ADOPTION OF BENCHMARKING BY KENYAN AND SOUTH AFRICAN ELECTRICITY SECTORS AND ITS IMPACT ON SMALL, MICRO AND MEDIUM ENTREPRISES (SMMEs)

By

OKONGA

BRIGITTE MUKABANA WABUYABO

(STUDENT NO. 201001589)

Thesis submitted in fulfilment of the requirement for the degree of Doctor of Commerce at the University of Zululand

2012

ADOPTION OF BENCHMARKING BY KENYAN AND SOUTH AFRICAN ELECTRICITY SECTORS AND ITS IMPACT ON SMALL, MICRO AND MEDIUM ENTREPRISES (SMMEs)

By

OKONGA

BRIGITTE MUKABANA WABUYABO

(STUDENT NO. 201001589)

Supervisor:	Co-Supervisor:
Prof. E. Contogiannis	I Kaseeram

Thesis submitted in fulfilment of the requirement for the degree of Doctor of Commerce at the University of Zululand

2012

DECLARATION

I declare that the thesis submitted for the Doctor of Commerce Degree at the University of Zululand is my own work and has not been previously submitted by me or any other person at another University for any degree. I also declare that all references have been acknowledged. I cede copyright of the thesis in favour of the University of the University of Zululand.

Candidate : **Okonga**

Brigitte Mukabana Wabuyabo

Signature: _____Date: _____

DEDICATION

I dedicate this work first to my late Dad, Nicholas Pius Wabuyabo, whose last words to me "*Kwaheri, work hard"* have remained echoes in my ears and which words have therefore, remained inspirational and Mum Wildroda Musundi who taught me my first lessons. Second, I dedicate it to my brother Martin and his wife Josephine for taking over from my parents and became perfect replacements.

To my husband, my children and all those who look up to me, may you be inspired by this work.

ACKNOWLEDGEMENTS

I would like to express my heart-felt gratitude to the following individuals, who have supported me spiritually, morally, financially or otherwise to enable me fulfil my dream of achieving a doctorate degree:

The Almighty God for promising me victory and walking by me to strengthen by the day.

I thank my supervisors, Dr. Bayon, with who I began this journey and Prof. Contogiannis who shaped and supported me to complete my doctorate studies. I thank Mr. Kaseeram for his innovative input into this research. It is that input that helped to generate a conference paper of international standard. I thank the Research Committee of Zululand for extending to me financial support for my two years of study, without which I would not have accomplished this task with the ease with which I did. "*Ngiyabonga*"

My dear husband Francis, for being my anchor in all that I did, keeping me company and giving every kind of support especially at the many times when things seemed steeled and for ensuring that your wife and children were in school whenever they were required. Thank you for persevering the cold for the two years and for perfectly stepping into my shoes for our children.

My daughter Mondrilla, Noel-Hazel and my sons Martin Wanzetse Inguche and Armstrong Stefano Wanjia, I thank for being my heroes. Your moral and emotional support was a pillar to my studies. Thank you for being good young adults in my absence.

To my mum Lucy and to all my brothers and sisters, especially Electine, and all my friends, thank you for your financial and moral support. May God bless you. I feel greatly indebted to you all.

ABBREVIATIONS

ADB	Asian Development Bank
ADF	Augmented Dickey Fuller
AGECC	Advisory Group on Energy and Climate Change
CDM	Clean Development Mechanism
CEO	Chief Executive Officer
CEUS	Commercial End Use Survey
CO_2	Carbon dioxide
COYA	Company of the Year Award
CPI	Corruption Perception Index
DFID	Department For International Development
DME	Department of Minerals and Energy
EIB	European Investment Bank
ERB	Electricity Regulatory Board
ERC	Electricity Regulatory Commission
Eskom	Electricity Commission of South Africa
FBE	Free Basic Electricity
GW	Gigawatts
GDP	Gross National Product
IAEA	International Atomic Energy Agency
ICPAK	Institute of Certified Public Accountants of Kenya
IRFs	Impulse response function
ILO	International Labour Organization
IMF	International Monetary Fund
IPPs	Independent Power Producers/ Independent Power Projects
IT	Information Technology

ITDG	Information Technology Development Goals
ISO	International Standards Organization
LogE	Log of Electricity
Log M	Log of Manufacturing
KAM	Kenya Association of Manufacturers
KenGen	Kenya Generating Company
KIM	Kenya Institute of Management
KISM	Kenya Institute of Supplies Management
KPLC	Kenya Power and Lighting Company
kWh	kiloWatts per hour
UNEP	United Nations Environmental Programme
NALEDI	National Labour and Economic Development Institute
MDGs	Millennium Development Goals
M-Pesa	Mobile Money (*Pesa* means money in Kiswahili, a *bantu* dialect)
MSEs	Micro and Small Enterprises
MYPD	Multi-Year Price Determination
NERSA	National Energy Regulator of South Africa
NCF	National Consumer Forum
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
PSIRU	Public Services International Research Unit
NGOs	Non-Governmental Organizations
SAPs	Structural Adjustment Programmes
SDS	Smart Distribution System
SIDS	Small-Island Development States
SMMEs	Small, Micro and Medium Enterprises
SWOT	Strengths, Weaknesses, Opportunities and Threats

UK	United Kingdom
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNFP	United Nations Population Fund
US(A)	United States (of America)
USAID	United States Agency for International Development
VAR	Vector Auto Regressive (model)
VECM	Vector Error Correction Model

TABLE OF CONTENTS

Declaration----------i

Dedication----------ii

Acknowledgement----------iii

Abbreviations----------iv

Table of Contents----------vii

List of Tables----------xv

List of Figures----------xvii

Abstract ----------xix

CHAPTER ONE

OVERVIEW OF THE STUDY

1 INTRODUCTION----------1

1.1 Background to the Study ----------1

1.2 Overview of Benchmarking ----------4

1.3 Statement of the Problem ----------6

1.4 Motivation of the Study ----------9

1.4.1 Electricity Consumers' Complaints ----------9

1.4.2 Kenyan and South African Electricity Sectors ----------14

1.4.2.1 The Kenyan Electricity Sector ----------14

1.4.2.2 The South African Electricity Sector ----------15

1.4.3 Policy Implications ----------17

1.5 Aims of the Study ----------18

1.6 Research Objectives ----------19

1.6.1 Two Main Objectives ----------19

1.6.2 Sub-Objectives ----------19

1.7 Research Questions ----------19
1.7.1 Main research Questions ----------20
1.7.2 Sub-questions ----------20
1.8 Scope of the Study ----------20
1.9 Significance of the Study ----------21
1.10 Summary of the Research ----------22
1.11 Structure of the Thesis ----------23

CHAPTER TWO

LITERATURE REVIEW

2 INTRODUCTION----------25
2.1 Global Overview of Power Sector Reforms ----------25
2.2 The African Perspective of Power Sector Reforms ----------29
2.3 Areas Benchmarked by KPLC and Eskom ----------32
2.3.1 Generation, Transmission and Distribution Levels ----------32
2.3.2 Benchmarking by Use of Regulation ----------36
2.3.3 Benchmarking by Use of Independent Power Producers (IPPs) ----------38
2.3.4 Benchmarking by Use of Electricity Metering ----------39
2.3.5 Benchmarking in Electricity Pricing ----------41
2.3.6 Benchmarking through Adoption of Renewable Sources ----------43
2.4 Small, Micro and Medium Enterprises (SMMEs) ----------45
2.4.1 Categorization of Small Micro and Medium Enterprises ----------46
2.4.2 Importance of Small, Micro and Medium Enterprises ----------48

CHAPTER THREE

CONCEPTUAL FRAMEWORK

3 INTRODUCTION ----------52
3.1 Benchmarking as a Business Strategy ----------52
3.1.1 Benchmarking Defined ----------52
3.2 Perception of the Impact of the Adoption of Benchmarking ----------56
3.2.1 Concepts of Quality and Satisfaction ----------56
3.2.2 Quality from Consumer's Perspective ----------57
3.2.3 Other Measures of Quality ----------59
3.3 Benchmarking Gap Analysis in the Electricity Sector ----------61
3.4 Aims of Benchmarking ----------63
3.5 Approaches to Benchmarking ----------65
3.5.1 Functional Approach to Benchmarking ----------66
3.5.2 Quantitative and Qualitative Approaches ----------67
3.5.3 Process-Based Approach to Benchmarking ----------68
3.5.4 Human Resource-Based and Action-Oriented Approaches ----------69
3.5.5 Commercial End Use Survey (CEUS) Approach ----------70
3.6 Success Stories of Adoption of Benchmarking ----------71
3.7 Factors that may have Influenced Adoption of Benchmarking ----------72
3.7.1 Environmental Challenges ----------73
3.7.2 Technological Challenges----------74
3.7.3 Scarcity of Resources versus a Large Customer Base ----------75

3.7.4 Challenges Related to Organization Culture ----------76

3.7.5 Company-Stakeholder Conflicts ----------77

3.7.6 Political Challenges ----------78

3.7.7 Inadequate and/or Unreliable Data ----------78

3.7.8 Corruption ----------79

3.7.9 Inefficient Debt Collection ----------80

3.8 Factors Supporting Benchmarking Strategy Adopted ----------81

3.8.1 Economies of Scale ----------82

3.8.2 Natural Monopoly----------84

CHAPTER FOUR

THEORETICAL OVERVIEW OF THE STUDY

4 INTRODUCTION ----------89

4.1 Electricity, SMMEs and the Economy ----------90

4.1.1 Electricity and Economic Growth ----------91

4.1.2 SMMEs and Economic Growth ----------91

4.1.3 Granger-Causality between Electricity and the Economy ----------94

4.2 Ways to Forge Reliability and Affordability of Electricity Supply ----------98

4.2.1 Reliability and Affordability through Privatization ----------98

4.2.1.1 Privatization, Competition and Efficiency ----------98

4.2.2 The Concept of Public-private-partnership (PPP) ----------101

4.3 Concept of Problem-Solving ----------104

4.3.1 Assumptions to Boost Implementation of Problem-Solving Theory -----105

4.4 Entrepreneurial Theory of the Firm and SMMEs ----------107

4.5 Profitability ----------110

4.5.1 Quantitative Profitability ----------111

4.5.1.1 Gross Profit Margin (GMP) ----------112

4.5.1.2 Net Profit Margin (NPM) ----------112

4.5.1.3 Return on Capital Employed (ROCE) ----------113

4.5.1.4 Return on Owner's Equity (ROE) ----------113

4.5.1.5 Return on Assets (ROA) ----------114

4.6 Qualitative Profitability ----------115

4.7 Summary ----------116

CHAPTER FIVE

METHODOLOGY

5 INTRODUCTION ----------117

5.1 Research Design ----------118

5.1.1 Time Series Research Design ----------119

5.1.2 Comparative Research Design ----------119

5.2 Population of Study ----------120

5.2.1 Research Sites ----------120

5.3 Data Collection ----------122

5.3.1 Data Collected ----------123

5.3.2 Instrument of Data Collection ----------124

5.3.3 Validity and Reliability ----------125

5.4 Methods of Data Analysis ----------125

5.4.1 Quantitative Data Analysis Techniques ----------125

5.4.1.1 Time Series Data Analysis Technique Based on Eviews Programme ----------126

i. Technical Account of the Times Series Methodology ---------127

ii. Stationarity ----------129

iii. Cointegration ----------130

iv. Vector Auto-Regressive (VAR) Model ----------131

v. Vector Error Correction Model (VECM) ----------132

vi. Granger-Causality Tests ----------135

5.4.1.2 Ordinary Least Squares (OLS) ----------136

5.4.3 Qualitative Data Analysis ----------137

5.5 Summary ----------138

CHAPTER SIX

DATA ANALYSIS AND INTERPRETATION

6 INTRODUCTION ----------139

6.1 Summary of Methodology ----------140

6.1.1 Data Used ----------140

6.2 Time Series Analysis and Presentation ----------141

6.3.1 Analysis and Presentation of the Kenyan Time Series ----------142

6.3.1.1 Discussion on Results of Kenyan Time Series ----------144

i. Cement (C) ----------144

ii. Galvanized sheeting (GS)----------147

6.3.1.2 Summary on Kenyan Time Series ----------152

6.3.2 South African Time Series ----------153

6.3.2.1 Discussion of South African Time Series ----------155

6.3.3 Summary on the Time Series Analysis ----------156

6.4 Impulse Response Functions (IRFs) and Variance Decompositions of Bivariate Vector Autoregression (VAR) ----------157

6.4.1 IRFs and Variance Decompositions (VD) of Bivariate VAR Model for the Kenyan Data ----------158

6.4.1.1 IRFs and VD Bivariate VAR Model for Cement and Electricity Data----------158

6.4.1.2 IRFs and VD of Bivariate VAR Model for Galvanized Sheet and Electricity----------161

6.4.2 Impulse Response Functions of Bivariate VAR Model for South African Data ----------163

6.4.2 Impulse Response Functions of Bivariate VECM Model Bivariate for S.A. Data ----------166

6.5 Impact of Adoption of Benchmarking on KPLC and Eskom ----------167

6.5.1 Impact as witnessed in Generation, Consumption, Export and Import Logistics ----------167

6.6 Perceived Impact: Results of Questionnaire Survey ----------172

6.6.1 Demographic Data ----------172

6.6.2 Business Characteristics ----------174

6.6.3 SMMEs' Opinion on the Growth of their Business ----------177

6.6.4 SMMEs' Profitability versus Expenditure on Electricity ----------179

6.6.5 Perceived Quality of Service Offered by KPLC and Eskom ----------184

6.6.6 Other Relevant Factors of Concern ----------187

6.6.7 Prepaid Meters and other Measures of Efficiency ----------189

6.6.8 SMMEs' Opinion on KPLC's and Eskom's Overall Performance ------193

6.7 Summary ----------194

CHAPTER SEVEN

RESEARCH FINDINGS, CONCLUSION AND RECOMMENDATIONS

7 INTRODUCTION ----------197

7.1 Main Research Objectives ----------197

7.1.1 Causality between Electricity and Manufacturing ----------198

7.1.2 Impact of Adoption of Benchmarking on KPLC and Eskom ----------199

7.1.3 Impact on Small, Micro and Medium Enterprises (SMMEs) ----------202

7.2 Factors that may have Influenced Adoption of Benchmarking ----------205

7.3 Other Aspects of Benchmarking Strategy that are of Benefit ----------206

7.4 Research Recommendations----------207

7.4.1 Recommendations for Support of SMMEs ----------208

7.4.1.1 Public-private-partnership (PPP) in Problem-Solving ----------208

7.4.1.2 Inter-Enterprise Self-Help Group Support for Sustainability -----210

7.4.1.2 Cooperation with the Education Sector ----------211

7.5 Limitations of the Study ----------212

7.6 Further Research ----------213

7.7 Conclusion----------214

References----------217

Appendices ----------239

List of Tables

Table 2: 1- Classification of SMMEs ----------46

Table 3: 1- Benchmarking Gap Analysis Model in the Electricity Sector ----------62

Table 5: 1- Structure of the Questionnaire ----------124

Table 6: 1- ADF Test Results Based on SBC Lag Choice (Kenyan Time Series) ----------142

Table 6:2a- OLS Analysis for Cement ----------145

Table 6: 2b- Granger-Causality Test Results for Cement ----------146

Table 6: 3a- OLS for Galvanized sheeting (GS) Output Indicator as the independent variable to electricity output, past effects of galvanized sheeting productivity, DUME ------148

Table 6: 3b- VAR Granger causality test results for Galvanized sheeting. ----------148

Table 6: 4a- OLS Analysis for Sugar (SU) ----------149

Table 6: 4b- VAR Granger causality test results for Sugar ----------149

Table 6: 5a- OLS Analysis for Tea (T) ----------150

Table 6: 5b- VAR Granger causality test results for Tea (T) ----------150

Table 6: 6a- OLS Analysis for Soft Drink (SD) ----------151

Table 6: 6b- VAR Granger causality test results for Soft Drink (SD) ----------152

Table 6: 7- Augmented Dickey-Fuller Unit Roots Test on D(LM) and LE, respectively -----153

Table 6: 8- Cointegrating Test between LM and LE ----------154

Table 6: 9- VECM for Manufacturing and Electricity, as dependent variables ----------157

Table 6: 10- The Variance Decomposition for Cement and Electricity ----------160

Table 6: 11- Variance Decomposition of Galvanized Steel and Electricity for Kenya --------163

Table 6: 12- Variance Decomposition for the South African VAR Model: Manufacturing Output and Electricity Output ----------165

Table 6:13- Gender of respondent Cross-Tabulation ----------172

Table 6:14- Frequencies of Age of Respondents ----------173

Table 6: 15 Frequencies of Number of employees ----------175

Table 6: 16- Year business was registered as an SMME ----------176

Table 6: 17- Year business started to rely on electricity ----------177

Table 5: 18- Frequencies of Yearly Average Profit Means for SMMEs in Categories (Kenya) ----------179

Table 6: 19– Frequencies of Yearly Average Profit Means for SMMEs in Categories (S. A.) ----------180

Table 6: 20- SMMEs' opinion on percentage loss on business due to power outages --------183

Table 6: 21-Content analysis illustrating level of business losses SMMEs experienced ------184

Table 6: 22 – Frequency of incidences as a Result of Electric Fault ----------186

Table 6: 23- Other Relevant Factors Considered ----------187

Table 6: 24 Support for prepaid meters ----------190

Table 6:25- Impact of Adoption of Benchmarking on SMMEs' growth and efficiency of operation ----------191

Table 6: 26- Impact of mode of communication between KPLC, Eskom and SMMEs ------193

List of Figures

Fig. 2: 1- The Eight Attributes of Smart Distribution System ----------29

Fig. 2: 2- Electricity Structures: Each shape in the diagram represents a distinct electricity entity ----------37

Fig. 3: 1- A selection of features documented in the CEUS database ----------71

Fig. 3: 2- Ideal Electricity Demand and Pricing Relationship using Natural Monopoly Demand Curve ----------87

Fig. 4: 1- Inter-organizational Problem-Solving Model ----------103

Fig. 6: 1- Bivariate VAR: Cement – Electricity ----------159

Fig. 6: 2- IRF Bivariate VAR for Galvanized Sheeting and Electricity ----------162

Fig. 6: 3- IRFs of Manufacturing and Electricity VAR Model for South Africa ----------164

Fig. 6: 4- IRFs of Manufacturing and Electricity VECM Model for S.A. Data ----------166

Fig. 6: 5- Kenya: Electricity Generation, Consumption, Export & Import (in bn kWh) -----167

Fig. 6: 6- S.A.: Electricity Generation, Consumption, Export & Import (in bn kWh) --------168

Fig. 6: 7- KPLC's Profit and Expenditure (in Rbn) between 2000 and 2009 ----------169

Fig. 6: 8- Eskom's Profit and Expenditure (in Rbn) between 2000 and 2009 ----------171

Fig. 6: 9 Yearly Average SMMEs Mean Profit & Expenditure (in R. millions) on Electricity (Kenya) ----------181

Fig. 6: 10 Yearly Average SMMEs Mean Profit & Expenditure (in R. millions) on Electricity (S.A.) ----------182

ABSTRACT

The current study aimed at establishing the impact of the adoption of benchmarking strategy in the Kenyan and South African electricity sectors, first on KPLC and Eskom and second, on the Small, Micro and Medium Enterprises (SMMEs) of the two countries. It focused on critically analysing the positive and negative factors that may have influenced the adoption of this strategy by KPLC and Eskom. The second objective was to gain a comparative understanding of the nature of the overall relationship between the outputs of these electricity sectors and those of the businesses which rely on electricity, represented by the manufacturing sectors of Kenya and South Africa, respectively. In addition it aimed to establish if there were other adoptions of benchmarking strategy used by global electricity sectors that could be adopted by KPLC and Eskom to enhance positive impact.

The research was motivated by the various electricity consumers' complaints against KPLC and Eskom. Both sectors, like many others in developing economies, have faced consumer complaints in relation to high and frequent increases in electricity tariffs and prolonged and sometimes, unplanned power outages. This could have negatively affected the economies of these countries in general and the economic well-being of the SMMEs in particular. The recurrence of the blackouts which the researcher assumed to represent the level of efficiency of power supply was used to indicate the sectors' service quality. Majority of the SMMEs interviewed indicated such problems as wastage of merchandises, loss of work-time, conflicts with clients and therefore, loss of business opportunities and generally resulting in inefficient business operation. The results from the manufacturing sector also indicated that losses were experienced as a result of the outages. For example, the study established that a 1% rise in kWh of electricity production resulted in a 48% rise in galvanised sheeting output, per month. Therefore, a 1% drop in the supply of electricity would therefore lead to a 48% drop in galvanized sheeting production per month. These losses were supported by earlier documented evidence. For example, Eberhard et al., (2008: 4) argue that rampant power outages result in extensive damage and losses with the informal sector experiencing as high as 16% loss in their income.

However, it is worth pointing out that despite the consumer complaints, the presence of electricity was noted to have enhanced the efficiency and effectiveness with which the SMMEs

and the manufacturing sectors ran their businesses. In fact, a majority of SMMEs interviewed indicated that it was difficult to start and or run a business without relying on electricity.

The study recommended that the electricity sectors need to benchmark other countries that appear to have achieved higher rates of national electrification on global perspective. Such countries as Tunisia, Algeria, Egypt and Libya have achieved almost 100% national electrification level. However, as much as there were consumer complaints in Kenya and in South Africa, the latter had attained higher levels of national electrification as compared to the former. South Africa's level of national electrification stands at 70% as of 2011 (Sub-Saharan Africa Power Outlook, 2011: 4). Kenya is said to have always battled with national electrification levels lower than those of sab-Saharan Africa which are the lowest in the world. For example, Abdullaha and Markandya, (2010) reveal that in 2000, these rates were 42% for Kenya and 51% for sub-Saharan Africa. This scenario points to the fact that in many ways, KPLC needs to benchmark Eskom in several ways. For example, Kenya's tariffs are much higher than those of Eskom and this is occasioned by the fact that whereas as KPLC relies heavily on hydro-electric generation, Eskom relies more on nuclear and renewable source of electricity.

This research also advocated for special tariffs for SMMEs considering their contribution to their countries' economy. The SMMEs were noted to be efficient sources of employment and producers of some of the inputs required by larger companies. Therefore, this study recommended that the governments and their stakeholders like KPLC and Eskom needed to support SMMEs. In addition, this study suggested several other ways through which the sustainability of SMMEs can be guaranteed. Such initiatives as Public-Private-Partnership (PPP), Inter-enterprise Self-Help Programmes and incorporation of the education sector in support of growth and development of SMMEs were suggested. Similarly, this advocacy springs from the fact that the SMMEs operate a highly competitive environment, while KPLC and Eskom enjoy "natural" monopoly and also enjoy the benefits of economies of scale since they are large companies as opposed to SMMEs, which are small enterprises.

CHAPTER ONE

OVERVIEW OF THE STUDY

1 INTRODUCTION

The business environment is constantly changing and whether a firm is out to make profit or not, it is necessary that the firm keeps monitoring the changes in its environment in order to survive. The changes include: socio-cultural, political, economical, globalization and informational and technological advancements. These changes have triggered the need for continuous innovations to exploit the advantages that come with them. Similarly, consumer needs, wants, tastes and preferences keep changing as they become exposed to these changes, especially, in technology. Technological advancements enable consumers to learn of the changes taking place in other parts of the world and this triggers changes in their preferences. Therefore, whether faced with competition or not, firms have an obligation to provide or offer the kind of products and services that their consumers desire. This in turn would keep those firms in continuous search of more efficient and effective ways to attain the goals and objectives for which they put into existence. Thus, the competitive environment in which organizations operate would trigger the need for benchmarking.

Organizations need to operate as open systems for their own survival. Survival here means the ability to achieve their goals and objectives in a cost-effective manner. In order to do so, firms must devise meaningful and workable strategies. An organization that is an open system has a meaningfully mutual relationship with the environment in which it operates (Emirbayer, 1997: 287); it receives from and gives back to that environment, in terms of input and output, respectively. Organizations need to move away from the "*old closed innovation models*" to newer strategies of exploiting ideas from both the inside and outside (Stucki, 2009: 2). The environment ranges from the society in which a firm operates to the regional, national and international markets from which it draws its inputs (such as human and financial resources, raw materials) and to which the firm sells its products and or services. As organizations change and adopt reforms and different strategies they are

compelled to observe the implications of their practices on other players in the environment.

One strategy, which has been widely used in the business world and private sector for survival is benchmarking. This strategy is also receiving greater attention in non-business fields such as education, non-governmental organizations (NGOs) and public utilities like water, telecommunication, transportation and energy. Benchmarking is about change or adopting reforms that are geared toward improving the quality of products and services, positively enhancing consumer perception of the organization and it offers the consumers. It is also about enhancing efficiency and effectiveness in the course of operation to save on costs while at the same time improve on a firm's profitability and for that of the entities that rely on a specified firm. This study aimed to establish the extent to which the electricity sectors in Kenya and South Africa have adopted the strategy and the impact of this adoption on these sectors and on the businesses that rely on electricity.

1.1 Background to the Study

Kenya and South Africa are both developing economies, although South Africa has moved a step forward. SouthAfrican Info. (2011), an online journal, notes that South Africa is one of Africa's most advanced and productive economies. United Nations Population Fund (UNPF, 2009) indicates that one of the characteristics of developing economies is the high rate of population increase. The high population and several others factors could be partly blamed for the Kenya Power and Lighting Company (KPLC) and Electricity Commission of South Africa's (Eskom) inability to fully satisfy their consumers' demand for electricity. More often than not electricity consumers have been faced with power outages in the form of power rationing or unplanned for blackouts. They have also faced adhoc tariff increases, inflated electricity bills and erroneous disconnections, among others complaints. While KPLC and Eskom adopt different reforms that have been used by other countries, one of their main goals should be to address the increasing consumer complaints and the ever increasing demand for electricity. These factors could be an indication of loss of trust and confidence of the citizen-consumer in the public utility. In order that the citizens restore the trust and confidence, KPLC and Eskom need to address their consumer needs. This

should be in terms of: what they need, how they need it, how much they need and when and where they need it.

Many researchers have noted that citizens have had a low opinion over public sector and its service providers on a global scale. For example, Jooste (2008: 2) argues that public sector inefficiencies and liberal economic ideologies in countries like Britain and New Zealand triggered reforms in the public sector in those countries. Nyangena (2008: 117), Ugaz (2003: 1) and Christensen and Laegreid (2003: 7) note that for a long time now, public sectors in developing countries have been viewed as being inefficient service providers. Jooste (2008: 3-4) argues that the Structural Adjustment Programmes (SAPs) introduced in developing countries in the 1980s eroded the capacity of the public sector and caused an increase in levels of poverty. Unlike Jooste, Nyangena (2008: 118) posits that the introduction of SAPs by the World Bank and IMF aimed at forcing the African governments to privatize public entities which were merely making losses due to over dependence on government subsidies.

The above arguments mean that the services offered by the public sector fall below the expectation of the citizen-consumers and therefore, the consumers is dissatisfied. Pessoa (2008: 2) suggests that the lack of competition in the public sector makes that sector to lack incentives for quality improvement. Pessoa (ibid) argues that it is more common in those areas where the public sector utilities are the sole providers of the services in question. Examples here would include the electricity sectors in certain countries like Kenya and South Africa.

Many public sector organizations need to device strategies that could restore the trust and confidence of the citizens-consumers in the public entities. Public sector and its service providers have been time and again accused of laxity, inconsistency and inefficiency and therefore need to improve on their integrity. The citizen-consumer needs to be given a say in what the public sector offers and how it makes the offer in order to make the public sector and the providers to be responsive to the needs of their consumers. Rao (2010: 6) points out that concentration of economic and political power in a few hands and a few agencies results in loss of freedom, and innovation in the government and public administration. He adds that this results in poor service delivery.

Therefore, this research argues that both KPLC and Eskom have social responsibility to the society in which they operate. This research further argues that the electricity sectors should prioritize their concern for consumers who make a positive impact on the country's economy. In such a category of consumers are the SMMEs whose contribution in employment creation is commendable. Like any other firm that deals with consumers, KPLC and Eskom should realize that consumers are the strength against which the electricity companies pitch their survival. Drucker (2006: 20-21) posits that consumerism dictates what the sellers consider the need, values and realities of the consumers. He adds that consumerism emphasizes the goal of sellers as being satisfaction of consumer needs and that the rewards of the business must be its contribution to the consumer. While a firm engages itself in adopting the benchmarking strategy, it may or may not be well aware of the impact this adoption has on the firm itself, on its consumers, on the specific industry that that firm belongs to, on other industries and on the economy of the country in which they operate. Braadbaart (2007: 667) notes that whereas, the public sector has wholeheartedly embraced benchmarking, it is not obvious how the adoption of this marketing strategy affects these public sector organizations and those that depend on them. This study aimed to establish such an impact both on KPLC and Eskom and on SMMEs which rely on electricity.

1.2 Overview of Benchmarking

Benchmarking can be perceived as the predetermined changes in firms for different purposes. The strategy as applied in the electricity sector would mean any reforms and restructuring implemented in the electricity sector for the general well-being of the sector and its stakeholders. To improve sector operation and enhance service delivery would be at the centre of the electricity sector. Wolde-Rufael (2006: 1108) explains that reforms in the electricity sector are done on the assumption that investment in electricity sector raises the level of efficiency and eventually leads to economic growth. Reforms have been witnessed in form of incorporating a regulatory system in the electricity sector, use of pre-paid meters, unbundling the vertically integrated utility at generation, transmission and

distribution levels, diversifying the sources of electricity generation, and privatization of public utility.

Benchmarking, as it is used today, is associated with the Xerox Company a machine manufacturing company based in the United States of America (USA). The history of Xerox's benchmarking can be traced as far back as 1982 when David T. Kearns became the Chief Executive Officer (CEO) and started a programme known as "L*eadership through Quality*" (Moore, 2008; Ross and Besterfield, 2008; Denkena, Apitz and Liedtke, 2006; and Yasin, 2002). The programme aimed at producing quality products and at the same time ensuring that the company took leadership position in production and sale of quality copiers. Moore (2008: 1) posits that benchmarking was adopted by the Xerox in a bid to reduce cost of production and improve the quality of the company's copier products. The Xerox Company tracked the Japanese companies to find out why and how their copiers were cheaply produced thus affording the Japanese companies competitive advantage. The Xerox Company found out that one trick lay in the smaller number of suppliers that the Japanese dealt with (which was 1000 suppliers) as opposed to the Xerox Company which had 5000 suppliers.

The Xerox Company set out to also explore on the materials, processes and methods used in Japan that made the costs of their photocopier cheaper. Yasin (2002: 218) further notes that the lessons learned by the Xerox allowed the company to improve the design and production efficiency, thus by initiating benchmarking as a competitive tool in business. Since the origin of benchmarking is associated with the Xerox, it only fair that the Xerox's definition of benchmarking is put into consideration. Moore (2008: 3) quotes the Xerox company's definition of benchmarking as "*…the process of measuring its products, services, and practices against its toughest competitors, identifying the gaps and establishing goals…"*

Judging from the earlier researchers, scholars and writers, the current research posits that benchmarking could be summarized as a continuous process of adopting reforms. Any reforms, be they structural, technical or otherwise or whether they are internally or externally generated, are all considered to be aspects of benchmarking. It can, thus, be said that when an organization is set up, that is the genesis of the adoption of the benchmarking strategy for that particular entity. Internal benchmarking means that a firm devises the best

ways of determining areas of improvements or areas that need total restructuring within the organization. Sources of information that can enhance internal benchmarking include the firm's history of operation, the internal customers (the employees) and the management of the firm. Internal benchmarking draws its strength from the collaboration of all its internal stakeholders. Apart from the internal synergy, the firm could rely on external benchmarking to achieve its goals and objectives more effectively and efficiently. Such external factors include ideas and information about the desired changes reflecting those of other organizations that have enjoyed success. The external sources could be competitors or best-in-class or the exemplar (Moriarty 2008: 7) or benchmark (Coulter, 2010: 211).

