. However from where we currently are, just to recover to a proper price of electricity from the coal based system that we currently have, is already a mind- boggling jump. Now to increase that gap by starting to introduce renewables faster might be a bridge too far."

If we could formalise a proper pricing plan, that would encourage IPPs to invest and also attract existing players to invest, the entire country would benefit. The pricing for alternative energy needed to ensure that the initial investments were covered, plus a small return. The tariffs must be financially beneficial for the investors.

"They have the cheapest source. Coal and other fossil fuels are cheap. We have an abundance of that in this country and therefore you find that most of the energy sector is dominated by coal. There is nothing you can do. If you bring in gas here and you try and get European gas prices, you won't get them in this country because of the

dominance of coal. But supposing we had no coal and we had to import coal, then maybe the picture would be different."

5.3 POTENTIAL IMPACT FOR MARKET DIVERSIFICATION

NERSA was trying to encourage the use of alternative energy sources, but their challenge was that coal was a very cheap commodity compared to others. There had to be a decision taken with regard to the pricing structure and the rate of return on investments.

"So now gradually we are seeing new stations that replace old stations, the prices going up. From that point of view we've had a Rand-based local resource, a natural resource with excess capacity, so it was coal based which is rand-based and it was excess capacity in terms of generation, so we have a very low price on the one hand. On the other hand, gas is dollar dominated, linked to oil and it was much more. Now what we are envisaging will happen, as electricity prices start to reflect the new costs of generation the current cost of generation, that difference will become smaller and piped gas will become the alternative, if they supply. The reason we would like to encourage that is because the efficiency of industrial processes using piped gas, rather than using

electricity, is much higher, so the country would benefit. It's also in line with the government's objectives of diversification."

The deciding factor would be the end price for the commodity. If the price for the commodity were not competitive, trying to encourage the use of an alternative energy source would be very difficult for NERSA. "That is not to say that then we are able to drive those prices down to a level where small businesses would be able to say, Yes we want gas, because the gas would have to be imported. It would be dollar-based and oil-linked and all those things".

Having a mixture of coal generation and the use of alternative energy sources was vital for South Africa going forward. Government and NERSA had to make crucial decisions on how to sustain the country's energy demands and also encourage investments. Everyone was aware that there was no crystal ball that could be used to determine what will happen in the future, but certain assumptions would have to be made and decisions need to be taken, based on these assumptions.

"That is a bit difficult, because you cannot easily predict what will happen twenty years from now, but if you sign in an IPP in an environment like ours, you need to enter into

a contract and that contract should, in a way, predict what will happen in twenty years time."

NERSA and the South African Government must ensure that the agreements signed between the IPPs and themselves, did not become an additional burden for the country. The country must not be held to ransom by the IPPs. These agreements must have some flexibility. There must be provisions made for any major economic down turn or major natural disaster that could prevent either party fulfilling its commitments.

"Seen in a number of countries, especially in African countries, the contracts for independent power producers were getting a bit heavier on the country and on the government. The governments had to renegotiate these contracts with the IPPs. Sometimes you'll find that IPPs are not really willing to renegotiate the contracts. During the period of the contract it could be inflation, it could be economic crises, that will require the contracts to be renegotiated. There are a number of things that could affect the contract and that could be costing the country a lot of money."

NERSA was trying different ways of ensuring it met the targets government set for energy diversity. It found it challenging but was confident that the system currently being used would enable it to achieve these targets.

"The bidding process is where everyone will submit how much it will cost to build a specific plant that would have been open for tender at that particular time. So their feeding processes are open only for renewable. This is a matter that we sort of adopted that's a country that we should use, given the fact that we want to have diversity in the manner which generates electricity. We know for a fact that you cannot compare renewables with your normal generators, like your coal generators, which will always be more expensive. Hence we had to create a separate process for it not to go towards the similar bidding process".

5.4 FREE MARKET V REGULATED MARKET

The debate of a free market compared to a regulated market has been exhaustive, both nationally and internationally, but still no conclusion could be reached of which principles to follow. Both these philosophies have their benefits and challenges and they work in specific environments. Government needed to have a strategic plan and use the economic philosophy that best fits this plan. "A good market model will outperform a bad regulation model, but similarly a good regulatory model may well outperform a bad market model." NERSA believed that the only reason why there would be regulations was because competition in the free market did not work well.

Industry did have mixed views of free markets and regulated markets. The most common view was that the best was a combination of both. Industry would prefer a certain aspect of the market to be regulated. Industry believed that not both inputs and outputs could be controlled, one has to be chosen. "If they have a poorly designed market you could outperform it with regulations." "I won't say: no regulation, total free-market in all respects. I don't think that they will be as easy as that. I think certain types of industry do need some form of a regulator".

Some South African industries favoured the free market principles and they strongly felt that having a regulated market would not benefit industry. "It is a necessity when you have market failure. It doesn't mean that you necessarily have to accept the market failure. You could turn a situation of a market failure around in my opinion. Instead of using regulation as a substitute for the competitive forces, correct the market failure. You could actually figure out what causes the market failure and get a market rather and then the market forces will be do it for you without a regulator."

The implementation and execution of the regulatory model in the energy sector was not supported by industry. Industry regarded the Electricity Pricing Policy as one of the mechanisms that NERSA had to implement because the regulatory model had failed. "The fact is the regulatory model that was adopted in 2002, in my opinion, had a fundamental flaw. That was a failure. It was not good for industry, for South Africa".

"Electricity in South Africa costs less than half than in Canada. Even if we double the price of electricity, we will still remain competitive with the pricing. The price is causing wastage, it is not creating jobs. The electricity-intensive industries that were encouraged to come in are not major job creators. The aluminium smelters don't employ a lot of people, very few people. For the same amount of capital we could have stimulated tourism or textiles, something else that is labour intensive. The gap from us to the second cheapest in the world is so big, if we double our price we still be the cheapest. We will still be in the top five in the world but they are also going up."

Industry believed that the pricing NERSA enforced upon the energy sector was the culprit in not attracting new investments into the markets. The pricing that was implemented only covered fuel, maintenance and other operational costs. There were no price adjustments made that considered capital projects. "So the playing field wasn't level in the sense that we had such low tariffs that any IPP at this time would have quickly realised that if they tried to enter the market, they would have to compete, try to sell the electricity at twice the price of Eskom. Now what customer is going to buy from them? So that wouldn't have worked."

Industry and economists perceived regulation to be negative for the economy. Having an over-regulated market was not good for a growing economy and the costs to comply with regulation were quite high. Industry's view was that regulation would have a huge

impact on its business and profits. The Singapore Economic Review (2005) found that if state regulation was to have the best chance of promoting economic and social welfare, it needed to be both effective and efficient: effective in the sense of achieving its planned goals and efficient in the sense of achieving these goals at least cost. The costs included administration expenses and the costs imposed on the economy in terms of complying with regulations.

"We ask, how regulation is going to impact on profit before tax. Depending on what view I take, one might say it might lead to a fifty per cent reduction in profit before tax; it might lead to sixty per cent. Some might say, it will only be thirty-five per cent. So what I see is a reduction in profit."

5.5 ALTERNATIVE TO COAL GENERATION

There was definitely a lot of uncertainty in the energy sector, especially on the gas side. Industry was of the opinion that its earnings would be impacted. The impact would not only be due to regulation but also the mechanisms industry had to have in place, to ensure compliance. NERSA had specified to industry what accounting and maintenance systems they must have and what type of reports were expected. Almost every industry was going to be effected financially. If they were going to comply with this requirement, it would erode some of their earnings.

"We are of the view that regulations will, no doubt about it, take away a chunk of our current profits. Now whether it's fair or it's not fair I cannot lay judgement. It is safe to say though that whenever there are regulations, someone must lose in the process and we think that the way we interpret the moment, we are going to lose some, in fact a little bigger, on our profit going forward but the customers will benefit going forward. And that's why regulators are there." Black (2002) stated that the state introduced regulation to encourage or direct behaviour, which would not occur without intervention of regulation.

Industries would have to re-look at their efficiencies and costs. They were of the opinion that regulation would impact them financially. To limit this impact, industries would have to improve on their efficiencies and all overhead costs.

"Will regulation add value to the business organisation in which I work? I think it will take value away. And I think the bottom line is that the outcome will be that, in a regulated environment, if you purely just compare profits before and after regulation, I expect that once full regulation is applicable, you will see a reduction in the profit." Koedijk and Kremers (1996) confirmed the link between regulation and economic growth. They found that least regulated markets have best economic growth.

Industry strategy going forward would have to encompass what changes the regulator required. The way industry would engage with the regulator would be crucial and this would also indicate how effective the regulator was and what value it added in the sector. There would have to be mutual trust and openness from both sides to ensure that the sector and the country benefited. We would have to learn from other countries that introduce regulation or de-regulation. We should focus on both the positives and negatives, but most importantly make sure that we used it in the South African context. We should take into consideration the social and economic issues that the country had, before applying any lessons. These lessons should be tailored for South Africa.

South Africa's environment was different, the culture and history of our people varied. Our history as a country has had a huge influence on how we do things and how the population responded to changes. We could not copy nor duplicate something that works extremely well elsewhere. We could only use it as a guide.

5.6 COMPETITION

According to Porter (1998) Five Forces model, competition was vital to encourage growth, to stay ahead of competitors and to create opportunities. Competition was also vital to prevent companies from becoming complacent. The energy sector was regarded as a monopoly and competition did not exist.

"You look on the energy space, all the legislation. If you look at them they've got promotion of competition and all that. But people that are coming to the industry to promote investment need to have that. The environment has a proper concentration for the investor, in other words the rate of return should be incentivised for people to come and play a role. At the same time, you want to make sure that there are no unfair barriers for new entrants. We do think that they are there in our legislation and therefore it becomes a balancing act."

NERSA recognised the need for competition and how competition would influence the energy sector. NERSA had been trying to create new entries into the market and also generate some competition, but it had had very little success. Saidu (2008) stated why in a natural monopoly you require a regulatory framework to promote competition and prevent anti- competitive practices.

"So you will find that competition is there and you are getting prices for certain players to play a role but the private sector is not coming as envisaged. We are looking into the variety of reasons why they are not coming. It is why, right now, we are busy with a project for many reasons to try to get there; and the pricing mechanism -- we are revising that." This is inline with Reddy (2001) had shared. He highlighted the lessons learnt when moving from a regulation model to a de-regulation model.

Government and NERSA were aware that competition in a free market was better than having a regulated market, but due to the formulation of government policy, this was not allowed. The mandate of the current government did not allow for competitors to come into the energy sector. "We are not creating competition but we are trying to get investors to come in to the country. Competition: we have accepted the fact that there is no company that can compete with Eskom. If we were to introduce competition, we would need to break up Eskom into smaller companies and, at this point, that is not the policy position of government. Therefore we will not go that route."

NERSA was dependent on government policy and unless the policy were changed, NERSA had to abide by it. "If government changes its policy, that could be considered, but if the policy positions are not changed it will be difficult to create competition. You're going to have one dominant player." Restrictive government policy is a barrier to entry according to Porter (2008).

"It is policy decisions like that one, as I said earlier, the ruling party should decide on. If they want to create competition, then let it be. But competition means selling out some of the state-owned assets, Eskom, Municipalities. But I think if we have to have competition, there are models that we could use, but basically it means that you must break what you've got so that it can compete. We argue who should own what and what the ownerships of structures should look like. But you need to dismantle it and

that's what normally the unions are fighting about. They don't want privatisation in particular." World Bank (1995) stated that by privatising state- owned enterprises, one would expect to promote a more efficient operation, increase investment, service coverage and reduce the financial burden on government budgets, this is direct contradiction of the unions views.