The current research contends that increased profitability of the businesses that rely on electricity and enhanced consumer satisfaction should be some of the expected outcomes from effective benchmarking in KPLC and Eskom. This research aimed at establishing the impact of the benchmarking strategy adopted by the KPLC and Eskom on the Small, Micro and Medium Enterprises (SMMEs). To effectively do this and to overcome the weaknesses of relying fully on the subjective responses of the SMMEs, this research also aimed at establishing the overall relationship between the electricity output and that of the manufacturing sector.

1.3 Statement of the Problem

A number of success stories of the adoption of the benchmarking strategy have been discussed in the literature review. Despite all the gains of the strategy as documented particularly in practitioner literature (Lai and Yik, 2008; Martina, Hakvoort and Ajodhia, 2008; Bogetić and Fedderke 2006; Wynn-Williams 2005), there has been a growing evidence of dissatisfaction among consumers in as far as the quality of service provided is concerned. The electricity sector in Kenya and South Africa are no exceptions. The presence of electricity consumer complaints and the increasing demand for electricity could be an indication that electricity sectors have a lot room for improvement. It could mean that either the supply is diminishing or that the quality of service by the sector is low. This could also imply that electricity has become a universally essential and valuable need.

It is possible to measure the exact value of electricity on the well-being on the people, on the society, on the country and its economy. Kouakou (2011: 3638) notes that it is empirically proved that the effect of energy factors, for example electricity, on the economy has been established using analysis of causality between the energy factor and an economic factor like GDP. It is also possible to bring out the impact that electricity may have on the company itself and on the consumers.

Asian Development Bank (ADB) Guidance Note (2009: 1-2) and Adoghe, Odigwe and Igbinovia (2009: 37) argue that the absence of reliable electricity and other factors in the infrastructure category have had a terrible impact on the economic growth. Adoghe et al., (2009: 40), point out that in Nigeria these factors have led to high levels of poverty. They further argue that reliable power sources, transmission and hence distribution could tremendously reduce costs, positively enhance efficiency and trigger the growth of small businesses who survive on electricity. The ADB-Guidance Note suggests that any reduction in the electricity supply may lead to "*…disruption of economic activities, fewer job opportunities, and use of less-efficient and more-polluting, smaller power generation sets…"* The Note (ibid) stresses that reliable electricity results in economic growth, sustained human development, improvement in services like health and education and enhances digital connectivity. Digital connectivity is critical in today's information explosion era as it is expected to improve economic opportunities and nurture entrepreneurship.

The fact that there are consumer complaints about the quality of electricity services offered by KPLC and Eskom is proof enough that they need to reconsider the benchmarking strategy adopted by KPLC and Eskom. Ploch (2009: 16) notes that consumers have severally faced sharp increase in power tariffs. Frequent price increases in the cost of power and other reforms are likely to impact on the consumers, especially SMMEs. Erero (2010: 3) reports that between 2005 and 2008 South Africa experienced high power outages and the then President of the Democratic South Africa confessed and apologized that the government at the time had been unable to handle the crisis. This situation heavily affected industries and it is likely that the smaller enterprises that are dependent on electricity were also affected. Erero (2010: 3) notes that in order to prevent electricity shortages, South Africa needs to invest a lot in this critical infrastructure. He argues that if

this is not done the result would be higher end user prices leading to a negative effect on the country's economy.

In order to improve the economy, more expenditure has to be incurred especially on the infrastructure of which electricity is part. Ali and Pernia (2003:4) suggest that roads, irrigation and electricity are some of the critical areas in which governments need to heavily invest in order to improve on the country's economic well-being. Ali and Pernia (2003: 8) report that investment in electricity has had a strong and positive impact on poverty in Asian countries and that in China, for every 10,000 yuan spent on development of electricity, 2.3 persons were alleviated from poverty. Ali and Pernia (ibid) further observe that in Indonesia and in the Philippines, electricity has triggered access to technology thus by increasing employment as well as income to the poor. These are benefits that accrue from accessibility to reliable supply of electricity. This study argues that SMMEs and other consumers have a higher chance to benefit socially and economically from sufficient electricity.

It is common knowledge that there is world-wide scarcity of employment. Many jobs have been created through SMMEs with the help of relevant infrastructure of electricity is part of. Through employment creation these business ventures contribute to the economic growth of any given country, directly or indirectly just as the electricity sector does. It is, therefore, necessary to establish the impact of the adoption of the benchmarking strategy by the electricity sector and its impact on the sector itself and on businesses that rely on this sector's output.

Most of SMMEs are known to be struggling for survival, especially in the urban areas where there are larger enterprises that dwarf the efforts of SMMEs. This is made worse by the high tariffs and the recurrent power outages in Kenya and in South Africa. Karekezi, Kimani, and Onguru, (2008: 16) observe that the cost of electricity in Kenya for the end user is relatively high as compared to the prices charged by the sectors in neighbouring countries. This may discourage potential entrepreneurs from venturing in viable businesses that rely on electricity and may also discourage the existing SMMEs from expanding. The practices, procedures and policies in the electricity sector in Kenya and South Africa, respectively, could have positively or negatively impacted, first on KPLC and Eskom and second, on SMMEs in Kenya and South Africa. There is likely to be a relationship

between the output of the electricity sectors and that of the manufacturing sector (in this study representing those businesses that rely on electricity for operation).

Brew-Hammond and Kemausuor (2009: 83) note that Sub-Saharan Africa's accessibility to electricity is relatively good. They note that nearly less than one third of households have no access to electricity. Regardless of the view of these two researchers, the current research argues that governments and electricity sectors need to work hard and fill this disparity as electricity has become a basic and universal need. This view also expressed by Brew-Hammond and Kemausuor (2009: 83) who argue that accessibility to electricity is considered a right to all citizens or a public good that has to be provided for all people in a given country. The World Bank (2010: 5) notes that, compared to other countries, Kenya's accessibility to electricity is relatively low. The World Bank further notes that this causes some difficulties in achieving the country's socio-economic objectives. A country's general stability is highly pegged on its socio-economic success. These views and several others may be a pointer to the impact of the adoption of the benchmarking strategy. Another pointer emanates from the level of the consumer complaints which is briefly presented below.

1.4 Motivation of the Study

There were two main sources of motivation for the current study. These are, electricity consumers' complaints and the levels of profits and losses that the KPLC and Ekom have registered in their courses of operation. Below is a discussion of each of these factors, starting with Consumers' complaints.

1.4.1 Electricity Consumers' Complaints

Despite the importance of adoption of the benchmarking strategy and despite the fact that it has been adopted by many public service organizations, there is still an element of consumer dissatisfaction within these institutions. This dissatisfaction may be expressed in terms of consumer complaints. This could be a reflection of the level of performance of the

service provider. Many organizations still experience difficulties of operation and quality service delivery. Braadbaart (2007: 667) notes that in part, methodological issues are responsible for the gap between the theory and practice of public sector benchmarking. It is not yet known the extent to which the firms may experience the difficulties and it is also not known the extent to which the firms followed the guidelines of implementing benchmarking strategy. Both KPLC and Eskom have suffered consumer complaints despite adopting the benchmarking strategy.

There have been diverse consumer complaints. In Kenya, KPLC was accused of being more interested in profit generation at the expense of providing quality service to the consumers (African Centre for Open Governance- Africog, 2008). Also, there have been consumer complaints about inflated bills and the company could not resolve them to the consumers' expectation. As late as of November 2010, KPLC was in conflict with its consumers over faulty meter readings that consumers claimed resulted in inflated electricity bills (Neighbourhood, 2011: 3). In 2008, Kenyan electricity consumers raised complaints about the increase in the electricity tariff. In the same year, consumers complained about the company's intention to introduce the pre-paid metres (Africog, 2008), which would have seen all consumers pay for electricity before consumption. The pre-paid meters were suspiciously viewed by the consumers as a way of extorting money from them.

In 2010, South Africa's National Energy Regulator of South Africa (NERSA) granted utility Eskom, a nominal 24.8% tariff increase for the 2010/11 financial year, raising concerns among consumer protection bodies that such a move would fuel inflation in Africa's biggest economy (Mail and Guardian, 2010). Ploch (2009: 15) notes that in early 2008, the whole of South Africa experienced severe widespread power cuts that cost the country economic loss. NERSA Annual Report (2008: 23) explains that some of the extensive power outages experienced between 2007 and 2008 were as a result of mechanical maintenance that the company had been carrying out. Malzbender (2005: 28) discloses that most of the people he interviewed in a research he carried out in Tembisa and Ivory Park, in South Africa, complained of the cost of electricity which used to be increased once or twice a year. Malzbender adds that most of them could not afford the cost of electricity. They also complained of high bill arrears which may have been inherited from earlier users of the premises. The residents of Tembisa and Ivory Park are

not alone. Williams and Roberts (2010) observe that farmers and households have had to bear the burden of electricity non-paid bills by municipalities as well as electricity used by immigrants.

Another incident of consumer complaint was noted in 2009 in which the National Consumer Forum (NCF, 2009) showed dissatisfaction with NERSA, when Eskom sought NERSA's consent to be allowed to increase electricity tariff by over 31%, and NERSA consented. The NCF labelled the move as highly damaging to consumers and to the economy of the country as a whole (NCF, 2009). NERSA is a regulator and in essence and as (Parker 1999: 214) notes, regulators are expected to protect the consumer against exploitation, yet on a number of occasions, ERC and NERSA had allowed the KPLC and Eskom, respectively, to make frequent tariff increases. Who controls and influences the decisions of these regulators? Stucki (2009: 2) notes that public utilities are more often than not controlled by the government, directly or indirectly.

Erero (2010: 2) notes that, in 2009, having realized a loss of R9.7bn, Eskom applied for new tariffs, which meant that the burden of recovery from the loss would be pushed to consumers. Why is profit never shared with the consumers as well since huge profits are, more often than not, announced? Van Heerden, et al., (2008: 8) argue that there are times when certain entities are exempted from electricity costs. Fin24.com (2010), an online publication points out that Eskom is owed almost R. 189,2m in electricity arrears by provincial and national governments. It is not clear how Eskom fills up these gaps.

Other consumer complaints in the electricity sector include delay in connection and or reconnection, erroneous disconnection, inflated electricity bills, frequent impromptu black-outs, unplanned tariffs increases, among others. This could imply that consumer complaints valid. Eskom Holdings Limited Annual Report (2009: 111) confesses that there are several areas through which the company may count losses in the course of electricity transmission and distribution; through theft including illegal connections and meter by-passing, errors in calculation or error in estimation of technical losses, problem of data quality or errors associated with distorted technical information and generally errors associated with billing.

The Electricity Commission of New Zealand Final Electricity Commission Annual Report (2010: 9) also notes that much electricity is lost in the course of transmission especially so when the distance between generation and distribution is long centres. It may not be clear how the company can prove which consumer may be correct in such incidences as erroneous billing and many of them end up paying for what they did not use. It is also possible that some of the technical losses may be pushed to consumers to shoulder, especially if these losses result from errors associated with distorted technical information. It is not surprising then when Auriol and Picard (2006: 3) suggest that part of the tariff increases that cannot be accounted for stem from illegal electricity connections.

The electricity sector is a public sector and more often than not, many citizens have raised complaints about the low quality of the services delivered by the public sector. This is experienced mostly in developing economies and the situation is worse in Sub-Saharan Africa. Malzbender (2005: 30) notes that the residents of Tembisa and Ivory Park (in South Africa) complain about the kind of services offered. Malzbender discloses that many complaints launched went unheeded to since the service providers never gave any feedback from the municipalities that supplied them with electricity. Malzbender (2005: 30) empathizes with the consumers that the council employees failed to be sensitive and also failed to understand while dealing with electricity problems that the residents were experiencing. These are not problems limited to residents of Tembisa and Ivory Park but are universal and are likely to be faced by SMMEs.

Wynn-Williams (2005: 482) explains that performance evaluation should respond to the societal needs and to the way finances are managed since the public sector firms are funded by tax-payers. He further argues that the public sector has the obligation to fulfil the objectives of the society by improving the public utilities. Malzbender (2005: 28) discloses that consumers complained of there being two different types of meter systems; one for those purchasing directly from Eskom which paid relatively lower prices and another for those purchasing from municipalities, who paid slightly more. Eskom needs to look into such cases to reduce consumer complaints.

Kenya and South Africa, like many African countries are unable to satisfy the high electricity demand. Brew-Hammond and Kemausuor (2009: 83) note that Sub-Saharan African countries generally suffer from shortage of power supply, which has led to

rationing due to the gap between the level of generation and the ever increasing demand. They blame the level of demand on the increase in population. Ngigi and Macharia (2006: 4) contend that Kenya has had a weak electricity transmission and distribution capacity which is due to limited investment in the upgrading of the power system. They argue that the economy at that time had to lose an estimated 20% of the total electricity generated and suffered from extreme voltage fluctuations and outages. These outcomes sometimes resulted in equipment and material damage and losses in production of businesses that relied on electricity. These losses needed to be adequately compensated. Erero (2010: 3) observes that South Africa's electricity demand problems were highlighted as far back as 1997 but due to inefficient management, nothing significant had been done about the expected demand, by way of seriously investing in this critical sector. Erero (ibid) further notes that Eskom was subjected to weak governance and inadequate regulatory mechanisms and this could have been partly caused the outages.

The level of investment in the electricity sector may be partly the cause of power shortage in African countries. African Development Fund (ADF, 2010: 4) observes that the project it was funding in Kenya at that time was viable since it was expected to stabilize the power supply and help to lessen the losses that consumers encountered due to power failures and outages. The World Bank (2010: 2) notes that Kenya has under-invested in the electricity sector. The World Bank suggests that this under-investment may have contributed to unreliable generation and therefore unreliable transmission and distribution of electricity, which triggered loss in competitiveness and heightened the cost of doing business in Kenya. It concludes that in the end, trade prospects diminished, affecting the economy. Inefficient and inadequate supply of electricity may also result from the fact that Kenya relies predominantly on hydro-electric power generation which is wholly dependent on weather. When the rains fail, the supply declines and the cost of electricity is raised. However, when the rains return, the company drags its feet in bringing down the price.

This study aimed to establish the best benchmarking strategy that the KPLC and Eskom could adopt from countries whose electricity sectors have excelled. Such countries include United Kingdom (UK), the United States of America (USA) and China, among others that have been able to satisfy their consumer needs through efficient and sufficient electricity supply. This is elaborated on in the literature review in Chapter Two Section 2.4.

1.4.2 Kenyan and South African Electricity Sectors

In this section the study provides an overview of the KPLC and Eskom. In any given country, the energy sector is one of the most important sectors more so in relation to the growth of the economy. Electricity is and must be considered as a worldwide universal necessity. There are various sources of electricity: hydro-power, solar, geo-thermal, wind power, bio-gas, and coal, among others. Electricity is the most preferred source of energy by most people in many countries. Eberhard, Foster, Briceño-Garmendia, Ouedraogo, Camos, and Shkaratan (2008) argue that the future of Africa's energy is found in hydropower. Below the study discusses the Kenyan electricity sector, whose main source of generation is hydropower.

1.4.2.1 The Kenyan Electricity Sector

Kenya generates most its electric power from hydro sources, but also does so from geo-thermal, bio-mass, wind, solar, coal, among other minor ones. Nyoike (2002: 1) notes that in 2002, electricity accounted for only 8% of the total national energy at that time. As at July 2010, wood fuel and biomass accounted for 68% of the total primary consumption. This was followed by petroleum at 22%, electricity at 9% and coal and other sources accounted for less than 1% (Departmental Committee on Energy, Communications and Information on the Ownership and status of KPLC, 2010: 6).

As at 2009, Kenya consumed a total of kWh 4.863 of electricity as compared to kWh 4.078 in 2000. This was inclusive of electricity generated locally and imported. In the same period the country generated kWh 5.223 as compared to kWh 4.23 in 2000. Similarly, the country imported kWh 0.0225 as compared to kWh-hours 0.144 in 2000 and exported kWh 58.3 while none was exported in 2000 (Index Omundi, 2008) (See Appendix I and Figures 5.1). These figures point to the fact that Kenya had shown a relatively slow improvement in the generation electricity. Comparatively, South Africa had much higher levels of generation and export of electricity compared to Kenya. The impact of these different levels of production on the electricity sectors themselves and on the electricity consumers (here represented by the SMMEs and the manufacturing sector) may not yet to be fully established.

The United Nations Environmental Programme (UNEP, 2006: 26) notes that efficiency generation and distribution of electricity can be a good indicator of economic viability. The UNEP document suggests that loss in the distribution of electricity is caused by the long distance between the generation points and the end users but not at the source. As at 2006, the amount of electricity lost by KPLC due to distribution and theft was estimated at 18.4% down from 24%, although it was forecast to decline to 15% by 2007 and to a further 12% by 2025 (UNEP, 2006: 26). It is possible that the electricity sectors may recover these losses through raising the tariffs.

1.4.2.2 The South African Electricity Sector

South Africa, unlike Kenya, generates most of its electricity from coal. It is believed to be among the lowest cost of producing electricity and also among the lowest priced in the world. This is mainly because South Africa generates most of its electricity from coal, which is cheaply and locally mined (Generation Communication, 2007: 1). Odhiambo (2009: 635) observes that South Africa was ranked as one of the highest producer and consumer of electricity in Africa and had one of the highest levels of electricity reserves in the world.

Bredenkamp and Legodi (2006: 407) note that although South Africa was *'officially'* regarded as a developing country, the energy infrastructure was significantly advanced (beyond the level of a developing economy), with Eskom consistently rated amongst the top 10 global utilities, in terms of generation capacity. Bogeti´c and Fedderke (2006: 45) suggest that by 2006, South African average end-user prices (UScents/kwh) were one of the cheapest in the world at 3 cents, per kWh, for residential and 2 cents for non-residential customers. Similarly, Van Heerden, Blignaut, and Jordaan (2008: 1) observe that South Africa was noted to have one of the cheapest consumer electricity prices, second to New Zealand. In the first quarter of the year 2010, Eskom announced its price increments based on the Multi-Year Price Determination policy as follows; 41.57 c/kWh, 52.30 c/kWh and 65.85 c/kWh for 2010/11, 2011/12 and 2012/13 financial years, respectively (NERSA, 2010: 1). This could be due to the extent to which Eskom has adopted the benchmarking strategy. Appendix I and *Figure 5: 2* sum up electricity logistics of Eskom.

Nyoike (2002: 991) notes that Eskom was vertically integrated and was virtually a monopoly, even though there had been policy pronouncements that it would undergo some form of unbundling. Due to South Africa's strong economic growth, rapid industrialization and a mass-electrification programme, the demand for power outstripped supply by early 2008. Other sources of electricity in South Africa include; nuclear energy, synthetics fuel, oil and gas (South African Info, 2010). South Africa has tended to focus on numerous renewable sources of electric power. Winkler (2005: 28) notes that 93% of South Africa's electricity was generated from coal as at 2005 although Amatayakul, Berndes and Fenhann (2008: 4) put this figure at 90%. There is need for KPLC to benchmark South Africa in terms of increasing its level of electricity generation through expansion to renewable resources.

Bogeti´c and Fedderke (2006: 4) suggest that as at 2005, the main weakness in South Africa's electricity was inherent electricity in access, which remained limited, particularly in terms of service delivery to the poor. The acquisition and running costs were too high for the poor. The situation could have got worse. National Labour and Economic Development Institute (NALEDI, 2006: 7) notes that inefficiency in the public sector service providers should be a motivating reason to make Eskom to be unbundled. NALEDI (ibid) suggests that it is the poor level of investment in the electricity sector and the poor service delivery that are the genesis of problems in the electricity sector in South Africa. Malgas and Eberhard (2011: 3191) note that many African and other developing countries adopted a hybrid reform model which has resulted in problems.

The problems that Kenya and South Africa undergo may or may not be similar. An evaluation of each electricity sector would help establish how much impact the adoption of the benchmarking strategy has had on the companies and on the SMMEs of their respective countries. It is against this background that this research aimed to trace the benchmarking practices adopted by KPLC and Eskom between 2000 and 2009 and establish the impact of this adoption on the companies themselves and on SMMEs. This research also aimed to establish causality between electricity and manufacturing outputs in order to verify the responses from the SMMEs.

1.4.3 Policy Implications

The above discussion raises certain policy implications for the countries involved. First and foremost, that in order for the electricity sectors to be able to satisfy the ever increasing demand and solve the problems related to consumer complaints, more investment has to be made. The call for clean sources of energy which targets to enhance the use of renewable sources of energy is likely to make the budget towards this sector larger than ever anticipated. Williams and Roberts (2010) observe that Eskom is an insufficient electricity producer as it has failed to consider other sources of electricity but instead relies heavily on coal. Kenya also needs to greatly diversify her energy sources to expand in to use of renewable sources. Jamasb, Mota, Newberry and Politt (2005: 4) reinforce that investment in the electricity sector is critical. They note that the main policy objective in the electricity sector should be to increase investment. They argue that this is likely to increase efficiency and reduce the burden of cost to the consumer.

Similarly, policies to be put in place should be those that are geared specifically toward addressing consumer complaints such as inappropriate pricing policies. Consumers need adequate time to digest changes in tariffs and sufficient information is required to educate them on any anticipated changes. Of greater concern here is the information on when and why the tariffs have to change. Equally, of greater importance is the need to train the service providers to embrace integrity and commitment. This could make them to become more responsive to consumer needs and offer quality and sufficient services to the citizen-consumer.

The government has a critical role to play in any given country. It has to ensure that its citizens get the basic needs such as education, water, food, and medical services among others. Electricity is on the verge of becoming a basic need and, therefore, governments and for the purpose of this study, the Kenyan and South African governments, need to work hard to ensure that the problem of the ever increasing demand for electricity is solved The problem of poor service quality from these public sector utilities also needs to be addressed. They should recommend and enforce reforms that would enable the electricity sectors to satisfy demand and as Henze (2009: 80) puts it, to live up to the emerging worldwide call for clean energy. Developing countries have in fact been asked to reduce their dependence on non-renewable sources of generation of energy.

Electricity regulators need to be accorded sufficient authority with which to effect the necessary regulations without interference from the electricity companies and or from the political system of the day. The regulators should go a long way in monitoring and prioritizing the expenditures in the electricity companies to ensure proper investment of the taxpayers' money. It is common knowledge that many consumers are struggling to survive and this is worsened by the ever increasing electricity tariffs. Instead of the heavy bonuses paid out to the executives, it is in the opinion of this study that the funds could be re-invested and or help the many citizens who are struggling to survive. This study proposes that some of those huge bonuses could be used to boost the struggling SMMEs. Dagdeviren (2009: 653) observes that the benefits that accrued from higher productivity in infrastructure in the UK were not always shared with consumers. This in itself means that indeed benefits from business can be shared with consumers. In the real business world, there are such consumer offers as cash rebates, discounted sales, and wholesale prices, which are but forms of sharing profits with consumers. This calls on the governments of the day to ensure fairness on the consumers by the electricity sectors.

1.5 Aims of the Study

The study aimed to establish the benchmarking strategy adopted by the electricity sectors in Kenya and South Africa and the impact of this adoption on the companies themselves and on the SMMEs in the period between 2000 and 2009. The study also aimed to find out if there were different aspects of the benchmarking strategy adopted by other countries worldwide that KPLC and Eskom could adopt in order to maximally enhance their efficiency and effectiveness in the provision of electricity to their consumers. Lastly, the study aimed to establish the overall relationship between the electricity sector output and that of the sectors that rely on electricity (represented in this study by the manufacturing sector). This was used to verify the SMMEs responses gathered through the questionnaire survey.

In the end this study proposed some guidelines for the adoption of the benchmarking strategy for electricity sectors in developing countries and more specifically for Kenya and

South Africa. The study also suggested ways of ensuring support and sustainability of SMMEs.

1.6 Research Objectives

The current study aimed to achieve two main and two minor objectives as shown below:

1.6.1 Two Main Objectives:

i. To establish the impact of the adoption of the benchmarking strategy in the Kenyan and South African electricity sectors on the electricity companies themselves and on SMMEs of the two countries.
ii. To gain a comparative understanding of the nature of the overall relationship between the outputs of the electricity sectors and that of the businesses which rely on electricity (here represented by manufacturing sector) in Kenya and South Africa.

1.6.2 Sub-Objectives:

iii. To critically analyse the positive and negative factors that may have influenced the adoption of the benchmarking strategy by KPLC and Eskom;
iv. To establish if there are other adoptions of benchmarking practices used by electricity sectors in other countries world-wide that could be adopted by the electricity sectors of these two countries for improved performance.

1.7 Research Questions

The study aimed at answering two main and two minor research questions as shown below;

1.7.1 Main research Questions:

i. What is the impact of the adoption of benchmarking practices in the Kenyan and South African electricity sectors on the electricity companies themselves and on SMMEs?
ii. What is the nature of the overall relationship between the outputs of the electricity sector and that of the businesses that rely on electricity (here represented by manufacturing sector) in Kenya and South Africa?

1.7.2 Sub-questions:

iii. What are the positive and negative factors that may have influenced the adoption of the benchmarking strategy by KPLC and Eskom?
iv. Are there other adoptions of benchmarking practices used by electricity sectors in other countries world-wide that could be adopted by the electricity sectors of these two countries for improved performance?

1.8 Scope of the Study

The research focused on the adoption of the benchmarking strategy in the electricity sector which develops out of the many consumer complaints and the ever increasing demand for the electricity. Consumers in this study were represented partly by the SMMEs and partly by the manufacturing sector. In Kenya and South Africa this increased demand and shortage of electricity manifested itself in the form of frequent increases in the electricity tariffs and in recurrent power outages. Therefore, the focus was on the two electricity sectors of Kenya and South Africa, although highlights from African and global perspective were included to review the concept of benchmarking adoption in the electricity sector. The highlights were also used to achieve one of the minor objectives. This was to establish if there were other aspects of the benchmarking strategy adopted by global electricity sectors that KPLC and Eskom could adopt for efficient and effective operation. The focus was also on the SMMEs of Kenya and South Africa which rely on

electricity for their daily operation. These SMMEs are those operating in the capital cities, Nairobi and Pretoria, respectively and who have been in business between 2000 and 2009.

The rationale of bringing in the manufacturing sector is, first, to help curb lopsidedness that is likely to be inherent in the responses from the SMMEs since the data collected from the manufacturing sector is documented evidence. Secondly, SMMEs are not subjected to full financial disclosure like normal businesses therefore, the use of the manufacturing sector, which also depends on electricity for the daily operation, is likely to help the researcher to validate the responses from SMMEs. After-all, manufacturers like the SMMEs, more often than not, lament about the high cost of doing business. The cost of electricity in particular and energy in general contributes to the high cost of doing business.

In addition, at the aggregate level, the study decided to investigate the causal relationships between the general manufacturing outputs (or its proxies) and the electricity output of Kenya and South Africa. The main motivation was to assess the degree of stability between the two variables (that is the manufacturing output and the electricity output) since stable long-run relationships enables business at the micro level to engage in optimal choices to ensure profitability.

1.9 Significance of the Study

The study was expected to contribute to the in-depth understanding of the impact of the adoption of the benchmarking strategy that is used in today's business environment especially the form that is adopted by organizations that enjoy monopoly in a globally competitive market. The study would also shed light on the effects of the adoption of this strategy, first on the electricity sectors and secondly, on SMMEs which relied o the commodity. The electricity companies are predominantly government-owned and are regulated by government-owned agencies. The consumers have no or limited choice to make from in as far as the purchase of the electricity is concerned. There is need to allow consumers their electricity service providers as this would ensure that they purchase from their preferred supplier. The study was also meant to shed some light on the overall

relationship between the output of the Kenyan and South African electricity sectors and that of the businesses that rely on electricity (in this study, represented by the manufacturing sectors).

1.10 Summary of the Research

The study aimed to establish the impact of adoption of the benchmarking strategy by KPLC and Eskom on the companies themselves and on the SMMEs that rely on electricity for their daily operations. The SMMEs under study were those that operate in and around the capital cities of Kenya and South Africa, Nairobi and Pretoria, respectively. They must have been in business in the period between 2000 and 2009 and be registered as SMMEs. The researcher targeted to administer a questionnaire to 200 SMMEs from each country (a total of 400 respondents). However, the turn out was 142 SMMEs and 124 SMMEs in Kenya and South Africa, respectively.

The impact on the electricity companies was evaluated using secondary data from the companies' publications and internal records. Data pertaining to their electricity generation, import and export as well as their consumption and national electrification rate was used. The results showed that South Africa's electricity logistics were far much higher than Kenya's and this proved that KPLC needs to benchmark Eskom in a bid the satisfy the demand for electricity in the whole country. Similarly, KPLC needs to benchmark Eskom in providing their consumers with relatively cheaper electricity tariffs in order to ease the business operations of such economically important entities as SMMEs. SMMEs contribute greatly to the countries' economy by providing chances of employment.

It also emerged that both the manufacturing sector which relies on electricity and SMMEs were greatly affected by the outcome of the benchmarking strategy adopted by both KPLC and Eskom. One such outcome is power outage which was noted to result in various negative impacts. The manufacturing sector which relies on electricity noted losses in their output especially during the months with high power rationing. Similarly SMMEs reported their losses in relation to power outages. For example, 19 (13.4%) of the SMMEs noted that their goods destroyed, 36 (25.4%) reported conflicts with customers, 24 (16.9%), 46

(32.4) reported time wastage by their employees and 3 (2.1%) reported damaged equipment as a result of power outages.

It was therefore, recommended that the electricity companies benchmark those countries that have registered high levels of national electrification and those that have been able to deliver quality services to their consumers at relatively lower prices. Kenya needs to benchmark South Africa as the latter has larger electricity outputs and cheaper tariffs for their consumers. However, South Africa in turn needs to benchmark other countries Tunisia, Algeria, Egypt, Libya and Morocco which have over 85% national electrification levels. South Africa has 70% rate.

1.11 Structure of the Thesis

Chapter 1: The chapter presents the introduction, which includes a background to the study, and a brief history of the benchmarking strategy. This chapter also presents the statement of the problem, the aim of the study, the motivation of the research, the research objectives, research questions, the significance of the study and lastly the structure of the thesis.

Chapter 2: The chapter presents the Literature Review which is based on the global perspectives of the benchmarking strategy adopted by world as well as African electricity sectors. The study then narrows down to those strategies adopted by the Kenyan and South African electricity sectors. This chapter also presents the opinions of earlier scholars and researchers on the SMMEs sectors from international, regional, and national perspectives. The emphasis of this research lies on the KPLC and Eskom and SMMEs that have been operating in the capital cities of Kenya and South Africa, Nairobi and Pretoria, respectively, in the period between 2000 and 2009.

Chapter 3: The chapter presents the Conceptual framework developed from this study which is basically the benchmarking strategy. The discussion includes the perception of the on the impact of the adoption of this strategy, its gap analysis, its aims and approaches.