Competition did not always mean creation of jobs. Competition at some point could mean losing a job. In industry, or one of these state-owned entities, there might be too much inefficiency and, once this entity was sold or once this company started competing against others, those inefficiencies needed to be removed. These inefficiencies could even include staff. Some industry might have too many staff and once competition was introduced, they would start looking into their company to reduce their costs and to improve their efficiencies.

"Political parties write their manifestos before they go into elections and what is in the manifesto, is what needs to be implemented. If you tend to be elected and I guess if you read what the ANC has spoken about, there was nothing like that and actually when you are following the news you will remember that even the minister of public enterprise at some point did raise in fact that state-owned entities that are not performing should be sold. It was a big issue to say, why you are saying that. This is

not the policy of the ANC. I don't know, maybe they will change, but I think at the moment they are firm about that."

Acutt *et al.* (2001) stated that direct regulation was introduced in naturally monopolistic parts of the utility industries to encourage competition but this is not the finding in the South African environment. There is no competition in the energy sector.

5.7 THE RIGHT PRICING STRATEGY

The energy sector was dominated by two industry giants, with monopolies. One controlled the electricity sector and the other the liquid fuels and gas sector. The new feeder tariff structure required IPPs to sell the electricity generated by them to Eskom and it gave them no alternatives. The IPPs could not supply individual municipalities directly with electricity.

"You don't have to designate Eskom as a single buyer because these guys will look at their options and find out that, unless they sell to Eskom, no one will buy from them. So they sell to us and we blend, so called blend tariff with everything else and then on-sell again. We are basically neutral, because if we build our own power stations it will also

cost us. So if we buy from another guy at 60 cents or build our own, it comes to pretty much the same thing".

Having a stable, reliable and cost-effective source of energy was vital for any economy. For a country to develop and to achieve economic growth, it must have sufficient energy capabilities to meet its existing and future needs. "If you don't have electricity, you cap economic growth, you send bad signals and you increase the cost of doing business. You force people to have back-ups, which increase the cost of business." Foreign direct investments will not be encouraged and investors who are considering expanding their operations, will be deterred, if the power generation plants cannot meet the energy requirements of industry." Kessides (2005) mentioned that there are only four countries in Sub-Saharan Africa that managed to achieve economic growth rates due to the support of strong industry.

Having a competitive price and reliable supply of energy was crucial, there was no advantage to promoting the country as having the cheapest energy, if the country could not guarantee the supply. The pricing structure for energy had to consist of all aspects, the purchase of the coal source, labour costs, maintenance costs, research and development costs, operating costs, expansion and improvement costs and inflation.

The tariffs requested had to be calculated, taking these costs into consideration. If they were not, then these costs would have to be recovered from the taxpayer, because funds were needed to ensure a constant reliable energy supply. The shortfall not collected through tariffs, would be collected by taxation.

"If, when you calculate the macroeconomic impact, you assume that the electricity price only goes up by the inflation rate, Then you have to ask what the macro economic impact is of raising taxes to find a R100 billion every year, because it will never end. You need to pay for all the services. A hundred-billion Rands is a significant amount. Currently our tax revenue is about R650 billion, but this year it is going to be less. If we need to get R100 billion, it means a 20 per cent increase in tax. This immediately means international and local, investor ranking will drop. The companies that invest, not only look at the price of electricity but also the rate of tax. The people that you bring in have to be paid more because they compare their after-tax income with opportunities elsewhere in the world. Your input cost will go up, the same as if the price of electricity went up. So you cannot say that you are getting this free lunch."

5.8 REGULATION IN THE GAS SECTOR

Industry and public were of the opinion that having the entire energy sector regulated did not add value. The majority of South Africa's energy was generated from coal which

was the cheapest commodity. The generation of energy from gas was an option, but NERSA needed to ensure that the environment it set must be encouraging and it must be attractive for industry to invest in. South Africa did not have an abundance of gas reserves to compete with coal. "Unfortunately in the case of gas, for instance, I think the factor dominant here is the fact that there is limited supply of the gas. I mean, it's not something that is readily available to more producers, more traders."

Gas was a niche sector and trying to regulate it and trying to force competition would not benefit the industry or the country. "The gas industry is too big to demand competition, with or without regulation." "Having the entire energy sector regulated could restrict innovation and hamper growth opportunities. I think we should allow a portion of the energy sector to operate under free market conditions and this will also enable NERSA to do a comparison with the two systems." "I think there is a big risk that could happen just for the sake of regulating too much and then, in the end, basically not allowing entrepreneurs to come into the market or the energy sector and play a role."

The gas sector was small in South Africa, compared to other countries. Having this sector highly regulated would continue to induce stress on the electricity grid that used coal as a generation source. We should try as much as possible to make the alternative energy source more attractive for industry and for public. "If your trading prices are

regulated, and your tariff or transmission tariffs are regulated, what impetus is there then for big business to invest huge amounts of capital to bring in the product here."

"It's not like we've got people queuing at the door to build pipelines. Even when we were into our first competitive bid for a pipeline, between the coast and Gauteng, it became very apparent that you can only have one player in the game. If you allow two players, you halve the volume through the same pipeline; so if you go to the regulation that says you should be allowed a fair return on your investment, if you had two pipes each running half the volume, it's less efficient and more costly to the motorist than one full pipeline, because you know a pipeline is driven by volume and long distance."

Industry was very sceptical with regard to the value-adding of the regulator. Industry's views were that their growth strategy and their operating profit would be affected. The regulator would not be adding any value but instead, removing value from the market. "Whether our growth strategy will be affected by the regulation and the structure of the legislation, I think the short answer there is definitely yes. If you look at Section 21-1c of the Act it very clearly states that a vertically integrated company, like ourselves, which is integrated between transmission, distribution and trading, will in future have to separately account for the business. So there will be a change in structure and once there is clarity on exactly what the regulatory approach is going to be to tariffs and prices for each of these three legs, you will then have to use that to review your growth

strategy. It's just logical, if you are vertically integrated, you have some level of choice between which part of the value chain you operate and there is a limit on returns through regulation. Then, obviously, you start looking at which is the most profitable part of the value chain."

Stollery (1989) and Kotter (1996) states that for an organisation to succeed in an regulatory environment they would have to go through a change process. Companies will have to change their structure, their strategies and the way they do business to be competitive and to remain profitable.

Gas was really expensive, as compared to coal. Coal pricing is why it was so difficult in this country to get prices that reflect the price of natural gas, because there was a coal-dominated market. So coal domination tended to pull everything downwards, because people's alternative was a cheap alternative. So what happens because of that cheap alternative? Prices, even when there is a premium product such as gas, were pulled down.

"I think to a large extent you can say that regulations are good, but also at the same time there are other things that offset the positive role that they play. If they are going to dictate certain things for you as a business, then you would say maybe it doesn't

make sense to invest or put such huge capital into outlay when you won't make the return you desire."

5.9 STRATEGIC PLAN

Industry felt that it should be allowed to partially capitalise some projects to start recovering its investments. It felt that NERSA should allow partial capitalisation of projects still being constructed. If NERSA started to recognise the capital work in progress and started allowing some return on that, it would allow for a gradual increase in tariffs.

"NERSA should recognise the capital investment, as opposed to letting pipelines hold the investment and at the end of it, capitalise the whole thing with its interest and then have a major increase in tariffs, just a once off big hit."

The most crucial thing was to ensure that economic growth was not hampered by a lack of energy supply. Government and NERSA had to encourage public-private partnerships (PPPs). They would have to introduce policies that would encourage while also being financially beneficial for public-private partnerships.

NERSA had to be the key mediator and enforcer to ensure the sustainability of these PPPs. NERSA had to ensure that each and every PPP was given space on the grid to export their feed and that there were long term contracts between the PPPs and Eskom for the purchase of their feed.

"From a price point of view, for a new player to come in, it can never compete with Eskom, because of the benefit of a depreciating asset base that's still producing a commodity. So you just need to cover a variable cost for a lot of the stations. I'm not talking about the new ones. So competing against that base of 40 000 mega watts at that low price is not going to happen. That is why when they come into the market they have to get a back-to-back agreements with Eskom at a higher price to sell electricity to Eskom. For example, they would sell electricity at 60 cents, but Eskom is selling at 30 cents to its customers. It will go through the Eskom base and get diluted and blended. For a very small percentage, the price goes from 30 to 35 cents. The average customer does not see it, but that customer has come in contributing as a player. But he is getting 60 cents and not the 35 cents."

Industry strongly felt that there should be a national strategic plan for the energy sector. They wanted to know what the expected energy demands for the country would be and what government was expecting the economic growth to be. Industry would like to align itself to support the strategic plan.

"You've got a firm policy that over the next 20 years the technology that will meet the demand growth of electricity is so much nuclear, so much renewable, so much coal. You don't have that for our country or a policy indicating that. Then Eskom makes assumptions and goes to the regulator, saying: there's our assumptions. We want to meet that demand at a reserved margin of 15 per cent with these technologies."

Other countries, like China and Brazil, had long-term strategic plans that were effectively communicated and the entire country was aligned to these plans. Once the country was aware of the long-term plans and had accepted them, it was very easy to gather support and momentum. NERSA and government were aware of the barriers or hurdles in the energy sector, but they were not optimistic, nor convinced that a free market would benefit the South African energy sector.

"Regulation does, I think, introduce certain, I wouldn't call them barriers to trade, but it does introduce hurdles that investors have to jump before they get to deliver. Simply because, if you leave it to an open market, I will come in and say I'm going to support, I'm going to do this and when I don't like the return, there's nothing stopping me from closing. And there's a country where you now have to meet the gap. So regulations for me don't provide barriers but they provide hurdles, things that you have to jump, not things that stop you from entering." Chang (1997) explained how entry barriers can deter new entrants.

Every investor wanted a return on investment. NERSA wanted to limit the return that an investor could make. By capping the return, it would benefit the consumer, it would ensure that the energy was affordable. Also the cap would deter additional investors that expected much higher returns on their investments. This could lead to limiting investments and a lack of new entries into the market.

"Reasonable return is some percentage and there is this three per cent that is now been put forward. We are now coming to accept three per cent above the prime lending rate. If you add three percent in most cases, investors are very happy with that. Whether this three is the magic number or not we not sure. Will industry accept that or not? So that's what we do. We give you the full course. We will make sure that you then get your reasonable return which is plus three and if we give you four we are making it attractive." This is a strategy that NERSA is trying to follow to attract investors and to try encourage the existing industry to grow.

5.10 THE CHALLENGES THE REGULATOR FACES

For any regulator to be effective, it was required to have the right expertise, a very strong independent leadership and have the correct structure and competent people to execute strategy. Industry was strongly of the opinion that the current regulator did not

comply with these requirements. There were some deficiencies and gaps that were required to be closed. Industry believed that for the regulator to be effective, these concerns must be addressed.

"The regulator can play a key role, if the regulator provides strong leadership." "We need a regulator with the capacity to do the job, the right people and the right quantum of people." The Singapore Economic Review (2005) clearly supported these views with respect to the regulatory capabilities.

Retention of staff was a major challenge for everyone; every industry was trying different things to ensure that its talent pool was not depleted. The regulator was faced with similar challenges. "They had a lot of staff turnover." "People would just start to get on top of things and they would go." "I think we have less skill than we should have, but I think that's true of the whole of Parliament."

The regulator was aware of the skills shortage and the challenges it posed but found it very difficult to resolve. It was competing with industry for skills and losing the race. "It's not a matter of money or posts not being available, we have the structure, we have a lot of posts on paper, lots of opportunities for young bright engineers or even old bright engineers, economists, lawyers. Filling those posts is a huge problem."

"There are acute shortages of numbers and the private sector pays a lot more than we do so we are stuck."