Lastly, factors such as those that may negatively influence and those that have supported the form that was adopted by KPLC and Eskom are also discussed.

Chapter 4: This chapter discusses the theoretical framework of the research which includes the theories on which the main argument of this study is based; that it is possible for the government and its stakeholders (such as KPLC in Kenya and Eskom in South Africa) to support the SMMEs in order that they increase their critical contribution to the economies of their countries. The chapter also attempts to forge a link between the electricity sectors, the SMMEs and the economy by suggesting a collaborative inter-relationship, for example, public-private-partnership (P-P-P) to help solve national problems like scarcity of employment opportunities. Privatization as a widely used strategy to ease the generation, transmission and distribution of electricity has been emphasised in this chapter.

Chapter 5: the methodology and methods used to carry out the research starting from the research design, to the population of study, methods used in collecting data and methods of data analysis were discussed. The methods of data analysis include mainly the time series and Ordinary Least Squares (OLS) based on both the EViews and SPSS programmes of data analysis.

Chapter 6: The chapter presents the findings and discusses the research findings

Chapter 7: The chapter presents the research findings and conclusions arrived at in the course of the research process. The strengths and limitations of the study, and the recommendations for the research are presented in chapter six.

CHAPTER TWO

LITERATURE REVIEW

2 Introduction

The current research examined the benchmarking strategy adopted by businesses operating in a monopolistic business environment and the impact this adoption on those firms and on businesses operating in perfect competitive markets. The focus was on the Kenya Power and Lighting Company (KPLC) and Electricity Supply Commission (Eskom) which enjoyed "natural" monopoly and SMMEs which face stiff competition from larger firms, private sector firms and multinational companies. The SMMEs focused on were those that rely on electricity, a commodity that is an output of the sectors that enjoys monopoly.

Thus, the first part of this chapter reviewed the benchmarking strategies implemented in global and the African electricity companies in general followed by those adopted particularly by the KPLC and Eskom. The second part discusses the Small, Micro and Medium Enterprises (SMMEs) in terms of how they relate to the electricity companies as a section of their consumers. Also considered in the review of SMMEs are some basic statistics of these entities: their contribution to the countries' GDP and therefore to the economy, their sizes and the sectors in which they operate. Lastly, the chapter considered the concept of quality form various perspectives. The chapter started with the review of KPLC and Eskom.

2.1 Global Overview of Power Sector Reforms

In reality, benchmarking is simply the process of adopting practices that have been used elsewhere and or employing resources used elsewhere with the aim of getting better solutions to the problems of efficiency and effectiveness. In the following section the global perspective of reforms in the electricity sector is discussed narrowing down to the

Kenyan and South African perspectives. References are made to the UK and USA as they are considered to be among the regions where successful reforms in the electricity sector were initiated, paving way for others to benchmark them. Below is a discussion on the reforms in the electricity sector from a global perspective.

On an international scale, reforms in the electricity sector include the following: regulatory system through the introduction of independent regulators; regulated monopoly running public sector entities; unbundling the vertical generation; transmission and distribution in the electricity sector; commercialization and privatization in the sector, for example the use of IPPs; pricing of electricity for example, the use multi-year price determination (MYPD), free basic electricity (FBE) and the use of pre-paid meter to control the misuse of electricity. Dagdeviren (2009: 643) points out that, reforms in this sector concentrate around unbundling at the generation, transmission and distribution levels. Expansion in the generation sector in order to increase the national grid through reliance on renewable is yet another reform. Many of the consumer complaints encountered in the course of literature review have tended towards pricing, low connectivity rate and generally lower quality of service offered.

Different countries have different policies and practices governing their public utilities. In almost all developing economies, electricity sector is state-owned or controlled with limited public ownership through share holding. Parker (1999: 213) notes that many citizens look at state control as being "*…associated with damaging political intervention and consequent wasteful investment and employment policies…"* Almost all, if not all developed countries and a few developing ones, have had their electricity sector privatized with the aim of cutting down on costs through competition.

Khosroshahi, et al., (2009: 74) observe that reforms in the electricity sector began in the UK and spread to the USA, Scandinavia and other parts of Europe, Asia, Australia and Latin America. Dagdeviren (2009: 643) observes that the UK and to a certain extent the USA are some of the countries that have largely liberalized and committed the electricity sector to competition. Parker (1999: 213) notes that, at the same time, the UK put in place an independent regulation from which many other countries have modelled their electricity regulation. Parker (ibid) also notes that the same system of regulator which has been used

in the USA for a long period of time, with commendable success. It is this kind of success that has triggered many other countries to adopt benchmarking in an attempt to catch up with the leader. By so doing, the bench-markers continuously compare themselves with the leaders or best-in-class.

There are various benefits that accrue from adopting such reforms as privatization. Khosroshahi, et al., (2009: 74) argue that if well implemented, with meaningful socio-economic principles, the reforms can result in improved services, better technological operations and reduction in costs incurred by consumers. Argentina had its electricity sector privatized as far back as 1998 (Gonzalez-Eiras and Rossi 2007: 4-5). These two researchers reveal that there are positive overall welfare gains whose size and effect on the distribution of income strongly depend on the quality of regulation. They also observe that there is a positive impact of water privatization enhanced reduction in child mortality in Argentina, which shows that privatization reduced child mortality, especially in the poorest municipalities that had their water utility privatized. Parker (1999: 213) argues that privatization is bound to reduce the costs of production, thereby, relieving the consumers of the burden of high running costs. On the contrary, Auriol and Picard (2006: 2) note that privatization results in government losing control of firms' operations and therefore lose control of prices which becomes a burden to consumers.

Most American States took to privatization of the electricity utility, which resulted in perfect competition (DiLorenzo, 1996: 53-4). He argues that consumers prefer competition to monopoly. He notes that competition reduced the costs for the consumers as the competing companies offered consumers better services at lower costs compared to the costs incurred when the electricity was provided under a monopoly. DiLorenzo (1996: 43) disputes the argument that public utilities have been granted monopoly by governments because they are thought to be "natural" monopolies. The myth of natural monopoly deliberates that a public utility is a natural monopoly when production technology makes ultimate average total costs to be lower as output increases. The myth further posits that a single producer is able to produce at lower costs than in an environment where there is competition. DiLorenzo (ibid) believes in perfect competition which he notes results in better services and reasonable prices. The benefits of competition are discussed in the theoretical framework in Chapter Three Section 3.1.1. From DiLorenzo's argument it

shows that there is need to enhance adoption of privatization in electricity sectors if the consumers of electricity are to receive quality and efficient supply from KPLC and Eskom.

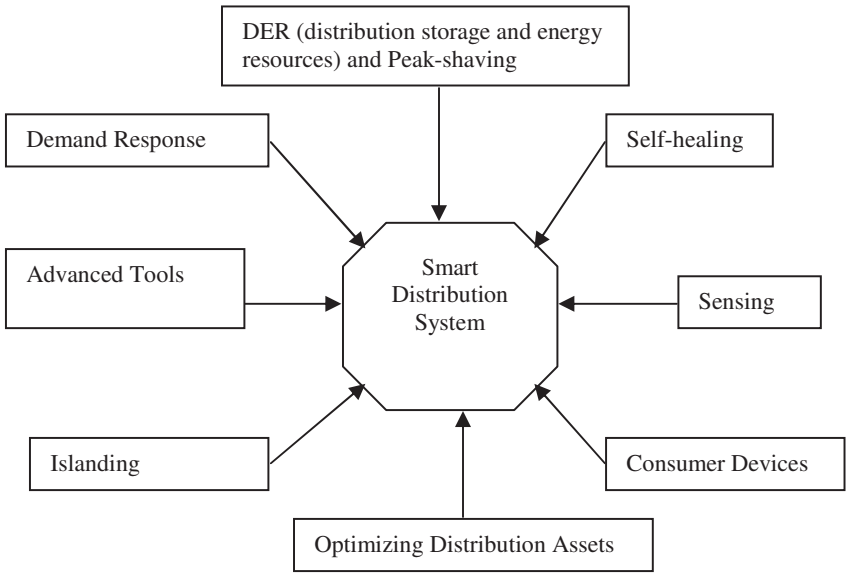
Other developments in the electricity sector that need to be benchmarked are the metering and the regulatory systems. For example, new metering system has emerged in the U.S.A. electricity technology known as Smart Grid. Hanser (2010: 37) observes that the smart grid together with its metering technology is the latest innovations in the electricity distribution system. Hanser (ibid) notes that this innovation is able to reveal to consumers, the information about the amount of electricity used at any given time. Brown, Suryanarayanan and Heydt (2010) discuss in some detail the framework of this system. Brown et al., (2010: 65) posit that the proposed system is likely to help electricity companies to achieve high level intelligence as well as reliable supply of the commodity. They argue that the Smart Grid System would consider the following factors:

> *…levels and locations of increasing intelligence in distribution systems; reconfiguration of distribution system architecture from radial typology to a partially meshed (networked) structure; placement and utilization of sensors in the distribution systems that will aid both the supervised and the fully automated controls and enabling strategies and configurations for interconnecting renewable energy sources to distribution systems...(p.65).*

Although this system sounds costly, it is comprehensive and can help reduce losses throughout the electricity network system. Distribution logistics seem to be one of the greatest challenges that KPLC and Eskom have to contend with in the course of operations (United Nations Development Programme (UNDP) Document, 2006: 26 and Eskom Holdings Limited 2009 Report, 2009: 111). *Figure 2: 2* below, illustrates the various logistic levels involved in the smart distribution system (SDS). It is likely to enhance efficiency of power supply and, therefore, reduce on the power losses. In the long-run it would enhance reduction on the power frequent outages.

Electricity Commission of New Zealand Final Electricity Commission Annual Report (2010: 9) notes that there are two types of distribution networks; local and secondary. The former is connected to the national grid while the latter is connected to the local network.

Fig. 2: 1- The Eight Attributes of Smart Distribution System



Source: Adapted from Brown et al., (2010: 66)

Retailers buy electricity on a large scale basis from the spot market and sell it to consumers, who are allowed to buy from a retailer of their choice. Consumers in the category of large scale customers can buy their electricity directly from the spot markets. It has been witnessed in many countries in the world that the regulatory process deals with the unbundling of the initially vertically integrated systems in the electricity sector. Parker (1999: 213) explains that regulatory systems were adopted so as to reduce abuse of office through monopoly.

2.2 The African Perspective of Power Sector Reforms

In Africa the electricity sector has also adopted benchmarking in form of power sector reforms which Eberhard, Foster, Briceño-Garmendia, Ouedraogo, Camos, and Shkaratan (2008: 15) note began in the 1980s. These reforms are geared to partly address the problem of unsatisfied demand. Africa in general has witnessed an ever increasing demand for electricity. Eberhard et al., (2008: 2) and the G8 Energy Ministers' 2009 Meeting (2009: 8) proceedings reveal that the capacity of electricity generated by the whole of Africa is less than what is generated by Spain alone. They further reveal that South Africa alone

produces about 40 gigawatts (GW), while the rest of the countries produce 28 GW. These researchers note that the problem is partly due to aging plants and lack of maintenance.

Despite the commendable level of electricity generation, transmission and distribution, South Africa has also experienced power outages and an increasing demand for electricity. This means that Africa, as a whole, needs to invest superior reforms that would enhance their electricity generation, transmission and distribution. What benchmarking practices then would be suitable for KPLC and Eskom, in order that they are able to satisfy the ever increasing demand for electricity and reduce on their consumer complaints? Eberhard, et al., (2008: 2) contend that no country in Africa has been able to adopt "*the 'standard' reform model which is unbundling, privatization and wholesale and retail competition*". This may solve Africa's inadequate electricity supply.

Gratwick and Eberhard (2008: 8) note that many African countries are reluctant to take to privatization. They further note that there is no country in Africa, in which there is a fully developed competitively privatized electricity market. Benchmarking those countries that have already fully privatized their electricity sector could be of benefit to African countries that are battling with high demand for electricity. As is discussed in some detail in the theoretical framework, privatization is said to have reduced the burden of high prices for consumers and enhancing efficiency and effectiveness in originally public sector services.

Dagdeviren (2009: 641) observes that privatization in the developing countries came about as a result of their government's failure to sustain and expand the infrastructure, in the period between 1970's and 1980's. He asserts that such outcomes as the inability to efficiently collect revenues, high costs of operation and redundant systems led to losses in the electricity sector. Kouakou (2011: 3639-40) presents an elaborate view of the reforms in Cote d'Ivoire's electricity sector. These include, deregulation through the government reducing the level of financial commitment in equity capital and also through sell of shares to foreign investors. The state-owned electricity company of Cote D'Ivoire was privatized and in 1998, the electricity regulatory system was split into three entities: the Societe d'Operation Ivoirienne d'Electricte (SOPIE) which provided project management skills to serve the national grid expansion, the Societe de Gestion du Patrimoine du Secteur

Electrique (SOGEPE) charged with the management of Governmental assets in the private sector and lastly the Autorite Nationale de Regulation du Secteur Electrique (ANARE) whose purpose was to regulate prices, quantity and quality supply of electricity.

In Ghana, the situation is not very different as is presented by Clark, Davis, Eberhard, Gratwick, and Wamukonya, (2005:62). The state-owned Volta River Authority (VRA) became a limited liability company in 1997, enabling it to create a competitive market environment. The aim of this was to attract private investment and participation in the ownership and operation of the generation and distribution systems. Two regulatory agencies were established; Public Utilities Commission (PURC) and the Energy Commission (EC). Their functions include: economic regulation, primary tariff setting and technical regulation, licensing and policy advice, respectively. VRA has unbundled generation to Takoradi International Company (TICo) but buys and transmits all electricity including the imports. Distribution is done by the Northern Electricity Department (NED) and the Energy Commission (EC). This unbundling resulted in improved access of electricity although the consumer price remained largely high as indicated in consumer complaints (Clark et al., 2005: 67).

Clark et al., (2005: 16) note that Namibia's NAMPower public utility generates, transmits and distributes electricity to large consumers like mines and commercial firms. It was the single buyer and transmitter of all electricity as at 2005 while it included regional electricity distributors and regional and local government in distribution. The Electricity Control Board (ECB) regulated all areas of supply of electricity in Namibia. There has been global widespread adoption of reforms in the electricity sectors however, it looks like Namibia has not taken keen interest. This is seen from the electricity infrastructure development that is present in from South Africa and Zimbabwe (Clark et al., 2005: 67).

Privatization as a benchmark strategy in the electricity sector has featured in various developed and developing countries. Full privatization could help solve the problem in African electricity sectors. Iarossi (2009: 85) argues that in 2006, electricity costs were high in 48 developing countries, of which 19 were in Africa. The high cost of electricity causes business operations to be expensive, for example, in 2008 the cost of electricity rose from an average of Ksh 8.00 to Ksh15.00 for industrial users (African International Press, API, 2008). The Departmental Committee on Energy, Communications and

Information on the Ownership and status of KPLC (2010: 6) confirms that KPLC energy costs are higher than those of its African competitors. The Business Daily, (2009) reports that due to a prolonged drought spell, Kenyans were forced to pay high bills but when the rains returned, the tariffs were not reduced as was expected. That points out the level of trust and commitment of the Kenya electricity sector in satisfying consumer needs, wants, tastes and preferences.

This study wishes to establish how the benchmarking strategy adopted by KPLC and Eskom has impacted on SMMEs, entities which make various contributions; employment creation and hence contributing to the economy of the country, produce for and satisfy certain consumers' needs which cannot by products and services produced and offered by larger or multinational companies (may be due to their high cost); provide the larger companies with some of the inputs that the large companies require for production.

2.3 Areas Benchmarked by KPLC and Eskom

Adoption of the benchmarking strategy as discussed in this study refers to the various reforms that both KPLC and Eskom have incorporated in their sectors in an effort to enhance the generation, transmission and distribution of electricity. The unbundling of the vertically integrated systems was done at two different levels: it first dealt with restructuring the electricity sector as an institution and restructuring the logistics related to power generation, transmission and distribution.

2.3.1 Generation, Transmission and Distribution Levels

In Kenya, first, there was the formation of KenGen from KPLC. The Departmental Committee on Energy, Communications and Information on the Ownership and status of KPLC (2010: 8), Karekezi, Kimani, and Onguru (2008: 19) and PSIRU (2007: 3) all note that the generation segment in Kenya has a few players, the chief among them being the then state-owned Kenya Generating Company (KenGen). KenGen was restructured in 1997 in order to unbundle the then vertically integrated KPLC into a public sector

generation company (KenGen) and a transmission and distribution company, KPLC, (Eberhard and Pickering (2010); Kipkirui, 2008: 1). KPLC then was a vertically integrated utility. KenGen was 30% privatized in 2005 at the time it was listed at the company at the Nairobi Stock Exchange (NSE) when the Government of Kenya was pressurized by donors to do so. This pressurization indicates that the Kenya government like many other African governments are least interested in the benefits associated with privatization, such as efficiency and quality consumer services as well as low pricing, for their own reasons.

KenGen's core business is to develop, manage and operate power generation, transmission and distribution plants to supply electric power to the Kenyan market. The Company controls all the publicly owned power generating plants and also produces 80% of the electricity consumed in Kenya. KenGen uses various sources to generate electricity, including hydro, thermal, geo-thermal and wind. By 2008, it had 14 hydro power stations, three thermal plants, two geothermal plants, a wind farm comprising two wind turbines and two off grid stations (Karekezi, Kimani, and Onguru, 2008: 11-15). It is possible to expand the generation of electric power from renewable resources. For example, Kenya and South Africa are yet to venture into the use of tidal and wave power to generate electricity. Tidal and wave power are noted to be emerging technology in power generation (Electricity Commission of New Zealand Final Electricity Commission Annual Report, 2010: 5). KenGen and all other participants in the generation of electricity (the IPPs) sell electricity to the KPLC, which was the sole transmitter and distributor of electricity until the third quarter of 2009 when Kenya Electricity Transmission Company Limited (KETRACO) was formed (ADF, 2010: 16).

Eskom was a state-owned entity until 2000 when it was turned into partially public-owned by converting it into tax and dividend paying entity. This resulted from the Eskom Amendment Act 126 of 1998 (Malzbender 2005: 7). Malzbender further discloses that it was the Eskom Conversion Act 13 which led to unbundling of Eskom's generation, transmission and distribution structure into what it is today.

In Kenya generation has been unbundled with KenGen producing almost 80% and IPPs approximately 12% (TradeInvest Kenya: 2009). The remaining amount may be generated by through co-generation and from imports. It may be difficult to separate transmission

and distribution of electricity. Dagdeviren (2009: 644) notes that in most countries transmission and distribution have remained intact. The Kenya Power and Lighting Company (KPLC) which was 51% Government-owned, remains the sole body licensed to distribute electricity in Kenya. However, the transmission by KPLC has been unbundled by the introduction of the Kenya Electricity Transmission Company (KETRACO) (Africa Development Fund, 2010: 2; Departmental Committee on Energy, Communication and Information on the Ownership and Status of KPLC, 2010: 9). KETRACO was developed by the Ministry of Energy and the KPLC so as to effectively execute the Least Cost Power Development Plan for the period 2008-2028.Both KPLC and Eskom transmit the electricity generated in the respective countries.

Whereas electricity distribution in Kenya has been centralized for a long time, in South Africa it is decentralized. The Government Notice (2008: 8) observes that South Africa electricity sector has a specified transmission function known as the Electricity Supply Industry (ESI). ESI is vertically integrated to include Eskom generating 96% of the total electricity. The municipalities generate 1% while the IPPs generate 3%. The notice further reveals that distribution is shared between Eskom, municipalities and several other entities licensed to distribute electricity.

The aim of decentralizing distribution through Regional Electricity Distributors (REDs) was to unbundle Eskom in order to enhance efficiency in electricity distribution. The South Africa electricity was to be decentralized in 2001 when 378 municipalities were proposed to distribute electricity to 6% of consumers. But as at 2008, Government Notice (2008: 8) notes that there were only 180 municipalities proposed to distribute 40% electricity to about 60% of total consumers. Eskom was to distribute to the remaining 40% (DME), 2001: 2; Generation Communication, 2007: 1]. The REDs which are municipalities-based were to be responsible for electricity distribution and electrification programmes were established and implemented to ease the problem of access to electricity. Government Notice (2008: 8) observes that these proposals had not been effected by 2008.

Distribution of electricity through REDs showed some weaknesses. Generation Communication (2007: 2) notes that this form of distribution proved inconsistent in terms of the electricity tariffs as well as the quality of service. Similarly, this distribution by

South African municipalities has been viewed as a liability instead of being an asset to the people it is supposed to protect. The municipalities, for example, have been pointed as being time wasting, costly and troublesome in the South Africa (Development Policy Research Unit Working paper 06/107, 2006: 1). In some places, distribution of electricity through municipalities has not run smoothly. For example, Knittel (2006: 204) explains that after operating its electricity distribution under municipal authority for some time, USA reverted back to state-controlled distribution. The main aim for doing this was to protect the consumers against market power influences that had remained unchecked when the utilities were operated by municipalities.

A DA Discussion Document (2008: 2) suggests that the unbundling should be extended to transmission and distribution. They suggest that IPPs should be introduced in the logistics of these two functions in the electricity sector in order to enhance the accessibility and efficiency in the availability of this precious national requirement. Eskom has been rigid in allowing freedom of operation to the IPPs and eventually some of them have opted out. The document further suggests that there was a mandatory requirement that all generated electricity was to be sold to Eskom. The reasoning behind such an argument should be to reform the transmission and distribution in order to allow the efficiency and effectiveness associated with privatization to be experienced by the consumers. Eberhard and Gratwick (2010) reveal that South Africa has failed to put in place enough incentives that would attract the IPP investment, neither has there been any obligation nor contract with the IPPs.

Electricity transmission in South Africa is still an issue. As recent as the third quarter of 2010, the then President of South Africa and the then Energy Minister were quoted by Eberhard and Gratwick (2010) note that it had been proposed that an Independent System Operator (ISO) be established in order to attract the IPPs to start to function as independent electricity generators. Eberhard and Gratwick (ibid) point out that the proposal did not go down well with Eskom and other shareholders in the government, especially the Department of Public Enterprises.

The main concern of reforms at the distribution level would be to have the consumers choose their service providers unlike the traditional approach where the commodity is simply pushed to them. It is believe that competition would take the price of electricity down to the advantage of the consumer, as is the case in New Zealand. Competition would

force the service providers to strive to enhance the quality of the services at an affordable price so as to retain their consumers as well as attract those of the competitors.

2.3.2 Benchmarking by Use of Regulation

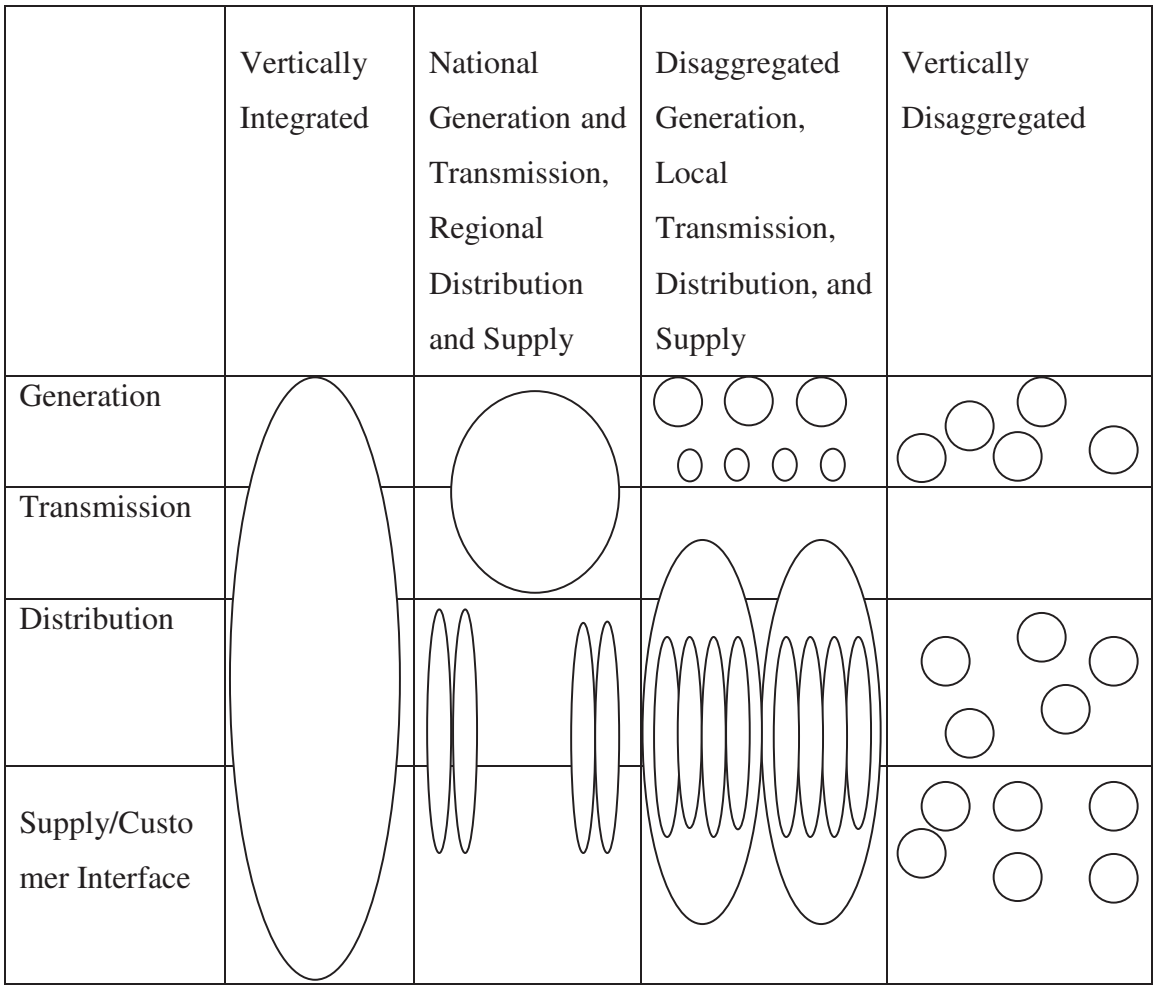
Another reform adopted by KPLC and Eskom is the introduction of independent regulatory system. There may be lots of benefits in regulating the electricity sector if only there is transparency and proper accountability in the operations of the electricity sector. ADB-Guidance Note (2009: 4) explains that an independent regulator should enhance efficiency and protect consumers against high prices that result from monopoly pricing and political interests. The note argues that regulators must foster transparency through appropriate regulatory rules and full disclosure in publications and documentations.

Electricity generation, transmission and distribution in Kenya is regulated by the Electricity Regulatory Commission (ERC), which in 2007 replaced Electricity Regulatory Board (ERB) through the enactment of the Energy Act in 2006, (Departmental Committee on Energy, Communications and Information on the Ownership and status of KPLC 2010: 8). The Electricity Regulatory Board, had been established in 1999 through the Electric Power Act of 1997 (Ngigi and Macharia, 2006: 4). Both ERC and NERSA are required to protect the consumers by determining the retail electricity tariffs, protect the investor, and also serve other stakeholder interests. It also sets and reviews tariffs and other service contracts.

For a long period of time Eskom remained the only body that handled electricity matters in the country in as far as the generation, transmission and distribution of electricity in South Africa. Eskom Enterprises was set up as a legally separate company in 1999, but 100 % owned by Eskom. This means that Eskom Enterprises may not be an independent body since it is owned by Eskom. It was seen as a commercial exercise in general, but in reality it could have been a way for Eskom to find new business to replace the expected loss of

generating and distribution activity under the plans for the liberalisation of South Africa's electricity system (PSIRU, 2007: 13).

Fig. 2: 2- Electricity Structures: Each shape in the diagram represents a distinct electricity entity



Source: Adopted from ADB-Guidance Note (2009: 5)

In the South African electricity sector there was also the introduction of an "independent" regulator, NERSA, which was established under section 3 of the National Energy Act (Act No. 4) of 2004, (NERSA Annual Report, 2008: 6). Both the ERC and NERSA are not independent entities because their operations are subject to approval by the governments of the day and they are also answerable to their mother bodies, these are KPLC and Eskom, respectively. It is on the basis of the National Energy Act that the Electricity Act (Act No.

4) of 2006 was established and the electricity put in place the NERSA. This points out that the electricity sectors have to remain answerable to their respective governments of the day at the expense of satisfying consumer interests. The level of service efficiency that KPLC and Eskom offer their consumers offered could be the cause of these complaints.

2.3.3 Benchmarking by Use of Independent Power Producers (IPPs)

In most developing countries, new entrants like the IPPs have been restricted at the generation level. For example, in 1997 IBERAFRICA was licensed to produce and sell electricity power in Kenya for a period of 15 years (Electric Power Production Licence, 2005). IBERAFRICA generated electricity for one year, 1996-1997, and it was not until July 2009 that the generation of power from IBERAFRICA was commissioned again. However, in the period between 1997 and 2000, there were other four IPPs, whose operation was restricted to generation. These were: IBERAFRICA and Westmont (1996-1997), Tsavo (1995-2001) and OrPower4 (1996-2000) (Eberhard and Gratwick, 2005: 6). Mumias Sugar Company involved in co-generation, was incorporated in 2008 and also Rabai Power Limited which started work in the last quarter of 2009 (Departmental Committee on Energy, Communications and Information on the Ownership and status of KPLC (2010: 8).

Kenya does not seem to have any predetermined pricing model for the sale of electricity that KPLC has consistently used. However, Departmental Committee on Energy, Communications and Information on the Ownership and status of KPLC (2010: 19) notes that the retail tariff structure includes a fixed charge, an energy charge and a capacity charge, which occasionally change. The KPLC has often applied for changes in tariffs and this has regularly put the electricity company on a collusion track with the consumers. The hike in tariffs is usually blamed on shortage or failed rains since Kenya depends predominantly on hydropower generation (Departmental Committee on Energy, Communications and Information on the Ownership and status of KPLC, 2010: 6).

The IPPs' experience in South Africa was not any better. The government grudgingly allowed the IPPs in the generation function which was not fully acknowledged by the intended IPPs. Eskom had been awarded the responsibility to generate 70% of electricity, while the IPPs were to generate the remaining 30% (Erero, 2010: 3). Eskom determines the price at which to buy electricity from the IPPs yet in real market situations, it is the producer who should determine the price, however, he should also put in mind the cost of production among other factors. This failed to give an incentive to IPPs to fully engage in the generation of electricity. A DA Discussion Document (2008: 2-3) notes that the government did not appear to fully support the idea of opening up to private participants for the transmission and distribution. Therefore, the sale of electricity to consumers by private participants as it had earlier on been suggested did not materialize. Privatization aimed at introducing competition. According to Khosroshahi, Jadid and Shahidehpour (2009: 80), competition could enable the electricity sector to attract more private participants which in turn may result in efficiency in the sector. However, Dagdeviren (2009: 643) argues that the electricity sector in general is far from the capability to become competitive.

Erero (2010: 3) notes that due to the low returns from investment in the generation of electricity, which are caused by low prices of electricity, the IPPs declined to take the offer of generation. Erero (ibid) argues that the IPPs were also discouraged by the high level of investment on the technology required to run the electricity generation. Similarly, he argues that due to lack of competition, as well as the high entry capital requirement could have contributed to the IPPs rejecting the offer. NERSA Annual Report (2008: 24) reveals that three licences had been given out to IPPs during the period of 2007-2008 so as to generate electricity to ease the heightened demand that South Africa had been experiencing before this same period.