A lot of quality people had used the regulator as stepping stone to other industries or other government departments. "At a meeting of the regulator, only one other person there had been seven years or longer at NERSA, whereas, of the Eskom team, 80 per cent was still the same."

Reputation and image of an organisation were different. Reputation is an opinion of the past actions of an organisation, its legacy. Image was made up of more recent happenings that an organisation was in involved in. NERSA did not have a very good image nor reputation amongst the majority of people. The man on the street perceived NERSA as being under industry's control. "From our side, NERSA is weak. They do more or less what Eskom wants them to do and that is a bit of concern."

"There has just not been very strong leadership input from NERSA. NERSA has just not really looked very sensibly at the future from our perspective. Anyway that is very much a legacy of how things happened in the past."

Industry was very supportive of the regulator. Industry knew that regulation was not a perfect science. It developed over time and had to move with the times as well, depending on where the global economies were going. South Africa was not isolated from the world and whatever is happening around the world, would impact on us locally. Getting people to be more energy wise and become more efficient in energy usage was a global challenge.

"Being energy wise is a potential that almost comes free of cost. If, as individuals, we each switch off our geysers, there is less pressure on the grid, less coal being mined and burnt, less damage to the environment. So that is an opportunity where everyone and every industry can play a fundamental role. We should all take accountability for our actions. NERSA needs to promote energy efficiency and educate the population on how to become energy efficient."

"One of the biggest opportunities that the country has is our own awareness of efficiency. If we can be ten per cent more efficient in consuming electricity, our energy demand is going to reduce, determination of price will be lower and we all will be much cleaner." The promotion of energy efficiency needs to become a top priority for NERSA. Industry very strongly feels that the shortage of the right skills and inadequate human capital restricts NERSA from been effective and creating value in the energy sector.

"You look at their in-trays going through all the issues and making recommendations and legislation. They most probably have in trays that are so high, they are just not getting around to it. All they are doing is putting out fires, so they need to get more people in to make their turnaround time quicker. I am sure that they will definitely improve the level of decisions and the quality of decisions."

5.11 NERSA AND THE COMPETITION COMMISSIONER

Industry and the regulator shared similar views with regard to having two entities with different rules and objectives governing a sector. The two entities were the Competition Commissioner and NERSA. The challenge for industry was that they were not sure which entity to be 100 per cent compliant. "On the one hand you've got the competition authorities, the Competition Commission and the Tribunal, which looks specifically at competition matters. Then on the other hand, you have an entity like NERSA which specifically regulates prices. Now you find yourself in the difficult situation that both these parties have regulating powers regarding pricing, for instance."

"In the current legal and business environment in which we operate, this whole concept and issue of concurrent jurisdiction is making it very difficult for industry, because you are not always 100 per cent sure where you must comply because an attack can come

from either direction." These grey areas are not only challenging for industry, but also for NERSA. To have an effective, competent regulator, these two entities must be combined. NERSA feels very strongly about this. "So my view is we should have one regulator and not two." "The methodologies and approaches of the two regulators are very different and so I'm thinking that the regulatory system governing petroleum products, retail price etc. is old and creaking and drowning in the numerous strains of competition."

If a customer in the market had a complaint about the way that one of the entities in the industry went about pricing, where did they go? There were provisions in the Competition Act which allowed for so-called concurrent jurisdiction agreements and there were ongoing discussions between NERSA and the Competition Commission about the agreements in place. Eventually it did not take away the fact that both parties, both entities, had jurisdiction but it did put some process in place if there was a complaint that one entity should notify the other and they should have a consultation about it and decide how they were going to exchange information and take it forward.

"I've worked in the energy regulator that was part of the competition authorities and that was the biggest advantage. There was one commissioner at the head and if you, from the energy side, could not convince the commissioner that anti-competitive conduct was in the interest of the public or whatever then, it wouldn't go. And you

would never have that conflict - I think we are very far away from it." These are the views NERSA had with regard to having two independent entities.

5.12 ROLE OF THE REGULATOR AND GOVERNMENT

Industry views were that the current legislation and policy did not effectively address the issues of dispute and the process of arbitration. Currently there were no mechanisms to challenge NERSA and its decisions. "If the regulator makes a decision that you really do not agree with, you need some mechanism to be able to counter that. The courses must be balanced. It can't just be a one-way thing, where the decision is made and effectively you're powerless. I'm not convinced that has been fixed just yet. It should be less of a problem in the policy environment knowing that it's getting fixed, but I do think you need an effective dispute and arbitration mechanism and I don't think we've got that."

"If you look at the Electricity Regulation Act, yes there is some vague dispute mechanism there. But it has to be practical otherwise you really can't use it."

NERSA was aware of the shortcomings but it was trying to address these concerns of industry. NERSA was dependent on the support government gave it. It could not

change or amend any legislation without government approval. NERSA had to follow a process to make any amendments and there was a lot of lobbying that needed to happen for seeking final approval.

"It is a process that normally takes about eighteen months to two years to amend legislation, irrespective of what it is. If you look at the public consultation and other parts, for amending legislation, which shortens certain things but is not the most democratic way of doing it, this legislation had certain shortfalls."

NERSA had a very difficult role to play, trying to keep industry energised without impacting too much on the man on the street. South Africans were faced with a lot of challenges like social issues, health, education, crime and the electricity crisis. All these challenges have had an impact on each other and it was very difficult to manage them on their own or in isolation.

Industry shared similar views about NERSA, but industry believed that NERSA was more for the man on the street. "I think over the last few years they've tended to lean towards the man on the street and the more popular type of approach."

Government needed to ensure that the formulation of its policy was clear and was aligned to its long-term objectives for economic growth and social upliftment. Everyone, government, NERSA and the entire energy sector, should be aware of the country's long-term plan and how this plan was going to be executed.

"I think the biggest problem both for NERSA and Eskom has been the lack of clear policy around certain issues which, in my understanding, falls under the Department of Minerals & Energy."