2.3.4 Benchmarking by Use of Electricity Metering

Electricity meters have been an issue for a long time in many countries. Developments in this area indicate that there is need for a stable measure of the amount of electricity used to give the correct bills. Sioshansi (2010: 3-4) notes that the introduction of smart meters in

the U.S.A., it was believed, would see consumers paying for what they had actually consumed instead of paying for flat rate consumption. Sioshansi (ibid) implies that there should be a cost-reflective pricing policy that is, providing electricity at costs for peak and off-peak hours. Sioshansi (ibid) compares well with what happens on mobile phone service providers where consumers choose what tariff to use during peak hours or while on off peak, knowing what costs await them to pay.

Both KPLC and Eskom have introduced the pre-paid meters with the aim of efficiently monitoring the use of electricity and the payment of bills by consumers. African Centre for Open Governance- Africog, (2008) explains KPLC's intention to introduce pre-paid meters. Africog notes the introduction of pre-paid meters would have seen all consumers pay for the electricity before consumption. The pre-paid meters were suspiciously viewed by the consumers as a way of extorting money from them. Consumer Federation of Kenya (COFEK, 2011) point out that KPLC's electricity consumers have complaint about the faulty state of the meters which result in higher bills than expected. In South Africa, This is due to the low level of trust that the consumers have of the public sector utilities. Both KPLC and Eskom extensively implemented the use of prepaid meters between 2009 and 2011.

Contrary to the consumers' complaints about the pre-paid meters, Global Network on Energy for Sustainable Development (GNESD) (2007: 6) argues that pre-paid meters have the capability to enforce control over electricity wastage and therefore reduce the costs on the part of the consumers. The question is, whether the consumers were given adequate information on the benefits of pre-paid meters before KPLC made known its intention. Similarly, one would ask if the consumer complaints against pre-paid meters are genuine. Although complaints about the pre-paid meters were also voiced in South Africa, GNESD (2007: 6) argues that in South Africa, the pre-paid metres helped avoid problems associated with billing and prompt payment of the electricity bills. In essence the pre-paid meters would have long solved a great deal of problems associated with bills in the Kenyan scenario, if only the consumers had viewed the KPLC with trust and commitment.

As is already pointed out, adequate information to keep the consumers fully aware of the efficiency and effectiveness of pre-paid meters would have helped resolve the problem. One perspective of benchmarking is that it is an avenue of information sharing. If enough

information about the pre-paid meters had been conveyed to the consumers in good time, may be the complaints would have been minimal. Consumers need plenty of information in order to understand and appreciate what their suppliers and or marketers are offering. Vine (2008: 15-6) notes that the state of California and its local government institutions and utility companies have programmes in place that were geared towards providing information and education to all people including kindergarten children up to university students. The information was about the efficient use of electricity, especially on air-conditioning.

Such consumer education is necessary if the Kenyan and South African public are to change their attitude towards the public sector and its service providers. Lack of information and or education hinders effective decision-making. This can be best illustrated by the outcome of a research carried out on two South African regions, Tembisa and Ivory Park, by Malzbender (2005: 28-9), in which consumers are unable to decide whether to use electricity or other forms of energy. The reason behind this state of affairs is that they did not know how to interpret a unit of electricity or the logistics involved in the use of units in electricity. Malzbender (2005: 29) further emphasizes that there are a number of other issues (like Free Basic Electricity- FBE) that consumers would wish answered about electricity but there is insufficient information about such issues. This causes consumers to have doubts and lose trust in the public service providers. As much as the study focused on Tembisa and Ivory Park areas, these are problems that are likely to be encountered by other consumers such as SMMEs.

2.3.5 Benchmarking in Electricity Pricing

There has been much consensus surrounding the pricing of services. It is not easy to price services owing to their characteristics. Kotler and Armstrong (2010: 257) discuss the characteristics of services that make it difficult to price them. These characteristics are intangibility, perish-ability, and inseparability (between the provider, the consumer, place and time of consumption). It is also difficult to price services because it is also difficult to assess the quality of services. There have been various pricing methods used by electricity sectors in different countries. Khosroshahi, Jadid and Shahidehpour (2009: 81) observe

that in Iran, electricity was priced using the market clearing price from a given bid curve and the payment mode is pay-as-bid.

The argument for this kind of pricing is that it provides a higher investment security. This means that many electricity sectors that fall short of investment security can well benefit from this pricing model. Hanser (2010: 378) and Sioshansi (2010: 4) discuss a new pricing technique for electricity: time variable pricing. Sioshansi (ibid) explains that variable pricing allows easy refection of true cost of electricity and that it varies the costs depending on the time of the day, day of the week and season of the year, among other variables. Sioshansi (ibid) pegs this type of pricing on the installation of smart meters which are efficient in tracking the amount of electricity used and time of usage. He adds that these meters have two way communication abilities and are capable of remote reading, connection and disconnection. This current research argues that time variable costing would entice consumers to adjust their usage by making use of electricity at off-peak hours which may lead to saving on the part of both the company and the consumers. KPLC and Eskom could attempt this type of pricing technique in a bid to reduce consumer complaints about inappropriate bills.

From another perspective, the problem may not be more of setting a fixed pricing policy but adhering to it. Eskom of South Africa had once put in place a pricing policy, but that policy was not strictly adhered to. Erero (2010: 8) puts the cost of electricity in South Africa at 17 c/KWh and notes that Eskom's annual price adjustment in 2006 was reached through a Multi-Year Price Determination (MYPD) process. Under this pricing scheme, tariff changes are to be determined for a specified number of years. NERSA Annual Report (2008: 25), for example, illustrates how the first MYPD was done, for a period of three years from 2006 to 2009: "*...The determination allowed Eskom an average price increase of 5.1% for 2005/06, 5.9% for 2006/07 and 6.2% for 2008/09...*"

Is it possible for Eskom to fully adhere to this regulation and in order to get rid of conflict with its consumers that result from unplanned for increases in tariffs? If the answer to this question is yes, then KPLC should benchmark Eskom's pricing strategy of MYPD. The Government Notice (2008: 9) suggests discriminatory pricing technique for South Africa

which would see the poor paying relatively lower prices for electricity than the rest of the consumers. Since SMMEs are a struggling lot, it would pay dividends to include them in the category of poor in order that they enhance their contribution of job creation.

Electricity sectors have battled with pricing problems for long. A DA Discussion Document (2008: 2-3) and National Labour and Economic Development Institute, (NALEDI) (2006: 6) argue that the government pricing policies in the electricity sector were geared towards locking out competition. NALEDI (2006: 5) note that as far back as 2004, the government of South Africa had already started to talk about privatizing the electricity sector. The government wanted to privatize only the core activities and it stated that it had to be greatly involved in these areas even after privatization.

Another factor touching on pricing in South Africa is the concept of Free Basic Electricity (FBE). Malzbender (2005: 28) points out that there had been plans to provide free basic electricity to poor consumers, although the plans were not very successful, as consumers had many questions to ask about this offer. Eberhard and Gratwick (2010) note that Eskom receives subsidies from the government to provide free basic electricity to the poor and he is convinced that there is a possibility of devising and putting in place an effective and targeted subsidy to poor households. There are various other pricing policies that can be adopted: cost-plus, demand based and competition based. Each of these has their own unique conditions in which they can be applied. It may be possible for governments and electricity sectors to put in place pricing policies that allow discrimination for the sake of the poor in society.

2.3.6 Benchmarking through Adoption of Renewable Sources

Currently, almost all countries in the world are making an effort to conserve the environment by stressing on focus on use of renewable resources in electricity generation. The emergence of the “Feed-in” tariffs in almost all countries is a testimony to this. Sioshansi (2010: 4) observes that countries like Spain, Germany and Denmark have

succeeded in the use of renewable sources of energy due to government subsidies and especially so, on the feed-in-tariffs (FIT). Gipe (2009) explains that "Feed-in" tariffs are the payments made per kilowatt-hour for electricity generated from renewable source. Gipe (2009) notes that in 2009 the National Energy Regulator of South Africa (NERSA) introduced aggressive measures to encourage the generation of renewable energy in order to reduce over dependence on electricity from non-renewable sources.

Energy, Environment and Development Network for Africa –AFREPREN/FWD- (2009: 2) notes that several countries in Africa, including Kenya and South Africa have aggressively taken to "Feed-in" tariffs as a way of encouraging dependency on renewable energy. AFREPREN/FWD (ibid) adds that "Feed-in" tariffs not only to encourage investors by ensuring that all energy produced from renewable sources is bought, but also ensures diversification of sources of electricity generation with the aim of easing congestion in relying on electricity from non-renewable sources. The Kenya government went a step higher by financing the feed-in tariff policy (AFREPREN/FWD-, 2009: 4) and even encouraged SMEs to venture into electricity generation. AFREPREN/FWD (ibid) notes that the model adopted by Kenya was designed alongside those practised in Sri Lanka, Germany and South Africa.

Although South Africa depends a lot on coal for the majority of the power generated, it has diversified her sources of power. Nevertheless, this has not yet reached considerable levels that would see a marked reduction in the destruction of the ozone-layer. Winkler (2005: 28) stresses that renewable sources of energy contributes in reducing pollution of air which also reduces the green house effect that results in drastic climatic change. Henze (2009: 82) concurs that there is a need, especially in developing countries, to reduce the green house gas emissions by reducing the dependence on coal for the generation of electricity. Winkler (2005: 30) discloses that as at 2001, renewable energy was restricted to serving those in remote areas that are off-grid especially schools and clinics and a few homes, although the programme was on-going. This paves the way for electricity within the grid to become relatively sufficient especially for commercial purposes. Henze (2009: 84-5) points out that the use of wind and solar in electricity generation can save the world a great deal from the adverse effects of green house gas. Indeed, both Kenya and South Africa will have to refocus their attention more on these two affordable sources of energy.

As already stated, the study aims to establish the impact of the adoption of the benchmarking strategy on KPLC and on Eskom as well as the impact this adoption has on their consumers, in this study represented by the manufacturing sector in general and the SMMEs sector in particular. The study discussed how the SMMEs relate to the electricity companies as a section of their consumers. Also considered in the review of SMMEs are some basic statistics of these entities: their contribution to the countries' GDP and therefore to the economy, their sizes and the sectors in which they operate.

2.4 Small, Micro and Medium Enterprises (SMMEs)

Several studies have been carried out on SMMEs. For a long time, when there were almost "enough" chances for employment, these enterprises had been looked down upon and even accused of contributing to crime and harbouring criminals. Potts (2009: 158) notes that from the 1970s onwards, the International Labour Organization (ILO) recommended that, governments needed to support the informal businesses through supplying them with legal sites, training and credit facilities among others. Potts (ibid) further notes that that is the period when informal sector began to be referred to as small, medium and micro-enterprises.

Potts (2009: 154-5) notes that SMMEs, under the term informal sector, were initially looked down upon as "*…backward, traditional, with low productivity, low incomes, low capital use and low levels of investment…and involved low technology…*" (p. 154-155). He traces the change of attitude towards the informal sector as having taken place around the 1970s, the period when many developing countries started to feel the hardships associated with unemployment. Potts (2009: 157) reveals that this is the period when the sector began to witness favourable consideration from government and non-governmental groups. This was especially in the 1980s when Structural Adjustment Programmes (SAPs) were taking place and many people were losing their jobs. SMMEs have been increasing in number over the years to help alleviate the problem of unemployment that has hit many developing countries. Migiro (2005: 14) observes that between 1989 and 2001 Kenya saw

the government place serious emphasis on SMMEs. This is the period when SAPs' adverse effects were being felt. Bruwer (2010:7) observes that the concept of SMMEs was introduced by the South African government in 1996.

2.4.1 Categorization of Small Micro and Medium Enterprises

Different scholars and researchers use different terms to refer to and to categorize SMMEs. These terms include: Small Scale Businesses (SSBs), Small Scale Enterprises (SSEs), Small Scale Sector (SSS), Small Scale Entrepreneurs (SCEs), Small Scale Industries (SSIs), Small Business Sector (SBS), Micro Small and Medium Enterprises (MSMEs), Small and Medium Enterprises (SMEs), among others. The current research will stick to the term Small, Micro and Medium Enterprises (SMMEs) to represent all the terms used for any businesses that fall in this category. There are times when reference was made to the other terminologies in references to the view points of earlier researchers and academics. Apart from the problem of terminologies, SMMEs also face lack of adequate information and or data about the businesses (World Bank 2004: 5).

Micro-Finance Risk Management (2008: 2) notes that there is no standardized definition of the SMEs in Kenya but that for their own security reasons, lending institutions categorize these ventures in terms of the number of employees or in terms of the annual revenue which measures up to less than 50 million Kenya shillings (approximately USD 623,053). Williams (2007: 352) classifies SMMEs into three categories as is illustrated in *Table 2: 1* below;

Table 2: 1- Classification of SMMEs

Type	Number of Employees
Micro	1-9
Small Business	10-49
Medium Enterprise	50-100

Source: Adapted from Williams (2007: 352).

Similarly, Western Cape Provincial Economic Review & Outlook (2007: 153-4) explains that SMMEs are classified according to numbers of employees and that there is no clear-cut distinction between formal and informal employment. The publication further notes that the definitions vary from one country to country and the categorization is basically on some form of continuum, with formal businesses on the one end of the continuum and the informal sector on the other. Western Cape Provincial Economic Review & Outlook (2007: 153) argues that it is not usually clear on how to differentiate between SMMEs and the informal sector and adds that different countries define these terms differently probably due to the economic, social, political and cultural orientations of the environments that each country finds itself in. Therefore, it is meaningful to understand the two concepts when they are spread out on a continuum so that the definition is dependent on the characteristics inherent in an enterprise at a given time in its life cycle.

Small, Micro and Medium Enterprise (SMME) is a relative concept. What could be small from some perspective may not be small from another perspective. Lukacs (2005: 3) argues that for one to effectively define SMEs, one should look at it as though it were a scale, to measure one SME against another. He notes that compared to a SME that employs 500, one that employs 20 is a small enterprise. Similarly, he argues that an SME of 500 employees is an SME compared to one that employs 5000 people. For the purpose of the current research, SMMEs under study comprise all small businesses which are registered and, therefore, recognized by law, but which employs less than 100 employees. From the titles small business enterprises and small scale entrepreneurs, it is befitting that the study includes such entrepreneurial ventures as part of SMMEs. Those included in this study as respondents were those whose businesses were entirely dependent on electricity for daily operation and for survival and who must have been in business between 2000 and 2009.

Development Policy Research Unit Working paper 06/107 (2006), in its abstract page notes that SMMEs are classified into four: micro, very small, small and medium enterprises and that their differences are mainly in regard to turnover, assets and number of employees. This further illustrates that, internationally, there is yet to be found universal criteria to define, categorize and measure SMMEs. It is unlikely that such a scenario can

occur due to diversities in economic well-being as well as socio-cultural factors that are different from country to country, and from continent to continent and even from one ethnic group to another.

Despite the lack of consensus on the definition and categorization of SMMEs, there is a major converging point about these ventures; they contribute immensely to the economic well-being of a country. SMMEs need to be supported to grow and develop since they make critical contribution to their respective countries' economy through employment creation. Olawale and Garwe (2010: 730) suggest that an SME has five stages in its life cycle; existence, survival, success, take-off and resource maturity. If SMMEs can be fully supported at the first and second stages, then once they are at the success stage, only monitoring should be done to ensure sustainability. Therefore, it would also be good to categorize an SMME in relation to the point at which it is in its life cycle.

2.4.2 Importance of Small, Micro and Medium Enterprises

The importance of SMMEs cannot be over emphasized. The fact that the products and services that these business ventures produce eventually find market means what they produce and offer satisfies certain needs. Lukacs (2005: 3) observes that SMEs are essential since they do provide what the large companies or large business ventures are unable to. In the same light, it is worth noting that not all consumers are capable of purchasing what is produced by large and or private or multi-national companies whose prices are relatively high. Akintoye (2008: 103-4) also notes that in Nigeria, the government has the responsibility of ensuring that SMMEs have a stable environment especially macro-environment by providing certain infrastructure of which electricity is included.

Potts (2009: 155) notes that the SMMEs sector was used by government and policy makers to provide for the urban poor in terms of employment, thereby saving the government the trouble of caring about this group of people. In addition, the Kenya Economic Report (2009: 75) reveals that the MSEs produce 77% of the total jobs in Kenya. The World Bank

(2004: 1) discloses that total employment recorded in the informal sector increased from 3.7 million employees in 1999 to 5.1 million in 2002. Kenya Association of Manufacturers (KAM) (2009: 5) reveals that in Kenya SMMEs contribute about 85% level of employment. Despite the disparity between 77% and 85%, in both cases, the contribution of SMMEs towards employment creation is significant.

The above reasons would validate lobbying for support for SMMEs. There has been government support for SMMEs in Kenya and South Africa. For example, Kauffmann (2005; 2) indicates that both Kenya and South Africa have in the past supported their SMMEs through creating enabling financial environments. She notes that such moves as allowing use of a brand name or know-how (that reduces the risk of failure) and warehouse-receipt financing were implemented in South Africa, Kenya and Zambia to guarantee SMMEs loans with agricultural stocks. She also points out that Kenya supported the growth of small commercial banks or rural banks to enable the growth of SMMEs. Kauffman further illustrates that South Africa on its part passed two laws in 2005 to help expand banking system to include savings and loan institutions and cooperative banks as a way of boosting SMMEs.

The kind of support this research advocates for is that of government stakeholders enhancing what has been initiated by the state and NGOs. Such government stakeholders include the electricity sectors. In essence, it is about the electricity sectors supporting their stakeholders. There are many ways through which this support is forth coming. For example, Wanjohi (2009) suggests that governments should step up the help accorded to SMMEs in terms of information access. He notes that the government needs to also improve on business policies and regulation in order to boost these entrepreneurial ventures. Eberhard and Gratwick (2010) argue that the electricity sectors need to empower stakeholders through information sharing and also through transparency. Availability of information is a boost for the business growth and development and especially so in the era of information exploitation. Sioshansi (2010: 4) reinforces this by noting that it has been empirically proved that consumer awareness has in the past been able to reduce electricity consumption by as much as 10% of its total cost. Hanser (2010: 37) also reinforces the need for information to consumers, arguing that this would make the consumers to decide

how much and when to use electricity. The information needs to be adequate, current and relevant.

SMMEs have time and again been encouraged and or supported by governments. The 2009 Kenya Economic Report (2009: 75) discloses that through the Sessional Paper No. 2 of 2005 the Kenya government introduced an affirmative policy action of reserving at least 25% of all government procurements to the MSE sector. In 2004, the Government of South Africa amended the 1996 National Small Business Act into the Small Enterprise Development Agency (Government Gazette, 2004: 6) with the intention of designing and implementing development programmes. This was aimed at promoting service delivery that would increase the SMMEs' contribution to the South Africa's economy. This also aimed at promoting the growth of the economy, creating jobs and strengthening the capacity of service providers that support and strengthen the small enterprises.

Non-governmental organizations and foreign banks have not been left behind in the support for SMMEs. The main reason for this is to enhance employment opportunities and therefore, alleviate poverty. In South Africa, the SMEs have been supported by European Investment Bank (EIB) in partnership with the South African Development Finance Institution (SADFI) as well as the Government. The European Commission (EC) provided funds for the programme aiming at providing equity funding to the SMEs which were owned and operated by people from previously disadvantaged groups under the Apartheid regime (EIB 2010). The World Bank (2004: 20-22) outlines various other of financial institutions that supported SMMEs to forge ahead. In Kenya and in South Africa, the electricity sectors form part of the government's stakeholders. On the one hand, the sectors provide one of the main production input for the entities that rely on electricity for operation. On the other hand, the governments provide support for SMMEs to enhance their contribution to the countries' economy. This presents an interlinked relationship between the governments, the electricity sectors and the SMMEs. KPLC and Eskom could join hands with their governments and other groups that support could SMMEs in order to enhance the economic contribution.

This argument is further discussed in the chapter four in section 4.3 (the concept of problem-solving) of the following chapter. This is preceded by the conceptual underpinnings that guide the current research which in the benchmarking theory. First the definition of the benchmarking strategy and the benchmarking gap analysis were presented, next was the perception of the impact of the strategy was discussed, followed by the aims of and approaches to benchmarking. Later the success factors of benchmarking adoption, the factors influencing this adoption and lastly the theories that supported the benchmarking strategy adopted were discussed.

CHAPTER THREE

CONCEPTUAL FRAMEWORK

3 Introduction

This chapter presented the conceptual framework of the research. The main concept of the study, which is benchmarking is explained in some detail. Various definitions, the aims and functions of benchmarking as well as the success stories of and factors that hinder smooth implementation of the benchmarking strategy were discussed.

3.1 Benchmarking as a Business Strategy

A conceptual framework is meant to give the researchers the capability to open up what they really want to pursue in their research. It enables them to arrive at the concepts and theories that could give support to the research argument and helps them to predict the research outcome. The main the issue discussed in this conceptual framework is the benchmarking.

3.1.1 Benchmarking Defined

There is no one definition to the concept of benchmarking that can be said to be sufficient. However, benchmarking has become an integral part not only of the lives of people, but also of organizations at regional to international levels. Ralston, Wright and Kumar (2001: 274-5) explain that benchmarking is a market research tool concerned with strategic planning which means being prepared for the unexpected in the future. The electricity sector needs to be prepared for the ever- increasing unpredictable demand and also be able to predict the demand fluctuation or unforeseen losses. This can easily be handled through meaningful implementation of benchmarking. The environment is continuously changing

and therefore, the electricity sector needs to continuously benchmark to selectively include innovations and developments that have been successfully used elsewhere in order that they are able to effectively and efficiently handle unexpected outcomes in the sector.

Adopting benchmarking may also help to counter competition which is also an aspect that is unpredictable. Southard and Parente (2007: 162) argue that global competition has become synonymous with increased competition and has forced companies to seek ways to improve their processes to remain profitable. One way through which companies have ensured their competitiveness is through the adoption of the benchmarking strategy. It is a process that enables those using it to take a step forward in improving production of goods and services, improving their delivery and their sales in subsequent periods. Benchmarking has become a buzz word in both developed economies (Braadbaart, 2007; Triantafillou, 2007) and developing ones (Martina, et al., 2008).

The Encyclopedia of Business.com defines benchmarking as the process through which a company measures its products, services, and practices against its toughest competitors, or of those companies recognized as leaders in the industry. It may also be an attempt to conform to standards with the basic aim of satisfying consumers repeatedly and, therefore, gaining something better each time for the firm that is adopting benchmarking as a business strategy. Chau (2009: 48) notes that the concept of benchmarking has long since been considered important in management literature, particularly in operations management, but its application to governmental policy and practice is yet to be settled.

Benchmarking is the comparison of practices inside and or between organizations in order to identify best practices and areas for improvement, (Chau, 2009: 48). It is a standard point of reference for making comparisons (Mariarty and Smallman, 2009: 486; Triantafillou, 2007: 830). The point of reference could be the standards put in place by the firm itself. For example, countries subscribing to the International Energy Agency (IEA), have set their own standards in as far as access to modern energy is concerned (IEA, 2006: 3). NERSA Annual Report (2008: 42) notes that Eskom has benchmarked to have universal accessibility to electricity by 2012. Shukla (2010: 110) notes that India's electricity sector benchmark is portrayed in their mission statement "Affordable Power for All by 2012". It is the provision of affordable power within a stated timeframe that has become the target mark or the point of reference in the electricity sectors as is illustrated

by South Africa and India. It has become their driving force in providing electricity to their consumers.

Delpachitra (2008: 139-40), Wynn-Williams (2005:485) and Andersen, Fagerhaug, Randmael, Schuldmaier and Prenninger (1999: 379) view benchmarking as a central concept interested in the assessment of performance against external criteria, with the fundamental objective being that of gaining and sustaining performance superiority. Wynn-Willaims (2005: 486) further argues that as being part of a total quality management approach, the critical component should be assessment against the industry's best practices and not just against the organization's predetermined standards or targets. Thus, benchmarking helps to develop corrective measures and strategize the way forward for the firm. Benchmarking is a tool for self-evaluation (Dorcsh and Yasin 1998: 95). In all these definitions, four things appear as key concerns for the adoption of benchmarking; consumer satisfaction, a tool for corrective measures on areas with gaps, a means of continuous improvement and comparison criteria, either to a competitor and or a benchmark.

There is no guarantee that where one firm has succeeded in the adoption of the benchmarking strategy that another would. The main idea behind benchmarking is to ensure that the organization's performance is monitored, maintained and or improved where necessary through exploring and adopting competitors' or market leaders' practices. These practices are then used to address the firm's internal performance for competitive advantage. Martina, Hakvoort and Ajodhia (2008: 76) argue that the incentive-based approaches adopted in many countries in as far as benchmarking is concerned, do not necessarily work within the context of Small-Island Development States (SIDS) and as such, a different regulatory model needs to be developed for them. This means that in order to adopt and successfully use benchmarking as a strategy, a firm must carry out a SWOT analysis exercise, to enable that firm to capitalize on its strengths, improve on its weaknesses, exploit its opportunities and counter its threats (Kotler and Armstrong 2010: 67-8).

Like any other marketing strategy, benchmarking is adopted with the aim of boosting sales and profitability which may be a result of improved organization's learning curve. Consumer satisfaction must also be put into consideration while adopting and using

benchmarking as a marketing strategy. Denkena, Apitz and Liedtke (2006: 190) argue that it is not enough to just compare a firm to the competitor and or the leader. The aim should be to arrive at desirable benchmark ideas and practices. They further argue that benchmarking aims at soliciting for information and statistical characteristic by finding concrete measures to interpret the results as a way of getting rid of a firm's weaknesses. Andersen et al., (1999: 379) emphasize that benchmarking is about accepting that someone else (a firm for that matter) is better than you are and therefore, allows for one to learn from others. This suggests that both Kenya and South Africa need to identify their areas of strengths and weaknesses and find out what each can learn from the other as well as learning from other countries in Africa and world-wide.

The priority in adopting benchmarking is to ask oneself when, why, how, who and what should be done (Encyclopedia of Business.com). For firms to successfully adopt and implement benchmarking as a marketing strategy, they have to establish why they need it, when they need it and in what form and or quantity. The start off point for benchmarking is establishing the current state of affairs in a firm and then forecast the desirable position that the stakeholders would want the firm to take. It means involving the stakeholders and so, there is need for market research to establish and consider the perception of the stakeholders in decision making. In essence, this would give reason and direction to the firm to benchmark and the aim here would be to put in place the transformation processes that would realize the desired improvements for the firm.

How do the electricity consumers perceive the adoption of the benchmarking strategy? Below is a discussion on how the adoption is perceived using the concept of quality and satisfaction. The concept of quality has been given a wide range of interpretation in order to accommodate diverse views of this concept as much as possible.

3.2 Perception of the Impact of the Adoption of Benchmarking

The impact of the adoption of the benchmarking strategy can be felt through various ways. Below are some of the ways it can be felt in the electricity sector although these may not be restrictive to this sector. Basically, this impact is perceived through the concept of quality of service delivered to the consumers. However, other perspectives of the concept of quality were considered to remove a certain amount of biasness.

3.2.1 Concepts of Quality and Satisfaction

Different consumers have different perceptions of the concept of satisfaction. This may depend on one's level of knowledge, background and position in life, among others. Consumer satisfaction is usually pegged on perception and what is expected after the purchase and or consumption of the good or service. Satisfaction has sometimes been confused with the concept of quality. However, satisfaction and quality are sometimes synonymous and if there are predetermined standards of quality that tie quality to satisfaction as being the same, then consumer satisfaction can be an acceptable to measure of quality.

From the international level to the individual level, there are different versions of the concept of quality. The concept may be subjected to different definitions depending on the reason for which it is being defined. For a long time there have been international levels of quality standards. The ISO 9000 family of documents and standards continues to be the international baseline for good management practices as an effort to enhance organizational controls and predictability for quality requirements (Kevin Kennedy Associates, 2009). The documents and standards emphasize continuous improvement. Wahid and Corner (2009: 881-2) reveal that the DIN ISO 9000 is an internationally recognized benchmark for quality management, and gives indications to companies as to how to develop quality management and quality assurance systems. It also gives a standard to external and internal audits to assess the degree of quality management of companies.

This international measure of quality standards has also been subjected to benchmarking. This shows that benchmarking is a universal concept. The standards are reviewed annually in order to keep updated with the new developments in the measures of standards. The ISO 9001:2008 prioritizes the consumer needs since it is concerned with the provision of standards that acquire systematic approaches to managing the organization's processes and procedures. This is in order that consumer expectations are adequately met (International Standards Organization-ISO, 2008). ISO 9000-2010 which has the same aims, should be consistent with the current needs at international level.

3.2.2 Quality from Consumer's Perspective

The Kenya Bureau of Standards (KBS, 2009) publication notes that the only true measure of acceptable quality is consumer satisfaction. The publication further notes that it includes both objective and subjective interpretations of consumer needs and expectations. If consumers are satisfied with the products and services offered, then the organization has not only correctly interpreted consumer needs and expectations but it has also provided products and services of acceptable quality and standard. The view of KBS is supported by Wynn-Williams (2005: 483) who suggests that in terms of social accountability, whether or not a public sector organization provides quality services depends to some extent on the difference between consumer expectations and the services provided. Therefore, the consumer becomes the most important concern in any business enterprise and thus consumer judgement of quality is of prime importance. From the KBS' definition of quality, it seems that the level of consumer complaint against the KPLC and the Eskom reflects the level of quality of their service offering.

Kotler and Armstrong (2010: 240) define quality as the characteristics of products or service that bear on its ability to satisfy stated or implied consumer needs. Kotler and Armstrong (2010:27) contend that consumer satisfaction is the degree to which a consumer perceives the performance of a product and or service to match with what the consumer expects. High level satisfaction will occur if there is a strong positive correlation between the expectation and the outcome of the performance of the product or the outcome of the service offered. Southard and Parente (2007: 161) argue that satisfying the consumer and

in turn generating profit in diverse areas, such as service process improvements, in purchasing and delivery systems and even reductions in waste or scrap should be some of the goals why organizations ought to practise benchmarking.

The Centre for the Study of Social Policy (CSSP, 2007: 6-7), observes that consumer satisfaction can be described as being a highly individual assessment that is influenced by consumer expectations. The CSSP further argues that satisfaction relies on the consumer's experience from both the contact with the organization (the "moment of truth" as it is called in business literature) and personal experiences. Denkena, Apitz and Liedtke, (2006: 190) observe that consumer satisfaction can be said to be the total concept, which is inclusive of both the consumer satisfaction measurement factors and the continuous search for improvement. The goal is to attain high level competitive advantage. Thus, by implementing benchmarking, KPLC and Eskom aim to improve on their quality of service offering and therefore, positively enhance consumer satisfaction.

Service providers form an integral part of customer satisfaction. Wynn-Williams (2005: 483) argues that quality in the services sector needs to be looked at in the context of the difference between what the consumers expect and what they receive from the service providers. He further notes that there are various ways of assessing performance and this is subject to the many accountability relationships that may exist between the consumers and the service providing organization. There can be various relationships between a service provider and a consumer. In the case of the KPLC and Eskom, reliable and prompt service delivery in such areas as connecting and reconnecting power lines, rectifying erroneous bills and giving adequate information on certain issues, etc, can help develop a meaningful relationship between the consumers and the sectors.