The policy was to be translated into a blueprint which should be used as a guide for all in the energy sector. "NERSA will now tell Eskom what they expect Eskom to build from this blueprint over the next 20 years, and what someone else is going to bring to the table. I mean that is fundamental. If we get that it's critical, it'll avoid a lot of confusion, a lot of finger pointing."

"The regulator focuses on those fundamental issues. He doesn't have to worry about the emotional issue of protecting the poor. He knows it's required but it's taking a lot of time and effort because there's no clear direction. Even from an Eskom point, we need to focus on what we control. Now we're grappling around the policy and we fill in the application to say this is what you're proposing to protect the poor as we've been told

by government, but you don't have the mandate to propose that, that's our turf. If we don't put in our application then they say: ' Eskom isn't even addressed on the fundamental issues so the poor must pay 34 per cent.' Now those are the frustrating and most critical issues that need to get sorted out. It's not like I'm undermining the cost of the build-up. That's a separate issue. But these are big government policy issues which would make the rest of the process, both for the applicant and the regulator, much easier if they were in place."

Government had to make some tough decisions. There were too many issues that influence one another. Government had to prioritise all the challenges that the country faces and decide which ones are going to be managed immediately and which ones will be handled later. These decisions could only be made once everyone was working off the same plan and all were pulling in the same direction. Every government ministry and industry had to support the others for the country to succeed.

"Policy positions of the government at this point, for instance when it talks to electricity, talks about cost reflectivity, it talks about cost subsidy, and it talks about transparency. These three items, or three policy positions, at some point contradict each other, because you cannot talk about cross-subsidy and focus on costs. In its whole it is contradictory, so what we are intending to do is to try balance the two contradictory policy positions. So the reason why we are still saying you need cost subsidies, as a

country, is the fact that we have people living in rural areas who cannot really afford to pay the full costs of electricity. The nature of electricity business allows a lot of cross subsidies, which you cannot easily remove."

5.13 WHAT IS THE REGULATOR IS TRYING TO ACHIEVE?

There had been discussion around an integrated energy approach and the entire renewable energy feed-in tariff (REFIT). REFIT had sparked a lot of interest from industry and the public. It was very encouraging to know that NERSA had embraced the concept of other energy sources. "I think that now for the first time, in something like 30 years, we are getting and hearing serious talk on investment with regard to infrastructure in the petroleum sector, talk of refinery expansions, talk of cleaner fuels, pipelines, regulated prices."

NERSA was becoming more inclusive, there were many more public hearings. The information available on its website was more useful and transparent. The public and industry perceptions of NERSA were that it is trying to take all the different stakeholders into consideration. Decisions were made independently and may not have been welcomed by everyone.

"I haven't seen behaviour that is so skewed towards the man on the street that I can then complain, as someone then representing industry, and say people aren't listening to us. I think what's important here is that you do see some element of balance. They are willing to listen. Although listening doesn't mean they will do what you want, they listen".

"But judging by what has happened in the past two years, we had interesting battles between Eskom and the regulator because, although NERSA was sent around in circles, eventually they won. We, as consumers, although we know that compared to other countries, South Africa's electricity prices are very low, must also remember that inflation drivers in electricity are the one biggest contributor to that."

Some industry experts appreciated the challenges that NERSA faced. Industry was of the opinion that NERSA was still in its infancy stage and still required time to gain a deeper understanding of the sector and develop the required experience. Having a regulatory body, with the necessary positions filled, was the first step. Ensuring that people in these positions gained the appropriate exposure, which must result in making NERSA more effective, was important.

Each and every individual at NERSA needed to gain sector insights and understand the regulatory framework thoroughly. The most effective way of gaining experience was by ensuring they get their hands dirty. NERSA needed to constantly apply itself in the sector and make its presence felt. This would drive the desired outcomes in the markets. "The only worse thing than a public monopoly is a private monopoly." Singh (2002) warns about private monopoly and competition.

"I think NERSA has come a long way but is still in its infancy as a regulator." Davidson (2005) pointed out South Africa's experience levels in free markets due to its history. NERSA had managed to make inroads into certain aspects of the sector. NERSA in recent times increased public participation. There had been an increase in public hearings. NERSA had made it mandatory for industry to publish its tariff applications on company websites. This resulted in everyone, or all interested parties, having an opportunity to view and comment on the tariff applications. Initially, the tariff applications were a mere 50 pages. Recently NERSA has enforced 'minimum filing requirements'. This resulted in much more detailed submissions, containing all the relevant information. Now an average submission was 500 pages.

"You've seen in the last two submissions: public process; stakeholders' engagement; public hearings; Eskom's application being put on the website. That's why I say we're

all developing, we're all learning. NERSA has now come up with something called the Minimum Filing Requirements."

"NERSA now says to Eskom: You will produce a ten-year price path for us. Don't only show the next three years, for which I'm going to give an increase. I want to be able to tell the public and the country, based on what you do, that's where we'll show where the prices are going."

"If you look at the legislation, the mechanisms that are built into the legislation, I am of the opinion that it is possible for NERSA to effectively implement whatever it decides to regulate on. They have got the powers in terms of the Act to enforce penalties. They have got the power in terms of the Act to take away licences and so, yes, I think they have got the power to enforce." Baldwin and Cave (1998) mentioned three main definitions that best describes regulation and one of the definitions is that "Regulation is the promulgation of rules by government, accompanied by mechanisms for monitoring and enforcement, usually assumed to be performed through a specialist public agency."

6 Conclusion and recommendations

6.1 DOES REGULATION ENCOURAGE GROWTH?

NERSA and Government did not establish a clear and effective policy to encourage independent power producers to enter the energy sector. The energy sector is still dominated by a monopoly and the current government legislation does not make any provisions for changes. To encourage diversity in the energy sector, without changing the existing policies, will be very difficult. There has not been much investment from any independent power producer.

South Africa has a huge abundance of coal as a natural resource and the impact coal generation has on the environment is well known. There has been no new policy formulation from the government to guide the energy sector towards cleaner energy. Industry is of the opinion that by moving towards regulation of the entire energy sector will not benefit the country.

6.2 HAS REGULATION ENCOURAGED INNOVATION IN YOUR BUSINESS?

South Africa needs a strategic plan for the energy sector and balance in the development of new power generation plants and the impact on the environment must be ensured. The plan must also entail how independent power producers will be attracted and how they will be compensated. Government and NERSA should reconsider having the gas sector regulated. The current gas sector contributes a very small portion of the energy sector. The major part of South Africa's energy generation is from one utility: 96 per cent of all energy generation is from Eskom. The balance of the energy sector is shared amongst the local municipalities' power generation and the gas sector.

By having the entire energy sector regulated, there are some positive and negative outcomes. Some of the positive outcomes are:-

- NERSA and government will ensure the low price of energy
- transparency regarding tariff adjustments
- public participation and interaction in the energy sector
- entire industry complying to the same filing requirement
- controlled licensing for generation and operating

Some of the negative outcomes are:-

- the financial impact on industry in complying to regulatory requirements
- limiting growth and expansion opportunities within the energy sector
- lack of incentives to explore alternative energy sources
- the risk of having no new power generation plants by independent producers
- a monopoly being still very active
- low pricing resulting in no further investments

6.3 HAS REGULATION INCREASED COMPETITION IN THE INDUSTRY?

Competition and innovation have not been evident in the energy sector. Additional, new participants and changes to the legislation in the energy sector are required to boost competition. Government and NERSA should create an environment where they can attract new entries into the market and to create different options of energy for the end user. The existing government policies do not encourage competition or privatisation. NERSA has been constrained by the lack of resources and skills, so trying to encourage competition will be challenging without the resources and policy backing.

NERSA lacks resources and its ability to add value in the energy sector has been questioned. NERSA faces a huge challenge to ensure that it has the right skills and competency within the organisation. The staff turnaround has been very high and its management needs to ensure retention of staff. NERSA has to become more proactive but, due to lack of resources, its effectiveness is constrained. Educating everyone on how to become more energy efficient and energy wise is vital. Becoming energy efficient will assist the country by reducing energy demand. It will also reduce and limit the demand for new coal fired power generation.

With the state trying to meet social objectives and the regulatory body trying to enforce regulation of markets, getting balance between the efficiency and effectiveness goals of the regulatory body is very challenging, in a developing country. With the entire energy sector being regulated, the current pricing mechanisms have to be adjusted, to ensure the sustainability of the existing industry and also attract new investments.

South Africa requires a multi-scale pricing structure in the energy sector, where the low income group is subsidized and market related tariffs are applied to the middle and upper income groups. Households should have a much more attractive incentive than currently, to convert to alternative energy sources. There must be legislation forcing all new property developments to have a certain percentage of cleaner energy generation and very specific targets for carbon emissions for industries.

All major industries should be encouraged to have their own energy generation and the buy-back policy must be beneficial to all. Instead of government investing in new power plants, it should encourage independent power producers to supply electricity into the grid. NERSA must make the REFIT program a priority but also be cautious that the country is not held to ransom if there is another economic downturn.

Government and NERSA are trying to regulate the entire sector and this is very challenging for them and for industry. With the current resources that are available to government and NERSA, I suggest that they focus on one aspect of the energy sector. NERSA should ensure that fully understands and is capable of handling the electricity aspects of the energy sector before attempting the others.

6.4 HAS COMPLIANCE TO REGULATION AFFECTED YOUR FINANCIAL POSITIONING?

One of the greatest impacts and challenges the country's economy faces is the electricity sector. Government and NERSA should ensure that previous mistakes are not repeated. The electricity crisis that the country experience in 2008 should not be wasted. It should be used it as a starting point to formulate policies and guidelines, so that nothing similar is experienced again.

Government and NERSA have to seek a balance of how much regulation it would like to impose and how much influence the proposed regulation will have on economic growth. All government ministries have to be aligned and work together to ensure the country prospers. The country's strategic plan has to have all role players involved and the plan should prioritise government's objectives with timeframes. Authorities cannot focus on everything at the same time, there needs to be a priority list, with focus on the most important issues first.

To comply with the regulation, industries feel very strongly that their profits will be reduced and their return on investments will take much longer than initially expected. New investors are very hesitant to enter the market due to lack of confidence in the pricing structure.

6.5 RECOMMENDATION FOR FURTHER RESEARCH

An entire study could be conducted to understand and to determine the outcome of only regulating a portion of the energy sector. This could prove useful to industry, NERSA and to government. The findings could be use for policy amendments and resource allocation.

Further research should also be done to determine if alternative energy sources should be regulated or not. This could prove useful to guide government in policy formulation and to attract investment in the cleaner energy fields.

Finally, further research is required to determine if one authorised body, that focuses on regulation and competition, adds more value than having two independent authorities. This could prove useful to government, NERSA and industry in relationship advancements.

6.6 CONCLUSION

The aim of this research was to establish whether or not regulation acts as a catalyst for economic growth and whether or not regulation enables government to achieve its set objectives. The findings indicate that regulation hampers economic growth and investors are deterred from entering the markets. The evidence from this study also shows that industries' profits are impacted and their growth strategy revised by regulation.

Finally, the research set out to understand the relationship between regulation and competition in the energy sector, the results of which proved to be conclusive. Regulation has an impact on competition.