KPLC and Eskom are natural monopolies and are controlled by their governments. This implies that they have the sole responsibility of satisfying citizen needs. Stucki (2009: 2), Nyangena (2008: 126) and ILO (2003: 4) note that any government has a social contract with the people, meaning the government has the obligation to provide quality and efficient services for its people. Similar views are expressed in the Government Notice (2008: 9). The note stresses that in restructuring the electricity sector the government (of South Africa) aimed at providing affordable electricity for the poor and at the same time provide electricity at cost reflective tariffs for other consumers.

It is impossible to have the government provide all basic needs to all the people in the category of poor, without pay. The argument here is to enhance sustainability for SMMEs for the contribution they make to the country and the economy. Collier (2007: 2) suggests that the government is one of the non-market service providers, others being, charitable organizations and self-help group. This means that where the government is expected to provide basic needs for its citizens. For example, electricity the prices should be affordable to the majority and services need to be of reasonable quality to satisfy the needs of the citizens. Bowen and Shiang-Lih (2001: 213), note that some experts think that more attention should be placed on the outcomes of the service, which include profitability, market share, and consumer retention among others, as a measure of service quality.

3.2.3 Other Measures of Quality

There are other measures that can be used to assess the concept of quality. For example, Gudlaugsson (2007: 3) discusses five dominant dimensions of service quality: reliability, assurance, tangibles, empathy and responsiveness (RATER). Similar dimensions are outlined by the Centre for the Study of Social Policy (CSSP) (2009: 9); timeliness and convenience, personal attention, reliability and dependability, employee competence and professionalism, empathy and responsiveness, assurance, availability and tangibles. Gudlaugsson (ibid) argues that the consumer comes first in all these five dimensions of service quality he discusses. The KPLC and Eskom need to be more concerned about their consumers' welfare by being sufficiently reliable in the provision of power as well as remaining responsive to the consumers' needs. The consumers need to be informed in good time and they also need to be given adequate information in advance so as to make them understand, for example, why the prices have to change at any given time. The electricity sector is predominantly a service sector and these factors may help the KPLC and Eskom to deliver desirable service standards despite the fact that the companies enjoy a monopoly power.

Eberhard and Gratwick (2010) reveal that consumers are unsatisfied with the prices and the level of reliability and quality of state-owned enterprises. These state-owned corporations include electricity, transport and telecommunications. It would be a lot more

beneficial to the KPLC and Eskom to constantly carry out routine research to establish consumer needs and expectations since this would assist the companies not only to offer services closer to the consumers' expectation, but would also restore the consumer confidence in the electricity sector. Restoring consumer confidence may help the electricity companies to reduce the wastage that is experienced through theft of electricity using illegal connection and bypassing of the meter. Investing in consumer confidence would, thus, help to reduce consumer complaints and therefore post a good image about the ever under-rated public sector services.

Quality of service in the electricity sector all over the world has been viewed differently. Iarossi (2009: 91) observes that many firms confessed to the importance of reliable power supply. SMMEs participants, like many other consumers of electricity, may interpret quality in terms of pricing, the adequacy and promptness of the service delivery. He notes that sub-Saharan nations face extremely high electricity shortages. Power outages are not just a problem for African countries. World-wide, firms also experience power outages that last from few minutes to hours. However, Iarossi (ibid) argues that Africa holds an unenviable record of being one of the places, experiencing the longest outages which, sometimes goes on for hours and even for days. The power outages could be attributable to lack of appropriate technology the unfulfilled demand, meaning there are more consumers compared to the level of generation and supply of electricity. DA Discussion Document (2008: 1) observes that South Africa's electricity shortage crisis may be occasioned by Eskom itself which confessed that it had been unable to deal with the ever increasing demand. The document suggests the removal of the monopoly. It is obvious that the outages have an impact on the profitability of the electricity firms themselves and on the SMMEs, which face stiff competition from large enterprises.

The World Bank (2010: 2) notes that unreliable electricity supply lowers the annual sales revenue of Kenyan firms by about 7% and reduces Kenya's annual GDP growth by about 1.5%. Unreliable supply of electricity can be expressed in such aspects as planned or unplanned power interruptions, both of which have impact on businesses.

In the following chapter, the study presented the conceptual framework which revolves around the concept of benchmarking. The chapter includes the definition of benchmarking

as a business strategy, the development of its Gap Analysis in relation to the electricity sector operations, the aims and approaches to benchmarking and the success stories of adopting benchmarking as well as factors that influence may influence the adoption of benchmarking strategy.

3.3 Benchmarking Gap Analysis in the Electricity Sector

Adopting practices used elsewhere with a view to getting better performance in an entity would implicitly imply that there is an internal SWOT process, an analysis of the overall strategic process, and a functional approach of its operations. These are compared with best practices of another 'superior' firm against which the 'weaker' firm is benchmarked'. In the following section we present the gap analysis in the Kenyan and South African electricity sectors to enhance the understanding of the benchmarking strategy.

The BusinessDictionary.com Online (2010) defines a gap analysis, (also called a need-gap analysis) as a *"technique for determining the steps to be taken in moving from a current state to a desired future-state"*. It entails establishing the attributes, competencies and performance levels of the present situation, identifying the factors that need to be attained and then focusing on the gaps that need to be filled.

Table 3: 1 Benchmarking Gap Analysis Model in the Electricity Sector

Current state (Perceived service level)	⇨	Desired future-state (Expected service level)
Recurrent power outages (rationing, blackouts, etc)	⇨	Efficient and adequate supply of electricity
Recurrent consumer complaints (quality of service, tariff hikes, etc)	⇨	Minimal Consumer complaints
Frequent tariff increases, sometimes with short notices	⇨	Programmed tariff increases
Inefficient and delayed service delivery (eg, delayed reconnections, ineffective revenue collection, increase technical losses, decaying networks and as very high expenditure in operation, etc)	⇨	Efficient and timely service delivery
Consumers and electricity companies operating as opposing forces	⇨	Consumers and electricity company operating as partners (complementing each other)

Source: *Researcher's own Benchmarking Gap Analysis model base adapted from the service Gap's model presented by Bruhn and Georgi (2006: 49-50).*

KPLC and Eskom should carry out a SWOT analysis in order to fill the benchmarking adoption gaps summarised in *Table 3: 1* above. These gaps manifest themselves in the companies' logistics of generation, consumption, export and import of electricity. They may also manifest in consumer complaints (See discussion on consumer complaint in section 1.4.1 of chapter 1). They should also strive to benchmark world-wide electricity sectors that have been able to provide efficient and effective services to the expectations of their consumers. There are various countries whose electricity sectors have registered high quality of services characterised by low electricity tariffs and several benefits arising from efficient service delivery. In section 3.6 the study discussed some evidence of success Stories of Adoption of Benchmarking from world electricity sectors that have benefitted it.

These countries include, Denmark, New-Zealand, England and Wales. Each of these countries and many more had their own aims of adopting the strategy. Below are some of the aims of benchmarking that could have encouraged KPLC and Eskom to decide on the form of benchmarking strategy to adopt.

3.4 Aims of Benchmarking

Benchmarking can be done on the basis of costing, pricing, facility management, process or function improvement, quantity and/or quality of human resource, increase on profit margin or any other form of advancement that could be used as a measure of progress for the firm to a desired level of performance for competitive advantage. It is a continuous process, thus, it has no beginning or end, as long as a firm is a going concern. The level of and approach to benchmarking for any organization is dependent on the requirements and operation logistics of that organization, as well as its goals and objectives. Koller and Salzberger (2009: 401) explain that benchmarking aims to establish the ground for creative breakthroughs and attempt to move away from traditional way of doing things. Before taking to benchmarking, it is essential that the firm knows where they are in relation to their competitors and or leaders in any given field or in relation to their predetermined standards. Only then, would they be able to choose the best benchmarking strategy to be adopted.

Benchmarking aims to provide guidelines since it is implemented against predetermined goals and objectives. Mariarty and Smallman (2009: 486) argue that it "…*requires two parties: the exemplar demonstrating a desirable state of affairs and the anomalar seeking to approximate or attain that desirable state of affairs..." (p 486)* In service intensive organizations like electricity sectors, the main aim of benchmarking is to improve the procedures, practices and processes involved in the provision of electricity. Chau (2009: 48) contends that service sectors, particularly those that are essential to consumption and which carry health risks are probably in most need for continuous quality improvement. He goes on to argue that it is of value to explore how this can be done and not just to evaluate performance data. Both Eberhard and Gratwick (2010) and Chau (2009: 48)

concur that benchmarking can be a source of empowerment for consumers to demand value for their money in terms of timely, efficient and quality services.

Wynn-Williams (2005: 484) suggests that benchmarking can be used as a liberating tool which aims at helping organizations to set priorities and to allocate the scarce resources, by drawing from the experiences of other organizations. He points out that, benchmarking focuses on different types of management control systems namely, results, actions (processes) and personnel controls. He further argues that results-based control systems use the quantitative (often monetary) information that is routinely collected and disseminated by an organization in order to measure what the organization has done (its outputs). According to Wynn-Williams electricity generation, transmission and distribution utility needs to have a predetermined set of standard measures against which to rate their performance outcome. The standards which target performance improvement could be qualitative or quantitative or both.

Braadbaart (2007: 677-8) argues that benchmarking enhances transparency and performance. Noting that the public sector experiences the problem of performance assessment, Braadbaart (ibid) explains that benchmarking can create room for managed competition and therefore, help to control public sector service providers. The public sector service providers need to be responsive to the needs, tastes and preferences of the citizen-consumer to ensure consumer satisfaction. Like Braadbaart, Wynn-Williams (2005: 486) stresses that benchmarking aims to bring about continuous improvement in firms. Therefore, the main goal of the public sector should be to embrace benchmarking in order to become efficient and effective service providers. It is further argued that this efficiency and effectiveness need to also be considered from the consumers' perspective, since it is mainly for the enhancement of consumer satisfaction that benchmarking strategy is adopted. The services are produced and offered to the consumers for consumption.

Healthcare Purchasing News (2002: 1) suggests that benchmarking is an initial step to finding out how well the organization is doing in relation to its attainment of its predetermined standards. Needham and Merrow (2003) argue that one of the important aims of benchmarking is to establish the relationship between attaining targeted outcomes and the practices that are used to deliver the outcomes. Therefore, benchmarking is used to establish the performance gap. Lauria (2003: 16) observes that benchmarking is used to

detect areas for improvement, underlying causes of performance deficiency, changes in performance over time and monitoring changes in the industry. He adds that benchmarking measures explicitly the level of attaining organizational goals and objectives, and depersonalizes and depoliticizes performance evaluation. These factors are a pointer to the fact that benchmarking assists the firm to achieve stability and competitive advantage.

According to Tutcher (1994: 44), benchmarking allows an organization to have a framework for both incremental and quantum improvements. It also enables the firm to achieve its goals and objectives that arise from its mission and vision. He further argues that benchmarking develops the real measures for internal organizational improvements, thus by positively enhancing organizational teamwork. The staff is likely to expand their knowledge and or experiences and improve their learning curve. Improved learning curve saves time in operation, but also reduces on wastage and hence saves on costs. All these can boost the morale of the employees and therefore improve on the firm's productivity.

The aims of benchmarking should dictate to the firm what form of benchmarking strategy and how as well as when to adopt it. There are several approaches to this strategy, a few of which are discussed below. No one approach is superior to the other and at times some combination of these approaches would be recommended, but it all depends on the needs at hand, in terms of the objectives and goals for which benchmarking is being adopted.

3.5 Approaches to Benchmarking

Each firm is unique in itself in terms of its goals, objectives, resources and other factors. It therefore, follows that each firm will adopt the benchmarking approaches that best suit the most effective way to achieve their goals and objectives. All firms have to identify the areas that need attention and assign time, human, financial and other resources that are required for improvement and sustainability. There is no one prescribed or universally accepted approach to benchmarking as yet. This is because there is no one firm that is identical to the other to be able to share the same approach or the same ways of implementing it. Similarly, there is no consensus as to what constitutes best practices,

since many researchers and academics have come up with their own measures of best practices (see Braadbaart, 2007; Andersen et al., 1999; Yasin and Zimmer, 1995). Southard and Parente (2007: 164) explain that the approach to benchmarking should be selected on the assumption that there is a subject process that can or should be improved on and that the organization is seeking a target process from which to benchmark.

Hinton, Francis and Holloway (2000: 53) have summarized benchmarking practices into four types: internal which is a comparison among similar operations within one's own organization; competitive which a comparison with the best-in-class or the direct competitors; functional which is a comparison of methods with those of companies with similar processes in the same function outside one's industry; and generic process which is a comparison of work processes with others who have innovative and or exemplar work processes. Whatever approaches an organization adopts, it should be in line with that organization's specific goals and objectives for which benchmarking is expected to attain at any given time. Moore (2008: 2) explains that companies can choose from the following approaches of benchmarking: competitive, strategic, functional or generic, collaborative, internal, external, international and process benchmarking. Benchmarking process has four phases of operation (Moore 2008: 3; Healthcare Purchasing News 2002: 1). Whereas Moore discusses planning, data collection, data analysis and reporting and adaptation, Healthcare Purchasing News discusses planning, analysis, integration and action as the four stages.

3.5.1 Functional Approach to Benchmarking

Benchmarking can be designed and achieved through tracking of related functions. Healthcare Purchasing News (2002: 1) discusses in depth functional benchmarking and, noting that it involves the study of a specific process or function. Firms operating and using "state-of-the art" equipment and or processes become the benchmarks. Functional benchmarking is similar to tracking the "leader" or "best in the class" in a certain field of operation and learning from them.

3.5.2 Quantitative and Qualitative Approaches

Wynn-Williams (2005: 484) observes that quantitative benchmarking which is usually monetary in nature is used in results based control systems. He adds that the desired information is routinely collected and disseminated by the target firm in order to measure the actual outcomes of that firm. In the end, these actual outcomes are compared with the desired and predetermined outcomes and the gap between the two outcomes is worked upon to reach the desired level of performance. Quantitative benchmarking deals with statistical (Neeham and Merrow 2003). Such statistical aspects as rating, ranking or ordering of productivity using and or comparing outcomes of firms in terms of numerical values fall in this approach of benchmarking. The approach may deal with benchmarking costs and revenues, number of employees and labour hours utilized, among others.

Needham and Merrow (2003) note that one of the usefulness of quantitative benchmarking approach is to help businesses to make better decisions in a number of places in the development of an asset. They enumerate such decisions as the selection of the development scope and the key timing activities that may be involved. The management personnel that are concerned with the implementation of the benchmarking strategy needs to prioritize what they want to put right or improved on and why they want to benchmark. What is to be improved on or corrected depends on the objective of benchmarking at any given time and may be as a result of competitor actions or what the stakeholders' expectations are.

On the other hand the qualitative approach may be used in the event that costs of surveillance and information control are too high. This means that a cost-benefit analysis is necessary before deciding on the area, the time, the reason for and the process of benchmarking. The qualitative approach makes use of the procedures and or processes involved in the delivery of good service results. These are matched against the desired outcomes, which are predetermined and serve as control measures. Different researchers have different views about qualitative benchmarking. Francis (2008: 24) notes that qualitative approach to benchmarking is geared towards producing valuable results but also notes this approach combines well with the quantitative one.

3.5.3 Process-Based Approach to Benchmarking

Another approach to benchmarking is the process benchmarking. Delpachitra (2008: 140) posits that process benchmarking guides the firm to use their limited resources productively and more effectively. He adds that the process can only be used when a firm enjoys substantial commitment of resources (time and personnel) and also where a firm is ready to divulge information that is generally considered commercially sensitive or confidential to institutions. Vorhies and Morgan (2005: 80) argue that the primary focus of benchmarking has moved from the content of the product or services produced to the strategy pursued. It has also moved from the performance outcomes achieved by top-performing firms to a process focus on the capabilities believed to produce the superior performance outcomes observed. Wynn-Williams (2005: 484) suggests that supervision and direction of activities through policies and procedural handbooks need to be used as control mechanisms. Wynn-Williams (2005:486) adds that focus in process benchmarking should concentrate on those processes that are accepted by the stakeholders. The expected outcomes should be the value adding processes.

Ralston, et al., (2001: 276) point out that process benchmarking begins with exploratory qualitative research to determine the core processes to be benchmarked as well as firms that have similar challenges as those of the firm that wishes to benchmark. This exploratory research is what Kotler and Armstrong (2010: 67-68) refer to as strengths, weaknesses, opportunities and threats (SWOT) analysis.

Quantitative research then follows, using an audit methodology. It involves the collection of the costs of core processes and productivity measures to be benchmarked as well as those from benchmark partners. Systematic collection of data is aimed to solve a specific problem facing the firm which may lead to minimization of costs or improvement on production processes. Andersen et al., (1999: 380) suggest that the primary information from the benchmarking activity is flow charts and process descriptions. They add that it is more important to find best practices than numerical performance data.

3.5.4 Human Resource-Based and Action-Oriented Approaches

For a long time, human resource has been the most valuable asset that organizations can possess (Swart and Kinnie, 2010: 67). Human resource benchmarking is employed when the costs of maintaining bureaucratic controls become too high, for instance where performance procedures and or processes are unclear. This approach can be successful only if there are the right personnel in the right positions in an organization and that they are clear on the tasks to be undertaken (Wynn-Williams 2005:484). Tutcher (1999: 45) stresses on management involvement, openness in communication, commitment as well as total integration at all levels of the firm and understanding of all the processes involved, in the course of benchmarking so as to obtain good results. Another role of bbenchmarking could be to strengthen a company's culture by sensitising its employees to the need for continuous improvement. To achieve this objective, benchmarking as a strategy could be used to evaluate employee training needs of large well known and/or "best -in-class" organizations in order to identify best human resources practices that relate to empowerment, teamwork, professionalism and providing customer satisfaction.

On the other hand, action-oriented benchmarking focuses on how users could generate more meaningful metrics and to enable them to identify, screen and prioritize potential areas of efficient improvements. It becomes an opportunity for progress assessment and a source of information and a chance to optimize a full scale audit of commissioning process. Mills, Mathew and Piette (2008: 21) point out that action-oriented benchmarking is mainly in-depth than conventional whole-building benchmarking. They argue that it *"…forms a bridge between fullfledged simulations (for design) or energy audits (for retrofit)…"* (p. 21). The process interlinks with other factors of building energy management, more so commissioning and retro-commissioning in the event that the results can enable the users identify the short-falls and pin-point areas where interventions are needed. This form of the strategy is easy to apply in the energy sector as it could allow users establish possible energy-efficiency options and prioritize areas that require advanced analysis and full-scale audit. This is a form of benchmarking that both KPLC and Eskom could easily benefit from to improve on their level of efficiency in the delivery of the services to their consumers.

3.5.5 Commercial End Use Survey (CEUS) Approach

Most of the approaches to benchmarking discussed above are prescriptive. Mathew, Mills, Bourassa and Brook (2008) offer a practical approach to benchmarking: Action-oriented benchmarking using Commercial End Use Survey (CEUS). CEUS approach seems like a strategy that is specific to the energy sector. This approach was developed by the California Energy Commission in 2006. Mathew et al., (2008: 8) argue that action-oriented benchmarking which is an end use energy benchmarking approach can show the overall potential for reducing energy intensity within each end use. This means that there is a possibility of tracing over-use of energy at each end use point, and then take control measures to reduce wastage as well as identify the greatest opportunities for savings from different types of energy efficiency improvements (see *Figure 2: 1* below). Mathew et al., (2008: 8) conclude that despite the limitations of this approach, it remains a remarkably rich source of information. They argue that, that offers outstanding chances for devising action-oriented benchmarking methods relevant to a wide range of buildings used for commercial purposes.

If it is implemented well, this approach is likely to help the KPLC and Eskom to provide sufficient electricity to more consumers. It may also help the electricity companies ensure that bills are paid appropriately, since the approach may lower the cost of electricity for the end user. It would also help SMMEs to save on electricity related consumption bills. There are many reports of failure to pay electricity bills. For example, Fin24.com, on-line publication points out that in 2010 Eskom was owed almost R 189,2m in electricity arrears by provincial and national governments. The arrears would have been evaded through the use of CEUS. Mathews et al., (2008: 8) explain that the end users of electricity can easily monitor and establish which electricity application can provide an opportunity for saving the electric energy. However, Mathews et al., (2008: 15) warn that such a strategy requires detailed data for individual buildings. Some of the end use aspects that can be used to save on energy consumption are illustrated in F*igure 2:1*, below.

To be able to choose the best approach to match the needs of one's firm, it is necessary to look at what approaches have succeeded in which areas. Next the successful report of benchmarking strategies from some parts of the world are presented, which firms can

strive to identify with. For the best benchmarking results, an organization needs to compare itself with the best-in-class or a competitor. It also requires that before an organization considers what benchmarking strategy to adopt an evaluation of its success elsewhere to be established out as well as an organization-wide SWOT analysis. This would help the organization to decide on the best approach of the strategy. Below are some of the cases where the adoption of benchmarking has succeeded.

Fig. 3: 1- A selection of features documented in the CEUS database

Lighting	Lamp
	Ballast
	Control
	Hours of use
Envelope	Roof insulation
	Wall insulation
	Glazing type
	Exterior shading
	Interior shading
Air Handlers	System type
	Age
	Hours
	Temp Control
	Optimal start/stop
	Economizer
	Supply Fan Motor Eff
	Supply Airflow Efficiency
	Cooling Type
	Cooling EER/SEER
	Heating Type
	Heating fuel
	Heating efficiency
	HP Soft Start

Chillers	Type
	Fuel type
	Heat rejection type
	Age
	Efficiency
	Chilled Water Reset
	VSD compressor
	Cooling Lockout
	Water side economizer
Chilled Water Pumps	Age
	Motor type
	Motor efficiency
Cooling Towers	Type
	Temp control
	Age
	Fan type
	Fan control
	Fan motor eff
	Pump type
	Pump motor eff

Source: *Adapted from Mathews Mills, Bourassa, Brook (2008: 10)*

3.6 Success Stories of Adoption of Benchmarking

Xerox benchmarking success story may have triggered many other organizations to adopt the strategy. Researchers, scholars and writers have documented success stories of the adoption of benchmarking in the public sector. Triantafillou (2007) notes that, Danish hospitals, both private and public, have benefited from benchmarking. Howard and Kilmartin (2006: 4) also report of improved performance in government sectors of several European countries as a result of adopting the benchmarking strategy. Howard and Kilmartin (ibid) view benchmarking as simply a routine comparison of one firm to another

firm that shares some similarity in terms of administrative processes, practices, costs and staffing to find out areas of improvement and at the same time lowering costs.

Wynn-Williams (2005: 284-6) demonstrates that benchmarking has helped to improve performance in the New-Zealand public health organizations, especially in terms of saving costs. Yasin (2002: 219) observes that another area where success of as a result of adopting benchmarking has manifested itself is in the automobile sector-the Nissan/Infiniti. Yasin (ibid) notes that this company employed both functional and competitive benchmarking that enhanced its success. This was done by establishing and continuously improving consumer service standards. Kingdom and Jagannathan (2001: 1) note that performance benchmarking has become a standard practice in the regulated utilities of England and Wales with considerable success.

Not all benchmarking strategies that are adopted succeed, although, there is minimal documentation of the failures than there are successes. For example, Dagdeviren (2009: 642) observes that the public ownership strategy in the electricity utility lost favour because of the many problems that were associated with it. These problems included: ineffective revenue collection, increase technical losses, decaying networks and as very high expenditure in operation.

3.7 Factors that may have Influenced Adoption of Benchmarking

Smooth implementation of benchmarking can be hindered by various factors. Such factors may be those that could affect the success of organizations and they include: environmental challenges, technological challenges and scarcity of resources, socio-cultural and political, (Kolter and Armstrong, 2010: 183). There may also be other factors like the economic well-being of the country. Other problems include fear of change on the part of the incumbent employees, since changes come with adverse effects, negative and positive, sometimes both. The following is a discussion of some of these factors.

3.7.1 Environmental Challenges

One of the main environmental challenges is the climate. Climatic conditions have become turbulent and therefore unpredictable and uncontrollable. Challenges in climatic conditions may cause the electricity sector that is dependent on hydro generation to fail to smoothly implement the benchmarking strategy. The variability in water levels caused by lack of adequate rainfall in some parts of the world pauses difficulty to the electricity sector to live up to their promise of efficient supply of the commodity. Vine (2008: 1) notes that weather variability that result in floods and drought causes high risks to efficient provision of electricity in California. African countries which rely predominantly on hydro-power generation like Kenya can identify with this challenge. Hydro generation of electricity is one of the most preferred sources of power generation since it is renewable and has the least emission of carbon into the atmosphere. Amatayakul, Berndes and Fenhann (2008: 18-9) emphasize that for the electricity sector power generation to reduce CO_2 emission, there is need to adopt usage of renewable sources of which hydro is the most popular.

Vine (2008: 1) notes that there is considerable emphasis laid on increased efficiency and management of demand through use of renewable generation of electricity to reduce on pollution of the atmosphere. This ought to be the goal of every entity that is an on-going concern in order to guard against global warming. South Africa faces the challenge of emissions of carbon into the atmosphere since it relies heavily on coal as the main source of electricity generation. Chen, et al., (2007: 2612) note that the governments of the developing economies had been pressurized to work on the reduction of carbon emissions in order to reduce the rate of climate change. This is partly as a result of over-reliance on fossil fuel for electricity generation. Amatayakul, Berndes and Fenhann (2008: 1) disclose that such measures as the call to clean development mechanism (CDM) and Sectorial no-lose have been put in place to ensure that the emission of CO_2 has reduced.

All organizations need to seek technologies that would enhance environmental sustainability. Chen, et al., (2007: 2612) note that the developing economies are worried that the pressure put on them to change from use of fossil fuel for the generation of electricity is likely to slow down the economy. Coal is the cheapest source of electric power and is used by many countries. It causes environmental hazards and this is a major challenge to those countries that have relied heavily on coal for electricity generation.

International Atomic Energy Agency (IAEA, 2002: 24) warns that the earth's energy resources are inadequate to meet rising demand for at least the next three decades. The IAEA notes that energy production poses a risk to environmental damage. All organizations have to practise environmental conservation to minimize pollution.

3.7.2 Technological Challenges

The technological challenges deal with the lack of modern and efficient technological know-how in the generation, transmission and distribution of electricity. This has caused certain countries to over rely on specific sources for electricity generation, which may be more expensive and limiting in other aspects. A case in point is in Kenya, which has for long, mainly relied on hydro-electric power generation, which has led to high cost of electricity in the country. Kenya has equally failed to fully exploit wind, tidal and wave sources of power generation, all of which are considered to be cheap. Kenya, unlike South Africa, has not yet succeeded in the use of nuclear power. Although nuclear power generation has higher capital costs than the coal generated power (World Nuclear Association, 2010), it is considered to be a clean source of electricity and can help countries to save on the high taxes associated with the emission of CO_2. It is also believed to be competitive with fossil fuels. The fuel used in electricity generation in the nuclear plants in a small amount compared to that used in other sources of electricity generation (World Nuclear Association, 2010).

In Africa, IPPs were generally affected by technological challenges. They are believed to have shied away from the offer in the generation of electricity because of the high investment costs involved. Eberhard and Gratwick (2010: 6) report that in various countries in Africa, IPPs were unable to continue operation due to the high investment cost. Investment is usually in the modern technology, failure to which the cost of production becomes too high. High investment is required in the transmission and distribution area to limit the losses. United Nations Environmental Programme (UNEP) (2006: 6) reveals that there is usually a great deal of power lost in the course of transmission as well as during distribution. UNEP emphasizes that the losses could also be

blamed on the number of units inherent in the electricity sector, causing duplication of various responsibilities thus by creating confusion and wastage. For these challenges to be managed, enough of investment in modern technology is required.

3.7.3 Scarcity of Resources versus a Large Customer Base

Another major challenge that the electricity sector may face is the scarcity of resources and a large consumer base to satisfy. Benchmarking as a strategic tool requires a lot of investment. Wynn-Williams (2005:482) notes that the problem of scarce resources and competing by consumer groups for the limited supply of the essential commodities and services are not unique to the public sector. He adds that it is important for entities to cooperate for the collective public good. Both KPLC and Eskom have large numbers of consumers to satisfy and the ever increasing demand for electricity affects their level of performance in the service delivery.

It is worth pointing out here that the KPLC and Eskom have seriously assess the possibility of co-opting more private participation in the generation, transmission and distribution of electricity. Global successes of private participation are discussed in Chapter Four Section 4.2.1. This would help reduce costs through competition and also enable the electricity sectors to share the losses they experience. These losses are likely to be pushed onto the consumers through the frequently increased tariffs. ADB-Guidance Note (2009: 14) points out that loss of electricity can be experienced through illegal connections or theft by consumers or through under-recording of consumers' consumption. What the Note forgets to add is that there can also be over-recording of consumers' consumption. It usually takes a long period of time to rectify the situation. The metering and billing systems need to be due given attention.

Closely connected to scarcity of resources is the issue of resource expenditure. Pessoa (2008: 2) posits that public utilities have often been entangled in inefficient resource allocation as well as poor management. He emphasizes that bureaucratic procedures prevent these institutions from adapting to new (and innovative) changes. One area that

this research considers to experience inefficient allocation of resources is in the huge bonus payments to the management staff at the end of every financial year. There has arisen a profit motif in the public sector which has greatly triggered the emergence of self-interest in economic reality and has disregarded morality and other ethical issues in the public sector. For example, BusinessReport (2010) reveals that Trade Union was shocked to learn that Eskom's executive committee had been paid huge salary increments of 83% during the 2008-2009 financial years. Can most of the amount paid out as bonuses be used on further reinvestment to reduce the gap between demand and supply?

Governments should lay emphasis expenditure on investment. An International Labour Organization (ILO) Report to the G20 Leaders' Summit, (2009: 24) encourages developing economies to spend a lot on investment as this is likely to enhance job creation. The report gives the example of Latin America where it is believed that for every $1 billion spent on investment, 500,000 direct jobs are created. The electricity sector should also prioritize investment in areas that would enhance efficient and effective service delivery. Revenues collected could not have been realized without either the effort of the consumers or the employees. Therefore, stakeholder concern is important.

3.7.4 Challenges Related to Organization Culture

These challenges touch on the well-being of the organization as a whole. They may include the organization's culture and the "how", the "what", the "why", the "who" and the "where" of the organization. Some of the challenges could be managerial-related or leadership-related, while others could be consumer related. Bhattacharyya (2007: 18) observes that there are a number of factors that prove to be a challenge to the electricity sector. These include: pricing policies that may be politically motivated, revenue generating tax policies, the inefficient functioning of the energy market due to inappropriate market structures or collusive behaviour as well as poor performance of the energy firms in many areas. Holburn and Spiller (2002: 2-3) explain that there are certain factors that can cause pricing in the utility sectors to be political which include specific investments, economies of scale and widespread domestic consumption. Moore (2008) suggests that firms need to thoroughly understand their organization and emphasize on the

industry's best practices. Therefore, before adopting any aspect of the benchmarking strategy, organizations must carry out a SWOT analysis of the organization to realize which area(s) need benchmarking.