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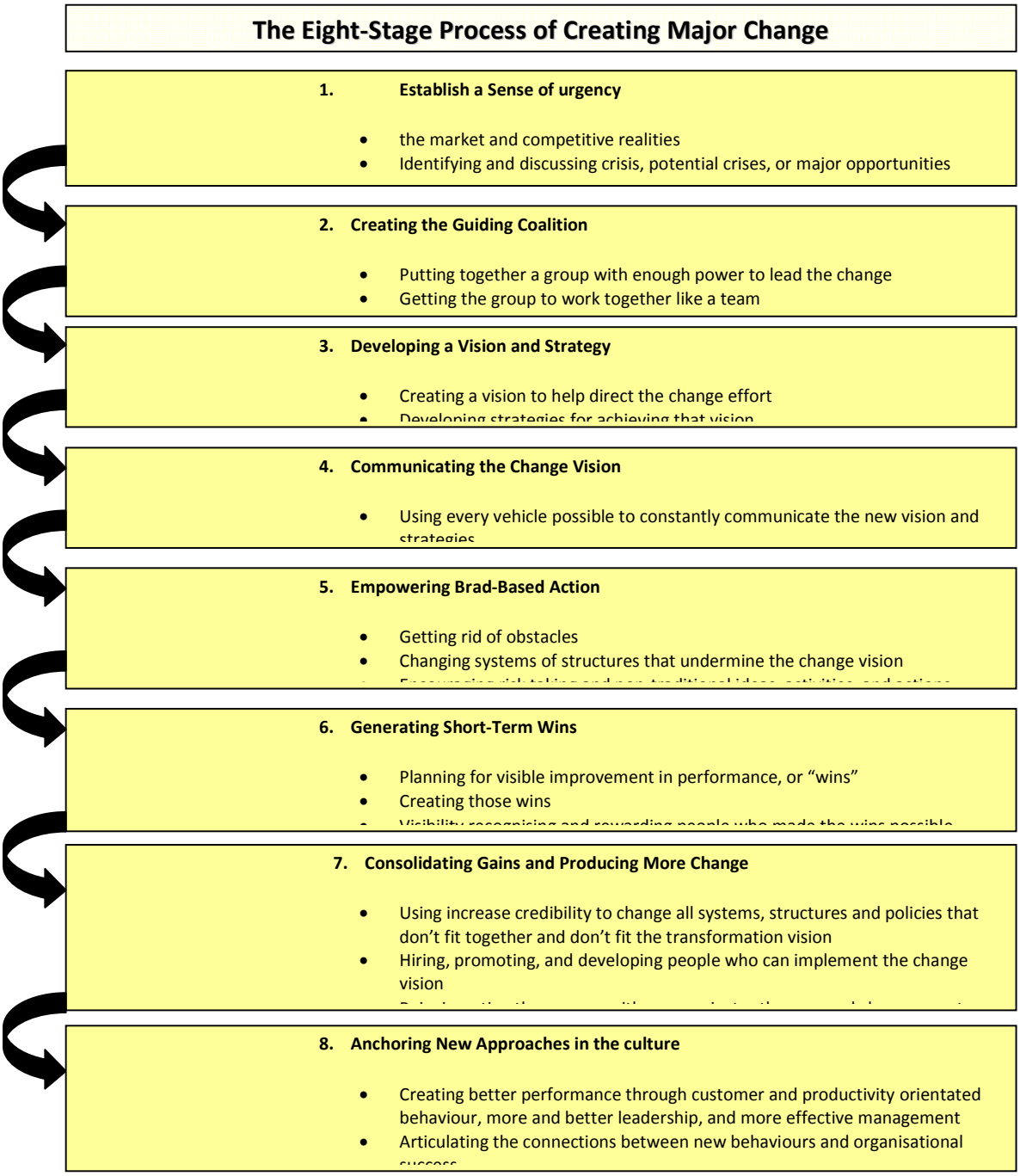
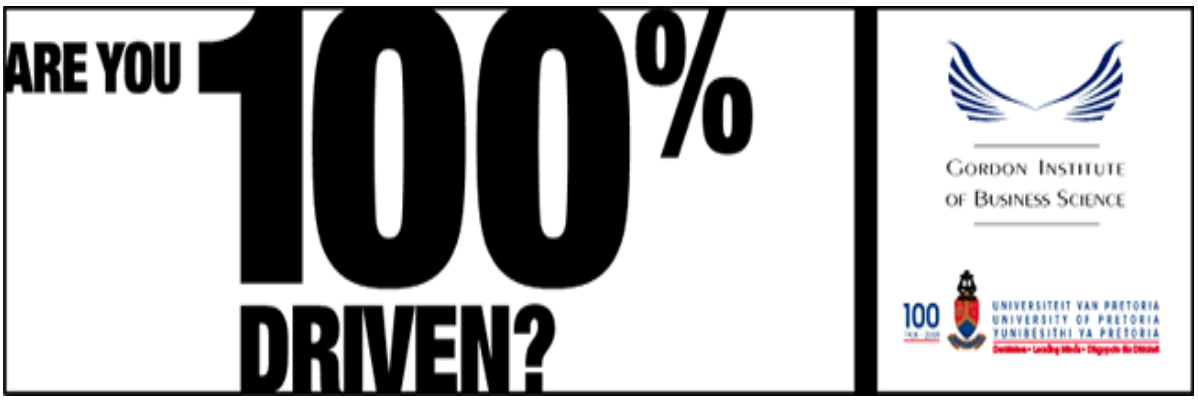
8 Appendices

8.1 APPENDIX 1 THE EIGHT STAGE PROCESS



(Kotter, 1996)

8.2 APPENDIX 2 INTERVIEW QUESTIONS



Dear Respondent,

Thank you for taking the time to participate in this research project. Please spare a few minutes to answer this questionnaire. The information disclosed by you will remain **strictly private and confidential** and will only be used for **academic purposes**. You (and you organisation) will remain completely anonymous.

Sign

Date

Questions

1. What is your view of the regulatory system / process in the energy sector?

2. Do you think that parliament and the relevant parliamentary portfolio committee plays an effective role in the implementation of the relevant regulation applicable to your organisation?

3. In the enforcing and monitoring of regulation, does the industry regulator seek to balance the interests of all stakeholders?

4. How easy is it to compete in the industry?

5. How has regulation affected competition in the sector? Does it encourage new entries?

6. How does regulation effect growth and innovation?

7. What amendments to the regulation would you like to see in the future?

    a. How are amendments of the regulation managed?
    b. Is it easy or difficult to lobby for and changes?

8. Is there anything else you like to share with me regarding regulation in the industry?

(Botha, 2006)