The leadership style in any given company is likely to have an impact on the level of success of that company. Akampurira, Root and Shakantu (2009: 3-4) discuss the challenges organizations face as a result of leadership styles. They note that such factor as a long bureaucratic procedure to institutional decision-making and poor coordination within organizations and more so interdepartmental linkages in public sectors are seen as roadblocks to development in public sectors.

3.7.5 Company-Stakeholder Conflicts

One of the main controllable challenges is the conflicts between the electricity sectors and their stakeholders. The stakeholders in this case include consumers, employees and the government, among other interested parties. Both the KPLC and Eskom have time and again found themselves in tussles with their consumers especially over changes in electricity tariffs and the level of service quality. If the tussles are far too many, the organization may fail to efficiently and effectively deliver their goods or services. Public Services International Research Unit (PSIRU) (2007: 4) observes that in 2005 and 2006, KPLC was locked in legal tussles with its employees, who were demanding permanent status in employment after working for the company since 2003. Another example of a tussle that cost KPLC millions is the 2007 court case with the Chandaria Industrial Limited which saw ERC ask KPLC to pay Ksh. 58 million to the complainant in 2010 (Business Daily, (2010). A lot funds may be lost in such tussles, funds that could have benefitted the sector in various investment projects.

3.7.6 Political Challenges

For any meaningful reforms to take place in a country there must be positive political will. This is usually done through government laws and policies. It is the government that initiates regulatory frameworks that would support reforms. Jamasb et al., (2005: 4) argue that credible regulatory institutions must be put in place by the government and this should be followed by government commitment. In many developing countries, most essential utilities that offer services to the public are under the control of the state. It seems that many governments of African countries have not been fully committed to release the public utilities from their grip. The Kenya government was threatened by the donors that unless KPLC allowed IPPs to participate in the electricity sector, donor support would be withdrawn (Eberhard and Gatwick 2005: 17). A DA Discussion Document (2008: 3) equally notes that for a long time the South African government remained non-committal to allowing private participation in the generation and purchase of power.

Another area where government interference may be noted is in the procurement systems of the electricity sectors. Eberhard and Gratwick (2010) note that the appointment of senior officials and more specifically the Chief Executive Officer (CEO) is subject to political approval. Eberhard further notes that this system of recruitment cannot allow the board of the sector to deal with leaders who are underperforming. The board cannot act with full length of freedom as the members are also appointed by the government of the day (Eberhard, 2010).

3.7.7 Inadequate and/or Unreliable Data

Lauria (2003: 16) brings in a new dimension of the challenges. He notes that more often than not, those organizations that adopt the benchmarking strategy and those that are being benchmarked may lack adequate data which is critical for the benchmarking practice. He further asserts that it may not just be the lack of data, but lack of quality data needed for the efficiency and effectiveness of the outcome information. Equally, Lauria notes that at times there is "…*lack of standardized and widely used and universally accepted*

definitions of ….performance and cost…" (p. 16). Sufficient and relevant data is a prerequisite for effective benchmarking. It is this data that is used to draw comparisons between the benchmarking firm and the one that is being benchmarked.

3.7.8 Corruption

One other major factor that is likely to threaten the efficiency and effectiveness of benchmarking strategy is corruption. From the African perspective, Iarossi (2009: 95) points out that Africa still suffers highly from the burden of corruption; that African managers view corruption as one of the main constraints to their businesses and that firms may pay as high as 1.5% of their income to bribery to "get things done" and close to 3% of the value of the contracts when dealing with the government procurements. Iarossi notes that large firms spend less on bribes that SMMEs. Iarossi (ibid) argues that SMEs may spend about 20% of the value of their business in bankruptcy procedures.

Corruption has been a long standing problem facing many governments in developing economies. This is not limited to any organization and that is why Iarossi (ibid) simply put it as "firms". Adoghe, et al., (2009: 36) note that in Nigeria, corruption is a stumbling block in the effort of the electricity sector to improve service to the consumers. They further note that the electricity sector in some developing economies is misused by politicians as a form of political patronage to grant jobs and others favours. It is an indication that KPLC and Eskom are not unique in this scenario.

PSIRU (2007: 4) discloses that corruption procedures were noted in awarding tenders in Kenya to IPPs and the result was inflation of prices by the IPPs in a bid to recover their funds. Gratwick and Eberhard (2005: 6) also reveal that corruption was experienced in the dealings with the IPPs in Kenya. They explain that the IPPs failed to achieve cost-effectiveness compared to the KenGen, which was then state-owned and was the main producer of electricity. Similarly, Gratwick and Eberhard (2005:7) note that the IPPs were involved in corrupt deals which greatly affected their performance. However, the IPPs were also hit by unfavourable investment conditions in Kenya.

Olawale and Garwe (2010: 732) explain that in South Africa, corruption is one of the factors that have had a negative impact on business and they reveal that in 2008, Transparency International ranked South Africa at number 43 in the world, with a corruption perception Index (CPI) of 5.1. They further observe that SMEs engage in corruption because of regulatory compliance and bureaucracy, since they lack strong bargaining power and also lack the willingness to oppose requests for unofficial payments and similar solicitations. To reinforce their argument on corruption, Olawale and Garwe (ibid) also reveal that in 2005, the World Bank noted that 70% of SMEs perceived corruption as an impediment to doing business (as compared to 60% of large enterprises).

3.7.9 Inefficient Debt Collection

Efficiency in debt collection from the consumers is an area that needs attention by the electricity sector. The question of how the electricity sectors make up for the losses as a result of unpaid electricity bills remains a puzzle. Adoghe, et al., (2009: 37) observe that electricity sectors in Nigeria face crippling non-payment and escalating debts. These researchers emphasize that developing economies have had to labour with huge accumulated debts from yester years, due to un-recovered tariffs and failure to collect debts from consumers. For example in Kenya, KPLC is unable to recover almost half of the unpaid consumer bills totalling to almost Ksh. 10 billion (Business Daily, 2010). Department of Minerals and Energy DME (2001: 2) reports that several municipalities in South Africa became bankrupt and collapsed partly due to severe debt implications which included large unpaid bills for electricity supplied to Eskom. Khumalo, Ntlokonkulu and Rapoo (2004) contend that the city power supply sector (of South Africa) has been faced with poor administration and weak debt collection mechanisms resulting in losses of revenue. Thus efficiency in debt collection may be a blow to many electricity companies in Sub-Saharan Africa and this requires adoption of a better benchmarking to bring the companies back on to sustainability track.

Adoghe, et al., (2009: 36) note that, in developing economies the energy sector has, time and again, been bombarded with poor maintenance and low equipment reliability, high

technical losses and pricing that the sector is unable to recover of the losses. Noting that the inability of the power companies to meet the mounting financial power shot-falls is a stumbling block to sustainability in the developing countries, Adoghe, et al., (ibid) argue that the government should subsidize the costs and recover the same losses through direct or indirect taxation. They note that the power companies are unable to surcharge the consumers an amount that would fully cover the cost of the electricity. These losses may hinder the electricity companies from efficient and effective operation. Both KPLC and Eskom need to invest in modern debt collection.

Once some of the factors the influence the adoption of the benchmarking strategy were considered, this research then discussed the different factors that may have enhanced the adoption of the benchmarking strategy.

3.8 Factors Supporting Benchmarking Strategy Adopted

In most developing countries there are certain factors that are country specific that have contributed to the current reforms in the electricity sector. There must be reasons why certain benchmarking strategies were easily adopted as opposed to others. In the following section, the study looked at two main economic orientations and arguments that have largely contributed to the kind of strategy adopted by the electricity sectors today and specifically those adopted by KPLC and Eskom. Various theories have been developed from these two arguments, either because of the failures or successes that surround them. The first to be discussed is the theory of economies of scale and is followed by the discussion on the theory of natural monopoly.

3.8.1 Economies of Scale

The term economies of scale could mean that a firm is capable to produce on large scale at minimum costs owing to the many products and services that that firm is able to turn out and offer to its consumers. The firm in this case takes advantage of new and relevant technology in the course of production, distribution and promotion. The firm also takes advantage of the experience gained through the learning curve, as a result of being in operation for a long period of time. Learning curve minimizes costs of production and other costs that are inherent in the process of distribution and marketing of goods and services (Encyclopedia of Small Businesses.com).

The population under study in this research falls in two categories; the electricity sectors, which are large companies and enjoy the benefits economies of scale and the benefits of natural monopolies. The second category is that of SMMEs, many of which are small and relatively new in operation, hence suffer from problems associated with diseconomies of scale. Besides, SMMEs are subjected to intense competition. The Times 100 (2010) an online publication explains that businesses need to grow to be able to operate on large scale. That is when they would be able to benefit from the various production economies of scale. The publication emphasizes that production economies allow for large scale production at lower costs per unit produced.

Joskow (2005: 12-3) explains that a firm experiences economies of scale when their marginal productivity increases, that is, those firms have higher increasing productivity outcomes compared to the level of inputs. Joskow (2005: 13) adds that this may be experienced due to the synergies in a particular industry resulting from excess technology and knowledge or as a result of excess human labour, which leads to a higher level of specialization. Whereas internal economies of scale exists in an imperfectly competitive environment in which larger firms have advantage over smaller ones, external economies of scale exists in situations where perfect competition reigns.

The Times 100 (2010) points out that economies of scale in relation to production and technical economies of scale stem from improved techniques of production on large scale. Technical economies reduce cost of production and improve on quality of products and or services. Technical economies of scale which can be applied to the electricity sectors

should emphasize on improvement of quality of service delivery by the sector's service providers. Improvement is required in generation, transmission and distribution of electricity at consumer friendly prices. The KPLC and Eskom have been in operation for many decades and are large enough, therefore they must benefit from technical economies at generation, transmission and distribution levels

Unlike the KPLC and Eskom, SMMEs may not enjoy the benefits of technical economies. Heakal (2003) notes that some of the factors that contribute to economies of scale include; the ability to employ specialization and division of labour. These factors are not easy to come by in the SMMEs sector as most employees in that sector lack the relevant skills to get employment in the formal sector (Mammam, Eldridge and Brannie, 2007: 151). SMMEs have to market their products and or services on small scale unlike KPLC and Eskom which do not require marketing their services since there is a ready market. Electricity has become more or less a universal or basic need.

Heakal (2003) argues that SMMEs have a very important role to play: that the large companies like trans-national companies cannot fulfil all the existing demand, and relying on large companies would cause small businesses to be extinct. He argues that as companies grow, they tend to lose in the balance between demand and supply and that makes the large companies lose touch with consumers. This means that the small businesses serve a function and need to be supported to grow and develop as well as be helped to become self-sustaining. Since KPLC and Eskom are large companies, it may be time for them to pave way for smaller firms to help them satisfy the ever increasing demand for electricity. The many complaints that the electricity consumers in Kenya and South Africa and the ever increasing demand for electricity may mean that the KPLC and Eskom are losing touch with their consumers.

There are many consumer complaints regarding high electricity tariffs, frequent power outages, delayed connection and or reconnection and there is also the ever increasing demand for electricity. The argument is that economies of scale, to a large extent, have lost meaning in today's public utilities. As early as 2005 this concept was receiving condemnation. Jamasb, Mota, Newberry and Politt (2005: 1) argue that with new technological changes, economies of scale have limited importance in the electricity sector in relation to generation and transmission. They note that combined-cycle gas turbines

reduced the importance of economies of scale and that the advancement in information technology brought on board improved remote control of flow of electricity.

Products and or services produced under economies of scale are expected to be low priced to the advantage of the consumer. Since the KPLC and Eskom enjoy economies of scale, this research argues that they need to produce much more electricity to satisfy the ever increasing demand and also be able to sell it at relatively lower prices. The electricity companies need to embrace other benchmarking strategies that will enable them to fully exploit the economies of scale to the advantage of their consumers by ensuring affordable electricity prices through efficiency and effectiveness. This can also ensure that the ever increasing demand is satisfied.

3.8.2 Natural Monopoly

In addition to economies of scale, the theory of natural monopoly has supported the kind of reforms that KPLC and Eskom have initiated as a way of benchmarking adoption. Joskow (2005: 7), points out that the term natural monopoly was first associated with John Stuart Mill since 1848. McAfee and Lewis (2010) and Parker (1999: 213) explain that a natural monopoly arises in a situation where it is believed that one firm can efficiently produce products and or services that can satisfy the whole market since the average costs for a single firm are lower than if there were two or more firms. McAfee and Lewis (2010) and Hoagland (2008: 2) illustrate that electric power, natural gas, and communication companies are examples of natural monopolies and that, like any monopoly, market power comes about as a result of the impossibility of a rival firm's entry. The electricity sectors in Kenya and South Africa are examples of "natural" monopolies. In the course of adopting and implementing benchmarking practices as natural monopolies, this may have some impact on the electricity firms themselves and on SMMEs that rely on electricity.

Joskow (2005: 17) suggests a number of characteristics associated with natural monopoly business environment. To start with, he notes that what is offered must be non-storable and an essential product or service and that the producer has to have favourable production sites. He adds that the ratio of fixed to variable costs should be high and the similar

product or substitutes offered by competition should be close substitutes. Electricity is non-storable and from local to international scales, it has become extremely essential with the advent of wide use of technology which has laid emphasis on ICT for competitive advantage. Indeed once established, fixed to variable cost ratio is usually high. However, electricity does not have a close or a perfect substitute. The closest substitute is the lighting from generator (which is more expensive), the lanterns, rechargeable bulbs and solar panel, among others.

Joskow (ibid) is of the view that electricity sector passes for a natural monopoly. Hoagland (2008: 2) holds different views over a natural monopoly. He argues that a situation of natural monopoly leads to profit maximization at low output levels causing costs and prices to be higher than if firms' were functioning in business environments that are highly competitive. In Kenya and in South Africa, electricity tariffs are noted to be high and this is manifested in the frequent consumer complaints over high tariffs. In many African countries prices of basic utilities have remained high. For example the prices of electric power, natural gas, and communication facilities, (which fall in the category of natural monopolies) have remained high. It is expected that the average total costs keep declining as the scale of production keeps increasing. This should be so because fixed costs are expected to be spread over higher and higher levels of output. The situation is contrary in Kenya and in South Africa, where the tariffs are continually on the increase. It is only in Internet communication and mobile telephony that most African countries have experience a considerable drop in prices.

Public sector entities should not have profitability as their main goal but as a means to achieving their goals. Hoagland adds that regulations within natural monopoly business environments should be of benefit to consumers, since the consumers are expected to enjoy reduced prices and higher outputs that enable producers to recover their production costs and earn profit.

There are many other arguments in support for natural monopoly. Chau (2009: 51) observes that a natural monopoly that operates in networks such as through pipes and wires usually experiences falling average variable costs and therefore it does not make sense to break down the network to open it to competition. Both Chau (2009: 51) and Joskow (2005: 1) concur that in a "natural" monopoly situation it makes economic sense

for one firm to produce and supply services to consumers rather than subject this production and supply to competition. Their argument means that prices of goods and services produced under monopoly market environment must be of low price. Can it be concluded then that consumers in Kenya and in South Africa enjoy low electricity prices? If this were the case, why are there many electricity consumers' complaints?

Natural monopolies are not perfect conditions in all situations. Chau (2009: 51) and Joskow (2005: 1) argue that in situations where natural monopolies are the order of the day, several problems may result including: high prices, inefficiency in production, and duplication of facilities that are considered generally costly, low service quality, and may result in undesirable distributional impacts.

Joskow (2005: 2) suggests that as a result of these problems, natural monopoly started to be scaled down through regulation. May be it is time for KPLC and Eskom as natural monopolies to be scaled down. These problems suggested by Chau and Joskow (ibid) are problems that Kenya and South Africa can identify with, yet they are regulated companies. Such problems are an indication that "natural" monopolies as they are currently are not competent to provide basic needs to such a large segment of consumers. These companies need to embrace further benchmarking strategies that would see these problems minimized considerably.

Consumer complaints are valid as they are today and the demand for electricity is still escalating. The electricity regulators, ERC and NERSA of Kenya and South Africa, respectively, are government-owned agencies regulating the predominantly government-owned entities. This is tantamount to the government regulating itself and so in many cases it may not be able to easily identify, implement and enforce reforms that would benefit the majority. As the demand increases, so does the price decreases (the higher the quantity demanded the lower the price for the product and or service), proportionately.

This research argues that the KPLC and Eskom need a thorough SWOT analysis to establish which benchmarking strategies they could adopt to ease the problems that have faced the electricity sectors for some time as well as those voiced by the electricity consumers. In a natural monopoly situation, high demand corresponds with high production and low prices until a point of equilibrium. This should be the ideal situation if

the electricity sector should be accepted as a “natural” monopoly. As more electricity is demanded, much more should be generated, transmitted and distributed to meet this demand and the price should reduce as more is demanded. Unfortunately, this situation may not exist in most developing economies. The F*igure 2: 4* below shows how the quantity demanded affects the pricing.

Kenya and South Africa need to diversify their sources of electricity to add to the current ones in order to increase the national grid. Expansion of reliance and use of renewable sources of electricity can enhance the electricity national grid and be able to serve the off-grid areas, hence diversifying their benchmarking practices.

Fig. 3: 2- Ideal Electricity Demand and Pricing Relationship using Natural Monopoly Demand Curve

Adapted from:
tutor2u.net/economics/content/topics/monopoly/natural_monopoly.htm.

3.9 Summary

This section reviewed the aims and approaches to benchmarking and also explored the factors that encouraged the adoption of those reforms as well as factors that are likely to

have negatively influenced the adoption. The next section discusses the SMMEs sector in some detail. The next chapter evaluated in some details the basics of SMMEs as well as established the possible links between the SMMEs, and the economy and the electricity sector. The chapter also discussed possible ways of supporting the SMMEs through privatization and collaboration with the government and its stakeholders which was also looked at as a means of solving various national problems. Profitability is one of the forms of measuring the impact of adoption of the benchmarking strategy. This concept was also discussed in the following chapter.

CHAPTER FOUR

THEORETICAL FRAMEWORK

4 Introduction

This chapter advanced the main argument of the study which is seeking support for SMMEs by the government forging links with its stakeholders. A number of theoretical streams have been instrumental in shaping the electricity sectors to what they are today. In general, these theories have supported the provision of basic services to the citizen-consumer by public sector utilities as being the best option. Theories form the base from which clear understanding of a research work springs and they help a researcher to relate his or her perspective of the research problem to the existing realities and propose solutions to the problem. Theories link the research problem to the future by suggesting solutions.

Khan (2010) explains that theories develop from reality and this development aims at explaining, predicting and mastering phenomena such as relationships, events, or the behaviour. He adds that a theory makes generalizations from what is observed and that it consists of an interrelated, coherent set of ideas and models. Finally, Khan (2010) notes that, in the course of a research study a theoretical framework formulates a set of theories against which the study is based and gives way for the explanation on how these theories can be put into use. The theories that boost the argument of the current study are theory of Entrepreneurial theory of the firm and the problem-solving theory. This research argues that the government and its stakeholders, here represented by the electricity sectors of the countries under study, could support the SMMEs to enhance their contribution to their economies. The theories are used to advance the researcher's argument that both the electricity sector and SMMEs are problem-solving in nature and that there is a possibility for interdependence in problem-solving. These theories are the Standard Problem-Solving Theory extended by Langley and Rogers (2005) and the Entrepreneurial Theory of the Firm advanced by Hsieh, Nickerson and Zenger (2007). The Standard Problem-Solving Theory is modified to suit the objectives of this study.

Before discussing the theories that strengthen the call for support for SMMEs, the researcher advanced the relationship between the SMMEs, and the economy. It is the extent of their contribution to the economies of their specific countries that the current research deemed it fit to call for their support. Later the chapter discussed the concept of privatization and its effects and the concept public-private-partnership and how the two could be used to enhance service quality as a way of achieving the desired outcomes in supporting the SMMEs. Also discussed in some detail is the concept of problem-solving and the assumptions that could boost the success of the problem-solving theory.

4.1 Electricity, SMMEs and the Economy

There obviously is a relationship between SMMEs, the electricity output and the economy. The Ministry of Trade of Kenya discloses that the country has about 1.6 million registered SMEs, which constitute approximately 96% of all business enterprises in the country. They are noted to employ about 5.1 million people, accounting for 75% of the total labour force and this contributes 20 per cent to Kenya's GDP (HR.com, 2010). SMMEs are also believed to make a contribution of about 70% to Ghana's GDP and account for about 92% of businesses in Ghana. On the other hand, in the Republic of South Africa, it is estimated that about 91% of the total formal business entities are SMEs, contributing between 52% to 57% of the country's GDP and 61% employment opportunities.

In essence, inadequate supply of electricity is likely to adversely affect the operation of all businesses that rely on it. Ciarreta and Zarraga (2009: 4) argue that in order to have a sustainable economic growth, there is need for reliable supply of electricity to meet the ever increasing demand. Olawale and Garwe (2010: 735) list 30 challenges that face SMMEs and rank poor supply of electricity at position 25 out of 30 factors. This shows that electricity supply is equally necessary for those SMMEs that are rely on it.

4.1.1 Electricity and Economic Growth

It is believed that there is a positive correlation between the level of electricity distribution in a country and the level of economic growth. For example, Wolde-Rufael (2006: 1108) contends that the correlation between use of electricity and the creation of wealth is stronger than that of the overall energy usage and wealth. In the same spirit, Williams and Robberts (2010: 81) stresses that apart from water, electricity is the most crucial commodity in the majority of the world's population. Ploch (2009: 15) warns that South Africa's economic growth is threatened owing to the overstretched electricity network in the country. This implies that electricity plays an important role any economy just as SMMEs do. Van Heerden, Blignaut, and Jordaan (2008: 1) observe that many people strongly believe that electricity is a critical input among the factors of production and it is also important to economic well-being. They argue that the level of inflation in a country will have a strong impact on electricity prices and that electricity prices affect the level of inflation in a country. They add that this has been experienced in South Africa. Van Heerden, et al., (2008: 2) further argue that in 1991, while Eskom was announcing its price compact, it revealed that economic growth can be boosted by cheap electricity.

4.1.2 SMMEs and Economic Growth

Many people have recognized the importance of SMMEs, not just in Africa, but worldwide. Many scholars and researchers have arrived at a conclusion that SMMEs contribute immensely to the economy. Jean-Pierre, Huyen, Chi, N.H., Mireille, Francois, and Torelli (2010: 3) point out that the informal sector remains the main source of employment for most of the unskilled personnel in African countries and in other countries like Vietnam, in which the problem of unemployment is rampant. Whenever a country thinks of alleviating poverty and or unemployment, SMMEs come to mind. Poverty has a strong impact on a country's economic well-being (Arianoff, 2010). He further notes that SMEs have the capability of employing more people than the larger companies because the SMEs are labour intensive. This means that SMMEs' value can in some respects make greater contribution than larger companies to economic growth.

Newberry (2006) also emphasizes that the SMEs sector is important for sustainable development in emerging economies and that their presence correlates with various economic factors which include a country's GDP. He notes that the importance of the SMEs was once illustrated in a study conducted on ten SMEs. The results showed that there were significant benefits for employees and the community as well as for the local economy. Newberry emphasizes that recent data indicates that there is a positive correlation between a country's overall income level and the number of the SMEs per 1000 people. Arianoff (2010) reveals that in Belgium, the SMEs account for well over 70% of the GDP and that the profitability of SMEs is much higher than that of the large companies. Development Policy Research Unit Working paper 06/107 (2006: 1) notes that SMMEs are famous for their innovative contributions and their capability to boost economic growth.

Arianoff (2010: 2) posits that SMEs have become a major growing force in triggering China's fastest growing economy. The Development Policy Research Unit Working paper 06/107 (2006: 1) notes that on an international scale, SMMEs account for a large share of new employment in Organization for Economic Co-operation and Development (OECD) member countries. Newberry (2006) explains that despite the many challenges that SMEs encounter, many civic, investment and business leaders have recognized the clear role that these ventures play in sustaining development. Among them are van Nieuwenhuyzen (2008), Akintoye (2008) and United States Agency for International Development (USAID, 2008). Olawale and Garwe (2010: 729) lament that South Africa suffers from chronic unemployment. They emphasize that about 24.5% of economically active population remain unemployed. Olawale and Garwe (2010: 729) note that SMEs in South Africa are responsible for a total of 56% of private sector employment as well as 36% of the country's Gross Domestic Product (GDP). Bruwer (2010: 7) reveals that when the South African government eventually introduced the concept of SMMEs, the main idea behind it was to create jobs, alleviate poverty and boost the country's economy.

Malzbender (2005: 5) points out that the White Paper on Energy Policy of the Republic of South Africa had its main objective to reform the electricity sector in order to trigger growth, development and prosperity for South Africa. This paper, he emphasizes that became the basis for reforms in the electricity sector. Malzbender (2005: 6) further points out that, one of the main objectives of the White Paper was to enhance efficiency and

competitiveness in the South Africa economy by providing low cost and high quality energy in industries among other areas. This strongly suggests that economic growth and electricity provision have a strong correlation, either electricity depends on the economic growth or economic growth depends on electricity or both.

Despite these vital contributions and despite their struggle to survive, it seems that insufficient consideration has been accorded SMMEs to enable them to enhance this contribution to their countries' economy. They are often categorized among the vulnerable, yet their contribution is critical. Van Heerden, et al., (2008: 8) note that, the increases in electricity tariffs more often than not impact greatly on the poor and they advise that price increases should be implemented with some caution in regard to the poor.

There could be price discrimination in favour of these vulnerable entities, whose contribution to the economy and the society at large is critical. They could benefit from the Basic Electricity Support Tariff (BEST)? Gaunt (2005: 2) notes that that the government of South Africa had initiated this move in 2003? As much as this prorgamme specifically targeted the poor in society, it can also boost SMMEs so that they contribute maximally to economic growth and development. Earlier on this study argued that SMMEs fall in the "poor" brackets and as such, this study believes that they merit the support from BEST. If the answers to these questions are yes, then most of SMMEs would need to be considered and be catered for in this category. SMMEs have made commendable contribution to their countries' economy and they would further enhance this contribution if only more support is accorded to them. Employment is one of the benefits that result from the electricity sector efficiency, as well as from the SMME sector. With availability of adequate supply of electricity, SMMEs can enhance the chances of employment.

Alyna Wyatt, a manager of Communications and Programming, Enablis African Region, (Enablis Entrepreneurial Network, 2007) announced that the SMMEs sector had shown great potential of generating employment. SMMEs have for a long time come in handy to help ease the problem of unemployment in the country. To understand SMMEs' profitability levels gives one a chance to discover positive ways of enhancing SMMEs' ability to meet their economic objectives and partly the economic objectives of the countries in which they operate. It could also point out attractive areas of interest to third parties to provide support and encouragement for growth and development of SMMEs.

4.1.3 Granger-Causality between Electricity and the Economy

Many studies have been carried out to try to understand the relationship between electricity and economic growth in several countries. ILO Report (2003: 7) observes that it is widely agreed that both electricity and water are essential for economic growth. The report adds that electricity, gas and water are critical in the provision of services to citizens and in the growth of other sectors for the development of the society as whole. Wolde-Rufael (2006: 1108) argues that the current restructuring in the electricity sector in Africa confirms that electricity plays an important role in the socio-economic well-being of the continent.

ADF (2010: 4) argues that the Electricity Transmission Improvement Project it was undertaking in Kenya in 2010 was expected, among other things, to allow increased access to electricity, increase the supply capacity as well as electricity supply reliability and reduction in power losses. The document further notes that its project was in line with the socio-economic development policy of Kenya. According to the document, there was bound to be a step higher in the socio-economic development of the country through expansion of electricity. Adoghe, et al., (2009: 40) emphasize that the main contribution that electricity has done is to enhance the economic development through creation of reliable and affordable supply of power in industries and small businesses. They argue that reliable supply of electricity was bound to reduce operational costs in the long-term.

Global Network on Energy for Sustainable Development (GNESD) (2007: 9) suggests that there is a strong correlation between adequate modern energy provision and economic growth. Magombo and Jeffrey (2009: 10) and GNESD argue that adequate modern energy has achieved a lot at national and regional levels through added benefits of better social and economic linkages. In addition, it has achieved stable economic development, promotion of trade, and enhancement of participation in global markets. On the other hand, Erbaykal (2008: 172) observes that in the short-term, there is a positive and statistically significant impact of oil and electricity consumption on economic growth, but that in the long-term, it is oil consumption that has a significant impact on economic growth.

Erbaykal (2008: 177) and Wolde-Rufael (2006) agree that electricity consumption indeed has a positive impact on socio-economic development, and that it does not only play an important role in economic development but it also has a fundamental impact on quality of

life. Erbaykal (2008:172-3) further observes that electricity has the highest quality energy component. It is the one with the highest increased share in energy consumption, followed by natural gas, petroleum, coal and bio-fuels following in that order. Departmental Committee on Energy, Communications and Information on the Ownership and status of KPLC, (2010: 6) points out that electricity and petroleum are the main sources of commercial energy in Kenya.

All the above arguments and suggestions point out to one fundamental fact; that electricity is a critical component in a country's economic well-being. Wolde-Rufael (2006: 1108) crowns it all by stating that reliable and efficient supply of electricity is crucial. There is a possibility that electricity triggers economic growth or that economic growth triggers electricity output.

Many researchers have carried out studies to investigate the impact of electricity output on some economic variables. Zachariadis (2007) did a study to establish the level of interaction between energy use and economic development in the G-7 countries. He concludes that only in UK there was an earlier indication that there was no causality between energy use and GDP. However, he notes that generally, the results of his studies indicated that "*...aggregate energy use is Granger caused by GDP...*" Yoo (2005: 1627) reveals that in Korea, there is a strong relationship between electricity consumption and economic growth and that there is a bi-directional causality relationship between the two variables. Similarly, Ciarreta and Zarraga (2009: 17) conclude that from the studies they carried out on Spain, there is a relationship between electricity consumption and the GDP, although running from GDP to electricity consumption. Ciarreta and Zarraga (2009: 3) and Chen, Kuo and Chen (2007: 2611) note that several studies carried out, mainly in the developing economies, with the aim of establishing the relationship between electricity output and economic growth, had been classified into three categories. The first category which housed most of these studies indicated that the relationship is a unidirectional causality running from electricity consumption to GDP, while the second largest category indicated that this relationship is unidirectional running from economic growth to electricity. The last and least category showed that there is a bi-directional relationship between the two variables.

From the above discussion it means that there is yet to be conclusive empirical evidence about the relationship between the level of consumption of electricity and by implication, electricity output in a country and that country's economic growth and the direction that relationship may take. Ciarreta and Zarraga (2009: 3) and Chen, Kuo and Chen (2007:2612) also reveal that a very small number of such studies find that there is no relationship between economic growth and electricity consumption at all. Chen, et al., (2007: 2612) note that, the developing economies are worried that the pressure put on them to change from use of fossil fuel to the generate electricity is likely to slow down their economic growth. This indicates that there is a strong relationship between electricity consumption and economic growth. On the African front, Kouakou (2011) carried out a study to investigate if there is a relationship between economic growth and electricity consumption in Cote d'Ivoire. The results showed that there was a bi-directional relationship between the two variables.

On the Kenyan side, Ford (2006: 1) suggests the economic growth precedes electricity demand and he alleges that the 0.9% increase in GDP (from 4.9% to 5.8% between 2004 and 2005) increased demand for electricity. He predicts that the demand was expected to continue into the foreseeable future. Ford's suggestion means that as the economy continues to improve, the economy will to grow and there would be more demand for electricity. Ford further notes that the then CEO of KenGen, Eddy Njoroge pointed out that in 2005 there had been an 8% growth in profits in KenGen due to the impact of economic growth on the demand for electricity.

Odhiambo (2009: 638) argues that there is a bidirectional causality relationship between consumption of electricity and economic growth in South Africa. In his concluding remarks, Odhiambo (ibid) emphasizes that as a result of this relationship, there is need for South Africa to aggressively step up its policies on production of electricity in order to cope with the increasing demand for electricity. This would help to enhance economic growth. This shows that there is a close relationship between electricity and economic growth in a country. The NERSA Annual Report (2008: 30) observes that efficiency in the distribution of electricity would, among other things, stimulate economic development. This re-affirms the notion that, there is a correlation between the level of efficiency of electricity generation, transmission and distribution and the level of growth and development of the economy of Kenya and South Africa.

Lo (2010: 7) notes that in theory, a time series x_1 Granger-causes another time series y_1 if the addition of past values of x_1 contribute to the explanation of the variations in y_1, if all other variables are held constant. This would simply show that the variables are related. Toda and Phillips (1994: 3) note that the relationship between the two variables in Granger causality may have instantaneous causality, especially in time series. Toda and Phillips add that the Granger causality is easier to deal with in VAR models. The variables in the South African data passed the test of non-stationarity, meaning that it was found stationary in their first differences. Therefore, contemporary time series method used to establish this relationship was the cointegration test and cointegration means that there is causality relationship between the time series used although it does not reveal the direction of this relationship.

Lo (2010: 6) notes that if variables enjoy a long-run equilibrium relationship, they are said to be co-integrated. The intuition behind pairs of economically related variables is that two co-integrated series will follow the same long-run path, since they presumably have some common factor, such as electricity as an input that is needed to produce manufacturing output. Therefore if electricity is in short supply (or if firms temporarily demand excessive amount of electricity) there is a disequilibrium but since the variables are co-integrated, (that is, they share a long-run equilibrium relationship) at the some point and any deviations will ultimately return back to the mean.

Despite the different conclusions about the relationship and the direction of the causality, one thing is a fact: that there is a correlation between electricity consumption and economic growth (and therefore, the development of SMMEs which rely on electricity). Many researchers argue that because there is a relationship between the electricity consumption and economic growth, it does not automatically mean that there is a causal relationship between these two variables (Ciarreta and Zarraga 2009; Odhiambo 2009; Erbaykal 2008; Yoo 2005). Chen, et al., (2007: 2619) argue that in many developing economies, electricity plays a major role in the economic growth of those countries. They conclude that increased electricity consumption leads to increased electricity production which, in turn, results in more chances for employment and, thus contributes to economic growth. As a number of the studies indicate a strong relationship between electricity consumption and economic growth, there is a need for governments to strongly step up policies that would see more electricity generated, transmitted and distributed efficiently.

4.2 Ways to Forge Reliability and Affordability of Electricity Supply

It is against the strength of these revelations on the impact and contribution of electricity to the economy that the current study wishes to unravel the situation in Kenya and South Africa. Reliability of and accessibility to electricity are determining factors for economic growth and development (and more so of SMMEs which are reliant on electricity and whose contribution to economic growth is critical). Therefore, governments need to ensure that there is reliable and relatively affordable electricity supply to certain critical areas. Below is a discussion of some of the ways that some governments and their electricity sectors have attempted to boost reliable and relatively affordable electricity generation, transmission and distribution. These ways include privatization and collaboration between different sectors, popularly referred to as public-private-partnership (P-P-P).

4.2.1 Reliability and Affordability through Privatization

KPLC and Eskom benchmark through adoption of the various electricity sector reforms. Some of the reforms adopted have been discussed in the literature review in the above section. United Kingdom (UK) and United States of America (USA) are some of the countries that have spearheaded the adoption of the benchmarking strategy in the electricity sector. Dagdeviren (2009: 644) and Parker (1999: 214) view the UK as the leader in the electricity sector from an international scale. Parker argues that the UK was one country that subjected its public utilities to extensive privatization. Several others in the developed and developing economies followed suit.

4.2.1.1 Privatization, Competition and Efficiency

Many researchers have associated privatization with efficiency and effectiveness of service delivery through opening up to competition. Das (2010: 83) believes that competition can go a long way in ushering in efficiency by attracting private investment in this sector. Das (ibid) argues that competition was the key principle underlying reforms in the USA, where the public sector services are predominantly in private hands. He reveals that, as a result of deregulation competition was introduced to the industry and thus let the market determine

the price. Das (ibid) further argues that privatization brings handsome gains to the consumers by way of efficiency gains and lower prices. He notes that the USA electricity sector is doing well under privatization with the utilities owning 60% and the other 40% is owned by the non-utilities like the IPPs. This is advantageous to the citizen-consumer as prices have continuously dropped. He illustrates that between 1982 and 1994 the prices dropped by 22% and that between 1995 and 2005, the prices remained constant at almost 8 cents per unit, notwithstanding the rising fuel prices.

Noting that competition fosters innovation, Stucki (2009: 2) believes that it is likely to bring about improved levels of quality of service and lower prices for the end consumer. Although public sector still commands strong influence worldwide, ILO (2003: 4) emphasizes that privatization has for a long time been viewed as a solution for the poor services experienced as well as the ineffective and inefficient utilization of public funds in the public sector utilities. National Labour and Economics Development Institute (NALEDI) (2006: 7) also suggests that privatization should be allowed across the board of the electricity sector, that is, from generation, to transmission and to distribution. NALEDI (ibid) argues that the pressures of competition would allow transparency and lower prices, to the advantage of the consumers.

Gratwick and Eberhard (2008: 6) reveal that privatization of the electricity sector has succeeded more in the northern part of Africa (Egypt, Morocco and Tunisia) than in Sub-Saharan Africa, namely, in Kenya and Tanzania. They note that this strategy failed in Nigeria. Gratwick and Eberhard (ibid) argue that in the northern part of Africa the investment climate was more favourable than in Sub-Saharan Africa. The IPPs had clearer policy frameworks and planning. They add that there was favourable equity and better debt and security arrangements than their Sub-Saharan counterparts. The main concern here is to establish if intensive privatization can enable Kenya and South Africa to supply their consumers with sufficient electricity at affordable (affordable from the consumer perspective).

Most countries in Africa have remained stiff-necked when it comes to electricity sector privatization. For example, Prasad (2008: 2809) suggests that Botswana, Ghana and Senegal did not fully favour privatization as a solution to the problems inherent in their electricity sector. Prasad (2008: 2809) and Clark et al., (2005: 8) note that as much as there

had been plans to adopt privatization, the progress has been extremely slow. Clark et al., (2005: 12) further note that no African country had adopted the standard model of vertical and horizontal unbundling at the generation, transmission and distribution levels. This would have incorporated private participation to enhance competition in the electricity sector. They contend that the model which was introduced in the 1990s had been implemented in piecemeal amounts in all African countries. Uganda is noted to have maintained the original state-owned dominance.

Both KPLC and Eskom have undertaken privatization to certain extents. As already discussed, IPPs have been enjoined in the generation. In the third quarter of 2009, KETARCO was enjoined in electricity transmission as a limited company (KETRACO) (Africa Development Fund, 2010: 2; Departmental Committee on Energy, Communication and Information on the Ownership and Status of KPLC, 2010: 9). However, distribution remains the sole responsibility of KPLC. Ngigi and Macharia (2006: 4) note that the Electric Power Act of 1997, whose main aim was to allow privatization in the electricity sector, did not fully address the aspect of privatization. The two researchers feel that as much as the Act proved to be a positive policy, it was inadequate in providing incentives to the private sector.

DA Discussion Document (2008: 1) proposes that it is necessary that the power supply company of South Africa, Eskom, invites private participation in the purchase and supply of electricity. This would result in efficiency and effectiveness that comes with competition. As already mentioned, South Africa had restricted IPPs participation at generation with a 30% contribution while Eskom generated most of the electricity in South Africa. A few industries generated electricity for private use (Clark et al., 2005: 19). Clark et al., further note that in South Africa Electricity Supply Industry (ESI) was still dominated by Eskom. ESI supplied about half of electricity directly to customers assisted by Regional Electricity Distribution Industries (REDIs). Eberhard and Pickering (2010) point out that South Africa has not done much to enhance the IPPs participation in the electricity sector, unlike many other African and Latin America countries. Malzbender (2005: 6) proposes that partial privatization should be the way for public sector utilities to foster service efficiency in the public sector through competition. He argues that that would restore the imbalances in management and operations in the electricity sector due to the effects of the Apartheid regime.

Nevertheless, some researchers are of the view that privatization may not be a solution to all problems. Jamasb et al., (2005: 2) observe that matters related to privatization and competition are not clear in relation to relative private efficiency and publicly-owned natural monopolies. Their view is that both privatization and market-oriented reforms are necessary to help alleviate the problems inherent in electricity utility in developing countries. They argue that such reforms as effective regulatory systems are necessary, before privatization can be effectively implemented.

As much as privatization may not be a solution to all problems, the current study proposes that KPLC and Eskom enhance their level of privatization in order to improve the quality of services. This proposal comes in the wake of increased consumer complaints ranging from frequent and sometimes prolonged power outages, frequent raises in the tariffs, among others. Consumer complaints and the ever-increasing demand for electricity show that the electricity sector may be faced with some amount of inefficiency. This might be the scenario in what is described by the ILO (2011) Report. The Report notes that public utilities like gas, water and electricity are challenged in maintaining a viable fit between the commercial and business concerns, cost efficiency and profitability, on the one hand, and the services' values that would demand provision of affordable, reliable and widely accessible services on the other.

This study advances advocates for SMMEs' support by KPLC and Eskom which are government stakeholders. According to this research, SMMEs are a special group of electricity consumers because of their contribution to the country's economy and despite their difficulty in operation; SMMEs create employment and thus help to alleviate poverty. Below is a discussion of private-public partnership approach to solving the problem of efficiency in organizations in order to achieve their organizational goals and objectives.

4.2.2 The Concept of Public-private-partnership (PPP)

Apart from advocating for privatization, this study proposes a public-private-partnership approach to problem-solving between organizations. The aim here is to help enhance efficiency and quality of service delivery by the electricity sectors. The lack of efficiency

may be a contributory factor in the failure of KPLC and Eskom to deliver their services to consumer expectation level resulting in consumer complaints. There is likely to be greater synergy in partnership problem-solving approach and this study posits that where either the public sector or private sector has failed, partnership between the two may help the organizations involved to achieve much more.

Pessoa (2008: 2-3) proposes a public-private-partnership (PPP) approach to solving the problem of efficiency in public sectors. He argues that due to scarcity of funds and also because private participation alone is equally problematic in as far as provision of basic services is concerned, therefore, there is need to attempt PPP. Pessoa adds that the use of Official Development Aid (ODA), which has its roots in the developed countries and draws part of its finances from the public, could be used by both the private and public sectors to bring about enhanced efficiency and quality. He further argues that this approach would also result in enhanced profitability and reduce risks in the public sector utilities. This research concurs with Pessoa (2008: 4) who argues that if the traditional role and contractual relationship between the public and private sectors are modified, the resultant factor would highly benefit the public sector services. He argues that:

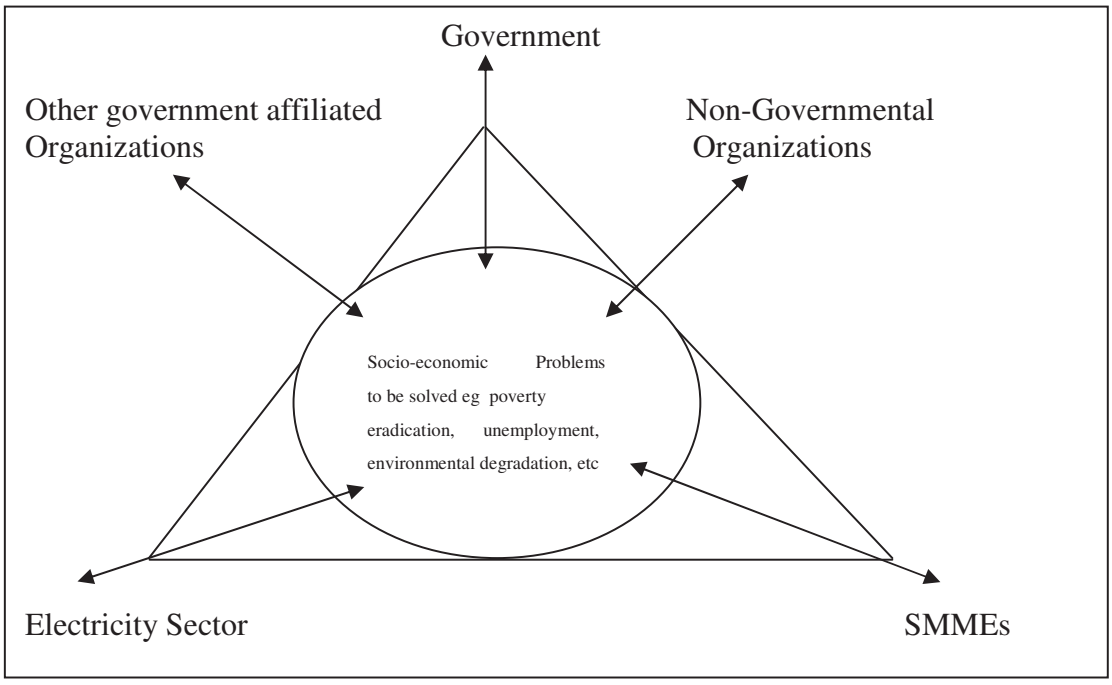
> *…a PPP requires a shift in the roles and attitudes of public and private entities, moving away from the usual client-contractor approach towards focusing on the core functions of supervision and regulation by the public authorities, and assuming greater responsibilities and risks in execution, operation and the mobilisation of resources by the private sector… (p 2-3)*

The synergy envisaged in the PPP is expected to bring about the best results of the two worlds. It is expected that such a partnership would act as a control measure to any negative factors that may arise if either the public or the private sector involved were working each on their own. Apart from the PPP approach to problem-solving this study proposes partnership or collaboration between the electricity sector, the government and the SMMEs sector. This partnership would see the SMME sector enhance their ability to create jobs and therefore, help strengthen the chances of alleviating poverty in their countries of operation. As was discussed in some detail below, each of these three entities is involved in different types and levels of problem solving and some of the problems converge. Therefore, collaboration among them may form a formidable force with which

to tackle the socio-economic problems. This collaboration may not be restricted to the three entities, since there is room for extending the concept of collaboration to other sectors. A good example of such collaboration is a subcontracting relationship forged between large firms and SMMEs in the motor industry (See Okatch, Mukulu and Oyugi, 2011). *Figure 4: 1* below illustrates this clearly.

The discussion below explains how the relationship between the electricity and the SMMEs sectors and the government can forge a partnership to enhance problem solving. The concepts of privatization and private-public partnership feature in the proposed link. Langley and Roger's (2005) Standard Problem-Solving Theory and Hsieh's, Nickerson's and Zenger's (2007) Entrepreneurial Theory of the Firm are used to reinforce the proposed link between the electricity sector and SMMEs. This link is driven by the fact that the electricity sector produces one of the main inputs of production used by SMMEs that rely on electricity. Another link could be traced in the contribution that each group makes towards the economy of the country in which they operate.

Fig. 4: 1- Inter-organizational Problem-Solving Model



Source*: Researcher's adaptation from Langley and Rogers (2005)*

Both the electricity sector and SMMEs are therefore, agents of problem-solving. The two groups make immense contribution to the economy that amount to problem-solving. They

therefore, need government support and at the same time, there is need for these two sectors to support each other.

4.3 Concept of Problem-Solving

In this research, the problem-solving strategy is restricted to the government, the electricity sector and SMMEs. Langley's and Rogers' (2005) Standard Problem-Solving Theory was used to enhance the understanding and development of the problem-solving model between these three entities. Both the electricity and SMMEs are used by the government in an attempt to solve social and economic problems. Jooste (2008: 3) argues that the public sector needs to increase their involvement in the societal development.

KPLC, Eskom, SMMEs and the government of the two countries are all, in one way or other, engrossed in problem-solving for several reasons. The governments have to provide the basic needs for their citizens and at the same time ensure that their roles in the international community are well executed. For example, the governments have to ensure provision of adequate electricity to run the main industries and the small firms that dependent on electricity. Electricity has to be provided for the domestic consumption as well. The governments have to ensure that there are employment opportunities for their people and fortunately SMMEs have some capability to aid the governments to solve this problem. The governments therefore, have to ensure that SMMEs are encouraged and supported to enhance their contribution to employment creation.

Implementation, growth and development and survival of SMMEs are vital and require external help and encouragement. Between the electricity sectors and SMMEs, is the government, which has concern for and well-being of both groups and which has a duty to all its citizens. All firms in a country aim at providing for the people and so the government must bring all these firms to a level where they can fully exploit their potential. The electricity sector is of great importance to the country since its presence enables the country to grow economically. On the other hand the SMMEs, contribute to the government's struggle to reduce the problem of unemployment for the majority of their

citizens especially those that are less-trained in skills. All these are aspects of problem-solving. Below is a discussion of Standard Problem-Solving Theory, which has been adapted to suit the purpose of the study at hand.

Langley and Rogers (2005) advance the Standard Problem-Solving Theory, which they observe was first developed by Newell, Shaw and Simon in 1958. Langley and Rogers note that the standard problem-solving theory focuses on how humans respond to problems when they encounter them. The current research focuses on how organizations should respond to problems as they encounter them, not as single entities, but as units of a whole. All organizations operating in any given country are in one way or other linked to the government, thereby becoming different units of the whole country. There are three groups of organizations in this study, each establishing ways of solving problems; the governments, the electricity sector and SMMEs, however different or similar their objectives may be towards the problem-solving. Since problem-solving in the current research was at organizational level, Langley and Rogers' Standard Problem-Solving Theory has been modified to Inter-organizational Standard Problem-Solving Theory. The problem-solving aspect for each group was summarized in the following assumptions about KPLC and Eskom, on the one hand, and SMMEs on the other.

4.3.1 Assumptions to Boost the Implementation of Problem-Solving Theory

Below are the assumptions about the three organizations that have necessitated the adaptation of the Inter-organizational Standard Problem-Solving Theory. The current research assumes that all groups of organizations:

1. seek solutions to the problem of efficiency to satisfy their goals and objectives
2. have interest in and or support profit or value generation
3. are aware that their activities have a direct or indirect impact one on the other
4. have concern for one other and therefore, will attempt to limit any gross negative impact on the other
5. are aware that one is hopeful and expects benefits from the activities of the others
6. The activities in these organizations are people driven.

The government and public utilities earn profit as a way of self-sustainability. Landsberg (2004: 3) argues that profit generation in public utilities is a means to an end. The public sector ought to aim at efficiency and customer satisfaction through benchmarking by comparing and tracking the-best-class or to perform better than the competitor and by making reference to the best-in-class or the leader, copying and or learning (Mariarty and Smallman (2009), Triantafillou (2007), Wynn-Williams (2005), Andersen et al., (1999), Dorcsh and Yasin (1998), among others. This was discussed in some detail in the literature review, in Chapter Two.

In the relationship between the electricity sector and their consumers, efficiency and customer satisfaction seem to be challenged. Electricity consumer complaints may be an indication that the supplier has failed to meet their needs. The electricity sector is also unable to satisfy demand. Landsberg (2004: 6) contends that the public sector should be used to bring into existence such values as security, efficiency, equity and innovativeness. Electricity consumers in Kenya and South Africa have severally raised complaints against their suppliers. This is discussed in some detail in the literature review in Chapter One, Section 1.4.1. These complaints have tended to erode the image of the public sector and a lot needs to be done to restore this image. Landsberg (2004: 6) explains that the public sector can boost its image through public image-building, community connections and fundraising. This can also act as part of the companies' social responsibility, hence devising a means of problem-solving. This study argues that KPLC and Eskom can also restore their image by ensuring that their consumers are satisfied with their services and through support of carrying out acts of social responsibility which would include support for SMMEs.

Assuming a collaborative effort for a common goal in the Inter-organizational Problem-Solving Model (see *Figure 3: 1* above), it is the belief of this research that if proper, meaningful and well supported benchmarking strategies are put in place, it could help solve the problems implied through consumer complaints. This will also give room for adequate support for SMMEs which would in turn create more employment opportunities. Strong commitment is required from both the KPLC and Eskom's part as service providers and on SMMEs' part as consumers. Pessoa (2008: 5) clearly implies that political will is very critical in the implementation aspect of any reform in a given country. This study

agrees with Pessoa that political-will must favour the implementation and sustainability of public-private-partnership, as well as that of Inter-organizational Problem-Solving.

Another theory that has boosted the argument of this research is the Entrepreneurial Theory of the Firm. This research has encountered some similarities between SMMEs and entrepreneurial businesses. Both contribute to solving problems in the cause of running their businesses. While an entrepreneur efficiently finds opportunities by linking opportunity to problem solving (Hsieh, Nickerson and Zenger (2007: 1256) SMMEs enhance employment and alleviate poverty in the course of running their businesses, thus by solving problems. With these similarities in mind, the current research finds enough reason to modify and apply the Entrepreneurial Theory of the Firm to this study. Below is a discussion on a theory that encourages this research to lobby support for SMMEs.

4.4 Entrepreneurial Theory of the Firm and SMMEs

Unlike the Entrepreneurial Theory of the Firm which focuses on the problem-solving aspect at a firm level, the current research proposes an Entrepreneurial Theory between Firms. The Entrepreneurial Theory of the Firm was advanced by Hsieh, Nickerson and Zenger's (2007). The proponents of this theory postulate that opportunity discovery has a relationship with deliberate search or recognition of a solution (Hsieh, Nickerson and Zenger, 2007: 1255). They argue that an effective entrepreneur identifies valuable problems which, while solving them results in value creation. The entrepreneur strives to find effective way to solve them. This amounts to problem-solving. In the same light, SMMEs knowingly or unknowingly solve problems in the course of running their businesses. Therefore, any SMMEs that is introduced should be subjected to SWOT analysis to check its viability and once it is ascertained, it should be nurtured to maturity. This research believes that there is a chance to enhance employment opportunities and in the long-run poverty alleviation.

Whereas Hsieh, et al., (2007: 1255) argue that the entrepreneur's most critical task is to efficiently govern the process of discovering opportunities, the current research argues that

the most critical task of an SMME is to govern the implementation and, hence the survival, growth and sustainability of SMMEs. As is revealed by Bruwer (2010: 1) and Development Policy Research Unit Working Paper 06/107 (2006: 1), many SMMEs do not survive beyond their first five years. Therefore, what is required most is to ensure their implementation, development and survival. It is the survival that is the more useful aspect of SMMEs because of their contribution to the individual and the society in general is based on their survival. As SMMEs grow and develop, they increase their capacity in problem solving, since they expand employment opportunities. Solving social problems is very crucial. Drucker (2006: 55-6) contends that social problems are business opportunities since businesses have "*…to satisfy social needs while at the same time serve themselves by making resolution of a social problem into a business opportunity…"* (p. 55-56).

Thus, it would be realistic to argue that the government needs to give SMMEs some strong and legal backing and encouragement. Also SMMEs need incentives and consideration in order to bring their ventures to maturity, and to enhance their problem-solving capability. Equally, the electricity sectors and other state affiliated organizations could provide support and other incentives to enhance survival, growth and development of SMMEs. The electricity sector is known for its high level of profitability. It is possible for gain-sharing relationship between the electricity sectors and their consumers (here represented by SMMEs).

SMMEs are disadvantaged business ventures, mainly due to their sizes and therefore suffer the problem of diseconomies of scale (Wanjohi, 2009; Iarossi, 2009). Iarossi (2009: 85) notes that the smaller the firm, the more costly its credit when it eventually receives the funds. He also points out that in 2006 smaller firms paid an interest rate that was 1% point higher than that paid by medium-sized firms and a 3% points higher than that paid by larger firms. Due to their small size and lack of adequate resources, they cannot access new technologies (Wanjohi 2009). New technology is known for reducing costs of production and improves quality as well as reduces the time taken to produce goods and services. Olawale and Garwe (2010:731) suggest that it is important that all firms invest in technology and keep abreast with information technology, since it not only helps the firms in developing diverse strategies, but it also helps them in maximising on opportunities present in an environment.

Lack of infrastructure, inadequate technology and limited access to information are direct results of lack of or unreliable supply of electricity. Technology cannot thrive without the presence of electricity, especially so in information technology. Micro-Finance Risk Management (2008: 1) observes that most of the economic activities are carried out by the SMEs sector, yet their accessibility to formal credit is very limited.

In essence, SMMEs have difficulty in running their businesses. Wanjohi (2009) further notes that SMEs face other challenges in the course of doing business in Kenya. Generally there is high cost of doing business in Kenya, partly due to the high cost of electricity charged by the IPPs (Ngigi and Macharia (2006: 5). These challenges include: lack of and or inadequate managerial training and education and skills, lack of access to credit both for start up and expansion of the business, unfavourable national policy and regulatory environment as well as inadequate business information. KAM (2009: 5) notes that the SMEs are disadvantaged as they cannot compete favourably with large companies for tenders. KAM further argues that the SMEs are also unable to market their products locally and globally, leading to their being uncompetitive and eventually to stagnation and or collapse.

The problems discussed above call for a concerted effort in an attempt to solve them. A lot attention needs to be focused on SMMEs to ease their incapacity. The current research suggests that there should be special relationship between SMMEs and the government and the governments' stakeholders in order to enhance the contribution that this sector makes to the country and its economy. New SMMEs need to be encouraged to replace those that fail and effort made to ensure that they survive, grow and remain self-sustaining. Olawale and Garwe (2010: 729) note that in order to sustain the contribution of the SMEs, there is need to continuously create new SMEs because they are capable of introducing new products (and services). They are also able to develop new technologies. The two researchers emphasize that South Africa is likely to suffer the risk of economic stagnation if new SMEs are not created. South African SMMEs may also suffer the risk of economic development due the rising cost of inputs, especially the "…*cost of electricity and petroleum can constrain growth*…" (Olawale and Garwe 2010: 731).

The current research aimed to establish the impact of adoption of benchmarking as a strategy by the sectors on KPLC and Eskom themselves first and then on SMMEs. Similarly, the causal relationship between electricity and manufacturing outputs is

explored. The impact may be in terms of profitability or in terms of quality of services delivered. Many people consider profitability in terms of financial gains. However, Conway (1996) in a book edited by Buttle (1996: 180) notes in reference to not-for-profit and public sector firms that the profit need not be of a financial nature. Any form of gain should be treated as a form of profitability. The electricity sector in Kenya and South Africa are government-owned and therefore are public sector utilities. For public sector utilities, monetary profit making should not be a goal but only as a means to an end. One wonders to what extent this is true for the electricity sectors and other public sector utilities globally. Many public sector utilities have been able to turn out high monetary profits but they still face challenges.

Below is a discussion of both qualitative and quantitative aspects of profitability. Some qualitative aspects of profitability are discussed using Gudlaugsson (2007) five dominant dimensions (RATER). These include consumer satisfaction (which may be used as an indicator of levels of service quality) as one of the qualitative aspects of profitability.

4.5 Profitability

Profitability has always been looked at as being synonymous with financial gains. On the contrary, profitability could mean any gains accrued. For the purpose of this study, profitability is looked at from the basis of an outcome having both financial perspectives (quantitative) and any other benefits and or value perspective (qualitative). Such aspects as consumer retention, teamwork, positive word of mouth (WOM), efficiency and effectiveness, quality products and quality service delivery, and so on, are all forms of profitability. The unquantifiable factors of profitability are likely to boost the quantifiable factors. For example, efficiency and effectiveness as unquantifiable factors can positively enhance sales and profit.

The KPLC and Eskom are predominantly government-owned entities with duties and obligation to the citizen. As such, financial profitability should not be the only concern of these institutions, but a means for attaining their goals and objectives, which are centred on

provision of quality services to the public in an efficient and effective way. These public entities have time and again found themselves in conflicts with their customers. These entities are expected more often than not to largely fend for themselves as opposed to the traditional belief that they are government supported. Landsberg (2004: 1) stresses on the dilemma of public institutions; they are forced to benchmark for-profit-sector strategies such as efficiency, flexibility, innovativeness and discipline, usually identified with private sectors, in order to survive. The public sector has had government support and private donations minimized or removed altogether and this has led to these organizations embracing for-profit characteristics. These characteristics include employing highly trained senior management and stressing the need for accountability and quantitative profitability (Landsberg 2004: 2-3). Landsberg (2004: 8) raises concern that non-profit sector should not turn themselves into for-profit-sector as he fears that this may erode the cultural relevance for which these institutions were set up. They are meant to provide affordable goods and service to the citizen.

4.5.1 Quantitative Profitability

In this section the researcher presents the various aspects involved in calculating financial or quantitative profitability. Profits should be viewed as any gains from investment. Quantitative profitability are quantifiable gains out of investment less the expenditures incurred, represented in the equation below;

$$P=TR-TC \tag{4.1}$$

where,

P=profit, R= TR= Total Revenue and TC= Total Costs

Costs include fixed costs and variable costs. Fixed costs are paid once and may be paid at the beginning of the business investment or can be paid over a longer period of time, for example, procuring a loan to buy land, equipment or machinery while the loan will be paid over a longer period. Fixed costs can also be incurred in the event that the firm is replacing or upgrading equipment or installing new technology. Variable costs are those that are paid

in a recurring manner, for example rent, salaries, electricity, water, among others, which are paid on a monthly basis. Tax is a variable cost paid on a yearly basis.

There may also be hidden costs which may not allow the calculation of profit to be accurate. Bruwer (2010: 23) observes that profitability deals with analysis of profits and the aspect of profitability in the profit/loss account, otherwise referred to as income statement. Profitability, he adds, is also found in the balance sheet and in related capital investments. Bruwer (2010: 23-25) further outlines a number of ratios that are used in the calculation of profitability. These are: gross profit margin, net profit margin, return on capital employed, return on owner's equity and return on assets. These ratios which are applicable to the electricity companies and to an extent to SMMEs are explained below;

4.5.1.1 Gross Profit Margin (GMP)

Profit may be arrived at in relation to the sales a firm has made in a given period of time. Bruwer (2010: 23) observes that a business's profit is calculated using the gross margin of that business and that it is a percentage of the net sales of the business. The formula for gross profit is;

$$GMP = (GP/NS)\ X\ 100 \qquad (4.2)$$

In this formula, GMP is Gross Margin Profit, GP is Gross Profit and NS is Net Sales. Gross profit is the revenue less the cost of sales and net sales are all the sales made in a given accounting period less the sales returns (what is not sold). Thachappilly (2009) explains that in order to incur low costs and increase gross margin profit, a firm devises efficient means of procuring and handling the inputs and also effective processes of production.

4.5.1.2 Net Profit Margin (NPM)

Net profit margin is usually affected by the tax that the firm is required to pay. Thachappilly (2009) contends that in order to have a higher net profit, firms need to reduce their tax burden by using legal tax avoidance measures. Net profit margin is calculated

using net profit before interest expenses and taxation as a percentage of its sales. Bruwer (2010: 24) explains that net profit is the gross profit less the operating expenses plus operating income;

$$NPM = [P \text{ (before interest expense and taxation)} / NS] \text{ X } 100 \quad (4.3)$$

NPM is net profit margin and NS are net sales. Thachappilly (2009) explains that net profit is the amount that is used to pay out dividends or used to boost share equity in form of retained earnings.

4.5.1.3 Return on Capital Employed (ROCE)

Return on capital employed is calculated using the net profit of a business before interest expenses and taxation as a percentage of its average capital employed. Bruwer (2010: 24) observes that capital employed refer to the funds channelled into the business as well as funds borrowed from long term financing sources. This is calculated as follows:

$$ROCE = [P \text{ (before interest expense and tax)}/ACE] \text{ X } 100 \quad (4.4)$$

$$ACE = (C_1 + C_2)/2 \quad (4.5)$$

ROCE is return on capital employed, P is the profit before interest expense and tax and ACE is the average capital employed. C_1 is capital employed for current year and C_2 is capital employed the previous year.

4.5.1.4 Return on Owner's Equity (ROE)

Return on Owner's Equity spells out a percentage of what the owner contributed into the business. This ratio is of interest to investors since they would wish to know what they would earn out of a firm while investing in it (Thachappilly, 2009). Bruwer (2010: 24-5) notes that it is calculated using the average of the owner's equity and it calculated as follows:

$$ROE = [P(after\ interest\ and\ taxation)]/AOE\ and\ AOE = (CgBC_2 + BC_1)/2 \quad (4.6)$$

In this calculation, ROE is return on owner's equity, P is the profit and AOE is the average of the owner's equity and $CgBC_2$ is the closing capital balance of the current year and BC_1 is the balance of the previous year.

4.5.1.5 Return on Assets (ROA)

Return on assets is used in a ratio form to show how the assets of a business have been put into effective use (Bruwer 2010: 25). The assets of a business include property such as plant, equipment, inventory, trade, financial assets as well as receivables and cash and cash equivalents. Thachappilly (2009) notes that ROA ratio is low, if a firm is capital intensive, heavy industry and high, if a firm has low capital service industry. Return on assets using total average assets as follows:

$$ROA = P/TAA\ and\ TAA = [BTAC_2 + BTAC_1]/2 \quad (4.7)$$

P is the profit before interest expense and taxation and TAA are the total average assets and $BTAC_2$ is the balance of total assets of current year and $BTAC_1$ is the balance of total assets of the previous year.

These ratios have been observed to be inherent in the KPLC's and Eskom's balance sheets and profit loss accounts. These ought to also be used by SMMEs in the calculation of their financial profitability. As already mentioned, this study proposes the distinction be made between quantitative and qualitative profitability. Below is the discussion on qualitative profitability.

4.6 Qualitative Profitability

Effort was made to understand the non-monetary profits that SMMEs may experience as a result of the benchmarking practices in the electricity sector. There have been various ways of assessing qualitative profitability. For example, the Centre for the Study of Social Policy (CSSP) (2009: 9) outlines similar dimensions to Gudlaugsson's; timeliness and convenience, personal attention, reliability and dependability, employee competence and professionalism, empathy and responsiveness, assurance, availability and tangibles. Due to the inability to quantify immaterial profitability, this type of profitability has been rated using Gudlaugsson's (2007) RATER. This refers to reliability, assurance, tangibles (the level tangibility of the services offered), empathy and responsiveness. Gudlaugsson (2007: 3) argues that the consumer comes first in all these five dimensions of service quality. Heexplains that the five dimensions have become dominant in service quality research;

- Reliability: Ability to perform the service dependably and accurately.
- Assurance: Competence, courtesy, credibility and security.
- Tangibles: Appearance of physical facilities, equipment, and personnel.
- Empathy: Access, communication and Understanding.
- Responsiveness: Willingness to help customers.

All the RATER dimension elements indicate that the customer needs to be given priority any other organizational concern. The KPLC and Eskom need to be more concerned about their consumers' welfare by being sufficiently reliable in the provision of power and remaining responsive to the consumers' needs. The consumers need to be informed in good time and they should be given adequate information in advance so as to make them understand, for example, why the prices have to rise at any given time and why they are rarely dropping. The electricity sector is predominantly a service sector and these factors may help the KPLC and Eskom to deliver desirable standard levels of service in addition to the fact that the companies enjoy a monopoly power. Some of the RATER elements were used to establish how the consumers perceive the quality of service offered by KPLC and Eskom. Eberhard and Gratwick (2010) contend that consumers are unsatisfied with the prices and the level of reliability and quality of state-owned enterprises. These state-owned corporations include electricity, transport and telecommunications.

It would be a lot more beneficial for the KPLC and Eskom to constantly carry out routine research to establish consumer needs and expectations since this would assist the companies not only to offer services closer to the consumers' expectation, but would also restore the consumer confidence in the electricity sector. Restoring consumer confidence may help the electricity companies to reduce the wastage that is experienced through theft of electricity using illegal connection and bypassing of the meter, among other ways. Investing in consumer confidence would, thus, help to reduce consumer complaints and therefore post a good image about the ever under-rated public sector services. The current research argues that consumer confidence is the number one profit that public sector organizations should pride over.

Aspects of Service Quality; tele-billing or reminders, expansion of bill settlement facilities (POP), use of pre-paid meters, use of municipal distribution, reduced blackouts, scheduled power rationing or load shedding, timely connection or reconnection of power have been considered in the analysis of qualitative profitability.

4.7 Summary

Chapter four dwelt mainly on the link between electricity, the SMMEs and the economy. It also proposed some strategies on how this linkage could be further improved on for the benefit of these critical business ventures. Such strategies include enhanced adoption of privatization as a business strategy by the electricity sectors and also further embracing P-P-P in order to increase problem-solving capability at a national level. Lastly, the chapter focussed on profitability as one of the main outcomes of the impact of the adoption of the benchmarking strategy.

The next chapter presents the methodology of this study. It focussed on the use of EViews and comparative research designs. A great deal of data was derived from written sources (refer to references and to Appendices X and XI for sources of data). However, a research survey was carried out on Kenyan and South African SMMEs using a questionnaire for each country (also see appendices VII and VIII for sample questionnaires).

CHAPTER FIVE

METHODOLOGY

5 INTRODUCTION

The current research explored the literature of earlier researchers, academics and writers on the main topic of the study, namely benchmarking in the electricity sector. Literature on the benchmarking strategy adopted in the private and public sectors from developed economies such as the USA, the UK and the "fast" developing economies like China, India, Brazil among others, was included. Specific aspects of the benchmarking strategy adopted by KPLC and Eskom were also explored. Literature on SMMEs and their contribution to the economies of their countries was also presented in the review.

Data was collected from various KPLC and Eskom publications concerning the logistics of electricity generation, consumption, export and import. Various data bases and relevant publications were used to generate information on manufacturing and electricity outputs of Kenya and South Africa. The study now proceeds to discuss the methodology used in collecting and analyzing data.

The chapter was divided into several sections. The chapter began by presenting the Research Design used in this study which was a combination of the Comparative Study design and the Time Series design. This was followed by a discussion on the target population which included the SMMEs of Kenya and South Africa as well as KPLC and Eskom. The manufacturing sectors of both countries were also of interest to the researcher. Similarly, the research sites selected for this study were discussed. Here, the researcher justified the choice of the research sites which were the capital cities of Kenya and South Africa, Nairobi and Pretoria, respectively. Methods of data collection employed and the data collected for the purposes of the research at hand were explained. Also discussed was

the validity and reliability of the research instruments employed by this research as well as the methods employed for data analysis.

SPSS and Excel programmes were used to analyze the survey data while EViews was used to undertake the time series analysis of the Kenyan and South African data. A detailed account of this is discussed in this chapter in Section 5.4. The study also employed Ordinary Least Squares (OLS) technique as well as stationarity, cointegration and the Granger-Causality tests which are discussed in Chapter Five Section 5.4.1.1 and Section 5.4.1.2, respectively.

5.1 Research Design

The current research used multi-dimensional research design. It was a combination of comparative research and time series research designs. This research was guided by the two research paradigms or philosophies which are the qualitative and quantitative. A research paradigm, which is also known as a research philosophy, refers to the basic beliefs when used at the philosophical level. Collis and Hussey (2003:47) note that when a research philosophy is used at a social level, it refers to guidelines on how to conduct research. However, when it is used at technical level, it refers to an outline of the research methods and research techniques needed by the researcher. Paradigms are also the fundamental models or frames of reference that are used to organize our observations and reasoning (Barbie, 2010: 33).

A research design guides the researcher in order to reduce any ambiguity that could arise in the research evidence in a study. Such ambiguity may include chances of making incorrect causal inferences from the data that is collected. It should help the researcher to find out the type of evidence needed to answer the research questions in a manner that is convincing (Asaha Test Method PDF Ebook 2006: 10; Cooper and Schindler 2001: 134).

5.1.1 Time Series Research Design

A time series research design on the other hand, deals with information collected on a group of people or other entities that form the whole or part of a population study (Neuman 2011: 37). Primary research was conducted on part of the population of study which were the SMMEs of Kenya and South Africa, operating in Nairobi and Pretoria, respectively. Data was collected on samples of those SMMEs which had been in business between 2000 and 2009 and which relied on electricity for their daily operation. The electricity output data was collected from the whole population, that is, from KPLC and Eskom. The Kenyan manufacturing sector output data was collected from samples, that is, from some of products considered as the leading economic indicators. The South African manufacturing sector output was collected from the whole population, that is, manufacturing indices were used. A time series is one of the three approaches in the longitudinal research design. The other two are pane and cohort research designs (Neuman 2011: 37; Barbie 2010: 371-2; Cooper and Schindler 2001: 136-7).

5.1.2 Comparative Research Design

In a comparative research design, a whole population or certain units within the population are studied in comparison with one another (Collis and Hussey, 2003:47). This research was a comparison between KPLC and Eskom in as far as the benchmarking strategy that each had adopted. The comparison in this study stretched over a period of ten years, that is, between 2000 and 2009. The main focus was the impact of the adoption of the benchmarking strategy by electricity sectors on themselves and on the SMMEs of Kenya and South Africa. The comparison was in terms of the generation, transmission and distribution of electricity in the two countries. The impact on the SMMEs of the two countries also provided a basis of comparison for this research. In the same light, the relationship between the electricity output and the manufacturing of the two countries was compared to help of verify the responses from the SMMEs in relation to the impact.

5.2 Population of Study

The focus of the study was on the benchmarking strategy adopted by KPLC and Eskom and its impact on these entities and the SMMEs. Therefore, KPLC and Eskom were the first pair of the target population. The next pair of the target population was the SMME sectors of Kenya and South Africa. The SMMEs were sampled on the basis of those who had been in business between 2000 and 2009, and who relied on electricity for daily operation. They ought to have been operating their businesses within and or around the capital cities of Kenya and South Africa, Nairobi and Pretoria, respectively. The researcher also used data from the manufacturing sector of Kenya and South Africa and therefore, formed the third target population of this study.

The lack of a comprehensive and reliable list of all SMMEs that rely on electricity in the two cities necessitated the use of non-random sampling techniques. This resulted in respondents being identified through purposive and 'snowballing' sampling techniques. There was no well defined framework from which a suitable sample could be taken to suit the current study. FinScope South Africa Small Business Survey (2010: 4) notes that proper records of all small businesses are lacking. In the presence of such a challenge the researcher resorted to random non-probability technique. Sekaran and Bougie (2010: 276) emphasize that non-probability sampling is best used when time and other factors rather than generalizability become critical. They also explain that this design is used when there is a need for information from a specified target group. The researcher's population of interest for the primary research were the SMMEs entirely reliant on electricity for daily operation and who had been in operation between 2000 and 2009.

5.2.1 Research Sites

The research sites for this study were Nairobi and Pretoria in Kenya and South Africa, respectively. The first reason for choice of Kenya and South Africa for research sites is that the research of the current research is a Kenyan citizen and studies in South Africa. Therefore, it is a comparison of the home country and the country of study.

Secondly, the two countries have certain in common, despite the fact that there are many other factors that differentiate them. For a long time, both Kenya and South Africa had been referred to as "developing economies" or "third world countries". However, South Africa has moved to another category when it joined the BRIC (Brazil, Russia, India and China and now South Africa, to form BRICS) in 2010. It is now categorized as one of the New Industrialized Countries (NIC) (Mail and Guardian, 2010). Chidaushe (2010: 23) notes that South Africa has a lot in common with the BRIC countries. Chidaushe (2010: 24) also notes that South Africa is Africa's "Big Brother" in terms of economic development. Nevertheless, despite the economic differences between Kenya and South Africa as a result of the latter joining NIC due to its economic position, the two countries had a lot more in common. They were considered as economic hubs in their respective regions. The US Department of State considered Kenya to be the largest economy in East Africa (Department For International Development, DFID, 2009) and in Southern Africa South Africa occupied a similar role (United Nations Decade on Diversity, 2011). Benchmarking is all about comparing with the best or competitor. Koller and Salzberger (2009: 402) note that benchmarking has identified its position as a tool for performance improvement and competitiveness through scrutinizing the best practices from others, "*…developing best practices even together with others…"* (p. 402) Thus, since Kenya and South Africa are not competitors, they can only share the superiority of the other. This prompted the researcher to look at the current research topic using these two countries.

The researcher chose the capital cities of these countries to be the best representatives of urban set-ups as one is likely to encounter all sorts of business ventures in such a site. There is a general understanding that urban set-ups provide employment and relative comfort to people and that is why the rural-urban migration has accelerated. The capital cities were sampled since they are among the areas highly hit by rural-urban migration. Sub-Saharan Africa is noted for its high rate of rural-urban migration. Nyangena (2008: 119) suggests that a majority of people at international level are moving to towns and cities and he projects that 50% of people in Africa will be living in towns and cities by 2020. In this connection, Karekezi, Kimani, and Onguru, (2008: 7) note that an estimated 40% of Kenya's population resides in the urban area and they project that by 2020 this figure will go up to nearly half of the total population.

Karekezi, Kimani, and Onguru, (2008: 8) observe that about 47.5% of the urban population have access to electricity. They conclude that there is much more electricity needed in the urban set-ups, more so by the urban poor households and the SMMEs. SMMEs' concentration in the capital cities and other towns are bound to be high. Electricity may be one of those factors that provide the city environment with relative comfort. Unless governments of developing economies come up with a policy preventing this trend, it is here to stay. Contrary to this belief, in developing economies, the problem of rural-urban migration has caused a great deal of congestion in urban set-ups and high level of unemployment and therefore, relative discomfort. Cornwell and Inder (2004: 2) note that high population in urban set-ups results in congestion, pollution and high crime rates. This is worsened when a majority of the population remains highly unemployed. Cornwell and Inder (ibid) conclude that this is how informal employment comes about, since there are no openings for in the formal employment sector. Rural-urban migrations are triggered by the level of poverty experienced in the rural areas and so the movement is aimed at securing some form of employment, which SMMEs have time and again been able to provide.

It is against this background that the researcher decided to investigate the impact of the adoption of benchmarking strategy by the electricity sectors, first on the companies themselves and second on the SMMEs in the capital cities of Kenya and South Africa, Nairobi and Pretoria, respectively. SMMEs' respondents were selected randomly and this was used to gauge the frequency of types of businesses under the umbrella of SMMEs.

5.3 Data Collection

Data was collected in two phases. The first phase focused on statistical data which was collected from various KPLC and Eskom publications. The aim of this data was to help the researcher establish the impact of adoption of benchmarking in the electricity sector on the electricity companies. Denkena, Apitz and Liedtke, (2006: 190) argue that the main and critical challenge in defining benchmarking is the gathering and evaluation of

characteristic data that would give concrete measures to be able to correctly interpret the results.

5.3.1 Data Collected

The preliminary data was critical to the study to help fill in the gaps that were left void by the literature review in attaining the study objectives. Below are the three sets of data that were collected:

1. Pooled yearly data on the expenditure and profits of KPLC and Eskom for the period between 2000 and 2009.
2. Pooled yearly data of Kenyan and South African SMMEs average profit and expenditure on electricity for the period between 2000 and 2009.
3. Monthly time series of electricity output and monthly output of some of the products which were considered key economic indicators in the manufacturing sector for a number of years (for the Kenyan data cement, galvanized sheeting, sugar, tea and soft drinks[1], (measured in metric tonnes) were selected as they consistently fall in the category of key economic indicators for Kenya. The data on South Africa was available in terms of manufacturing and electricity indices (See Appendix X for sources of Kenyan time series data and Appendix XI for sources of South African time series data).

The third set of data which was used to gauge the overall relationship between electricity and manufacturing outputs was analyzed using time series techniques. The Kenyan electricity output data was collected in kilowatts per hour (kWh) of all generated and imported power. The manufacturing output was represented by five products which were considered to be among the leading economic indicators and which had the largest data set; cement, galvanized sheeting, sugar, tea and soft drinks. These products were selected

[1] The manufacturing sectors and the SMMEs share a lot in common hence the use of the manufacturing sector to provide evidence of the impact of the adoption of the benchmarking strategy on SMMEs. Many firms in the manufacturing sector rely on electricity as a major input. Similarly, many SMMEs have entered into subcontracting relationships with sector (see Okatch, Mukulu and Oyugi, 2011: 26), making SMMEs more of extensions of the manufacturing sector. However, cement, galvanized sheeting, sugar, tea and soft drinks were selected manufacturing because had the largest data set to generate reliable results.

on the basis of availability of largest data set. The South Africa data was collected in terms of electricity and manufacturing indices. The third set of data was used to reinforce or counter the results that were derived responses of the SMMEs.

5.3.2 Instrument of Data Collection

The second phase of the research involved administering questionnaires to SMMEs in Nairobi and Pretoria. Due to the varied nature and sizes of SMMEs, the researcher aimed to collect data from 200 respondents in each capital city, giving an expected total of 400 respondents. The questionnaires were distributed to the target respondents of each country for a period of 15 days each. The questionnaire was constructed using a four-point and five-point likert scales. The questionnaire was divided into four sections as illustrated in *Table 5: 1* below;

Table 5: 1- Structure of the Questionnaire

Section	Respondent	Aim of Section
A	SMMEs	Provide the demographic data
B	"	Characteristics of the business
C	"	Evaluate how benchmarking practices used impacted on SMMEs
D	"	Establish the impact of benchmarking practices used by the electricity companies in their countries on SMMEs

Source*: Adapted from researcher developed questionnaire*

Some of the variables used in constructing the questionnaire were factors that the researcher encountered as comments or complaints from electricity consumers and consumer protection groups (see Chapter One Section 1.4.1). The questionnaires were administered on a "drop and pick-later" basis. The target population were those SMMEs which had been in business between 2000 and 2009 and were those that rely on electricity for daily operation.

5.3.3 Validity and Reliability

The questionnaires were tested for reliability using pilot study to establish the consistency of the instrument using test-retest method. Three drafts were developed one after another and shared first, with fellow post-graduate students of University of Zululand and then those of University of Nairobi. Three subsequent drafts were each tested on the same traders (which rely on electricity) at the "Wangige" trading centre in Kenya. Content validity was tested to establish if the items in the questionnaire would be able to measure the variable they were expected to measure, that is, the impact of the adoption of benchmarking practices on the electricity companies and the impact on SMMEs in the two countries. Each time the traders were issued with the questionnaires they were requested to indicate against each statement what they thought the questionnaire required them to fill in. This was done until the researcher was satisfied with the type of data that the questionnaire sought to collect from the respondents.

As part of the validity measure the researcher ensured that there was equal treatment on the respondents. Data was collected from the same type of respondents; SMMEs operating in the capital cities and its environs must be reliant on electricity for everyday operation and must have been in business between 2000 and 2009. Data was collected for fifteen days only in each case.

5.4 Methods of Data Analysis

As outlined in section 5.3.1 above, there are three sets of data used in this research. Data analysis employed both quantitative and qualitative techniques. First the study discusses how the quantitative techniques were utilized in this analysis.

5.4.1 Quantitative Data Analysis Techniques

The first two sets were analyzed using the Statistical Programme for Social Science (SPSS) and the Microsoft Excel models. This research used the comparison between the

profitability of SMMEs and their expenditure on electricity as well as the overall relationship between electricity output and the manufacturing outputs to measure this impact. Similarly, the views of the SMMEs on the level of service quality by the electricity sectors were considered in this assessment. The main techniques used in the comparative data analysis were EViews and Ordinary Least Squares (OLS) of SPSS programmes. These techniques are discussed in sections 5.4.1.1 and 5.4.1.2 below. In the OLS programme, the researcher first utilized such descriptive statistics as mean, frequencies and percentages to reduce the data into manageable amounts for ease of further analysis.

Eventually, data was presented using percentages, means, standard deviations, frequencies, tables and graphs. These were followed with discussions on the various aspects researched on. The forms of data presentation enabled the researcher to compare the results of the electricity sectors and the responses of the SMMEs of two countries with ease.

5.4.1.1 Time Series Data Analysis Technique Based on Eviews Programme

As mentioned earlier time series design is one in which data is collected on the same variable at regular intervals and the data is usually in the form of aggregate measures of a population (Neuman 2011: 37; Barbie 2010: 371-2; Cooper and Schindler 2001: 136-7). The current research used contemporary time series methodology to study the relationship between electricity and manufacturing outputs for both Kenya and South Africa. In particular the study explored the short-run and the long-run relationships between the two variables and examined how the system readjusts when there is a deviation from this long-run relationship.

Both the Kenyan and South African time series were subjected to stationary tests to determine their stationarity status. First, both sets of times series data went through logarithmic transformations so as to eliminate what Lo (2010: 5) refers to as "*the problems of heteroskedacsticity and skewed distributions*" (p. 5). Lo further explains that the right transformation of data must be done to avoid producing wrong data and therefore, wrong interpretation of the results. The two sets of time series were then subjected to three common time series tests in order to establish the relationship between electricity output

and manufacturing output. First, the order of integration was carried out using unit root tests, to establish their stationarity status of both the electricity and the manufacturing outputs of the Kenya and South Africa were done using unit root tests. This in turn determined whether to use OLS or vector cointegration techniques to explore the long-run relationship between variables. Finally, this study used the Granger-Causality test to investigate whether the direction of causality runs from electricity production to manufacturing output or from electricity to manufacturing outputs or whether causality is bi-directional meaning it runs from manufacturing output to electricity production as well.

i. Technical Account of the Times Series Methodology

The time series in this research were monthly outputs of electricity and manufacturing sectors of both Kenya and South Africa. To analyse the series, the study specifically used the Augmented Dickey Fuller (ADF, 1979) test to check for unit root. The aim here was to establish whether the data was stationary or in simple terms if it was mean reverting. Stationary data is known to possess the property of not deviating too far from its mean value over time. Moreover, in the long term, positive and negative deviations from the average value tend to cancel each other out. Non-stationary data on the other hand tends to drift away from its mean. Generally non-stationary data may be usefully described as a random walk, where the best guess of the next period's value is the current value plus an unpredictable random error term.

Majority of the business, financial and economic time series data tend to be non-stationary but upon differencing (meaning, the current value of the series minus its one period lag) just once, the data is rendered stationary. Such data are termed as integrated of the order one I(1) which means differencing them just once renders the data stationary or I(0) (that is, integrated of the order of zero). Electricity and the various proxies of manufacturing output that this study uses, exhibit this property.

The results established that the Kenyan data for both electricity and the manufacturing output were stationary, (see *Table 6: 1* and the results discussion after it) which recorded the ADF tests that clearly showed that all the mentioned series were stationary. Simple

linear regression Ordinary Least Squares (OLS) models produce valid results when applied to stationary data, that is, data that is stationary of the order I(0) Karlsson and Rohl (2002: 6). As regards the South African data, the ADF tests revealed that the data was stationary of order I(1). That means it was rendered stationary upon first differencing (refer to *Table 6:7* for the ADF results). An important and interesting trait of the South African electricity and manufacturing output is that, although the series individually are not mean reverting but, as a linear pair they are cointegrated and their resulting errors are stationary.

The intuition behind pairs of economically related variables is that two cointegrated series will follow the same long-run path (as they presumably have some common factors, such as electricity, an input that is needed to produce manufacturing output, hence if electricity is in short supply, or if firms temporarily demand excessive amounts of electricity, there is a disequilibrium), which must readjust in subsequent periods. Since these variables are cointegrated, (that means, they share a long-run equilibrium relationship) at some point, any deviations will ultimately return them back to their long-run equilibrium relationship.

In slightly more technical terms, if two time series X_1 (Electricity) and X_2 (Manufacturing index or some other proxy for manufacturing) are cointegrated, it implies that a linear combination aX_1+bX_2 is stationary, that is, it has a constant mean, standard deviation and autocorrelation function for some a and b. In other words, the two series never stray very far from one another. Cointegration might provide a more robust measure of the linkage between two financial or economic quantities than correlation which is very unstable in practice. If two or more series are cointegrated then one can use the Vector Auto-Regressive (VAR) model and Vector Error Correction Model (VECM) methodology to capture the long-run cointegrated relationship between the two variables (Enders 2005 and Lo, 2010).

In addition, when these variables deviate from their long-run equilibrium, the VECM can be used to describe the adjustment process of the variables in order to restore the long-run equilibrium. This study used the Johansen (1988, 1991) and Johansen and Juselius (1990), cointegration method and VECM techniques to study the long-run equilibrium relationships between electricity and the manufacturing indices as well as the short-run adjustment. Note that unlike the Kenyan case, the South African time series cannot use OLS since it was established to be non-stationary or stationary of the order I(1). The use of

simple linear regression models in the context of non-stationary data would result in spurious regressions (Engle and Granger, 1987; Enders, 2005). Although, one can also use OLS estimates for the South African data, a richer picture is obtained if the Johansen Cointegration VECM is used since it includes the error correction mechanism which is absent in the OLS model.

ii. Stationarity

Stationarity data possess the property of not deviating too far from its mean value over time, especially in the long-run. But non-stationary data tends to drift far away from its mean, hence it is referred to as the random walk. In non-stationary data the guess for the next period's value is the current value plus an unpredictable random error term. Kwiatkowski, Phillips, Schmidt and Shin (1992: 160) explain that it is useful to carry out the test of null hypothesis of stationarity and the test of null hypothesis of a root unit on economic data to establish if they are stationary or integrated. They note that in this test the "*…statistic should be close to zero under the stationary but not the alternative of a unit…" (p. 160).*

There are some questions that arise before such tests are done include; "Does the data possess the property of deviating too far from its mean value over time or in the long-run? Are the deviations stationary or non-stationary?" This study used Augmented Dickey Fuller (ADF, 1979) to test for unit root, that is, to check whether the data is stationary or in simple terms, if it is mean reverting. The ADF test equation used to test the stationarity of variables is described below;

$$\Delta y_t = \alpha + \beta T + \phi y_{t-1} + \sum_{t=1}^{p} \Psi i \Delta Y_{t-i} + \varepsilon_t \qquad (5.0)$$

where,

Y_t = *the level of the variable (independent variable, eg Manufacturing output)*

α = *the constant*

t = *the time measured at some frequency of the recorded time series observations*

T = *the time trend (dependent variable- e.g. electricity output) with the null hypothesis*

H_0 $\phi = 0$ as well as its alternative hypothesis H_1: $\phi \neq 0$

ε_t = normally distributed random error term which has a zero mean and constant variances

p = the number of lags required to obtain the noise.

In order to apply correct econometric techniques on time series, it is important to identify whether the data is stationary or not. Lo (2010: 5) explains that if the times series are found to be stationary, the Ordinary Least Square (OLS) method and VAR methodology may be applied to the data. But if the data is found to be non-stationary, cointegration techniques of Engle and Granger (1980) of the Johansen methodology must be applied. Granger-causality is applied to time series, but if it is non-stationary, the cointegration test is carried out first. Below is a discussion on how cointegration is established.

iii. Cointegration

Once the data has been tested and proved to be integrated of the same order, it is then tested for cointegration. The cointegration analysis is carried out if the variables are discovered to be non-stationary. The presence of cointegration between the variables was tested using Johansen (1988, 1991) and Johansen and Juselius (1990 techniques. Johansen cointegration test is VAR-based and is used to determine if the long-run relationship is existent in the time series or not. Cointegration is meant to establish long-run relationship between time series variables, that is to check if a cointegrating relationship is present or not between two I(1) time series (Granger 1981, 1983; Engle and Granger, 1987), for example, M_t and E_t in the case of the current study. To do this, Engle and Granger (1987) suggest a regression of M_t on E_t to establish if the regression residual μ_t is stationary as shown in the cointegrating regression equation below which is a linear equation;

$$M_t = c + \beta E_t + \mu_t \qquad (5.1)$$

where,

- *c = the explained or deterministic variable*
- *M_t = the manufacturing output,*

- βE_t *=s the coefficient of the electricity output and*
- μ_t *= the unexplained random component*

This equation can be rewritten as;

$$M_t - \beta E_t - c = \mu_t \tag{5.2}$$

The equation implies that if manufacturing and electricity outputs are cointegrated μ_t will be stationary and then ADF can be used to test for stationarity of the μ_t residuals. In the next sub-section the study discusses the vector auto-regressive and the vector error correction models. The above Engle-Granger specification of the cointegrating relationship was not estimated in the study. Johansen (1991, 1995) approach was be used instead (see equation 5.7) for model proposed by Johansen, 1991, 1995).

iv. Vector Auto-Regressive (VAR) Model

Vector auto-regression is a multiple equation system used to establish the short and long-run relationships between stationary variables in time series. Karlsson and Rohl (2002: 6) note that estimating a VAR model allows the treatment of the variables assumed to be stationary. VAR model can be estimated to test data that is presumably stationary and asymmetrical. It is believed past values of all the variables involved in the model have the ability to influence each other. An example of a VAR model in matrix form;

$$\begin{bmatrix} \Delta Mt \\ \Delta Et \end{bmatrix} = \begin{bmatrix} \alpha_{10} \\ \alpha_{20} \end{bmatrix} + \begin{bmatrix} \alpha_{11} & \alpha_{12} \\ \alpha_{21} & \alpha_{22} \end{bmatrix} \begin{bmatrix} \Delta M_{t-1} \\ \Delta E_{t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{mt} \\ \varepsilon_{et} \end{bmatrix} \tag{5.3}$$

where,

- Δ*denotes the first difference operator,*
- α_{10} *and* α_{20} *are intercept terms*
- ε_{xt} *and* ε_{yt} *denote the residual terms which are the "white noise" sequences*

- *y and x are the dependent (manufacturing) and independent (electricity), respectively.*

All the items on the right hand side of the equation are predetermined values. This model was adapted to suit the current research where the variables at play are manufacturing output (as the "*y*" dependent variable and electricity output (as the "*x*" independent variable). This research used VAR to establish the nature of the short-run and long-run Granger causalities between manufacturing and electricity outputs of Kenya while Vector Error Correction Model (VECM) which is a variation of the VAR model is used to investigate causality in the South African data.

v. Vector Error Correction Model (VECM)

Vector Error Correction Model (VECM) is used bring about better understanding in as far as the nature of non-stationarity among different variables in time series is concerned. It can be used to better predict the future relationship of these variables. There are three processes inherent in this model; First, it establishes stationarity between variables using unit root tests, second it analyses cointegration to prove if the variables are non-stationary and lastly, it helps to test for long-run and short-run Granger Causality. Error correction is said to capture both short-run dynamics and long-run equilibrium between the time series that are cointegrated (Zou and Chau, 2006:3647). Once it is proved that cointegration exists or does not exist between the variables involved, via the trace and maximum eigenvalue statistics, thereafter a VEC model that has the variables in their differences is used to bring out the long-run relationship in the form of error correction term is estimated. This model can be expressed as:

$$\Delta M_t = \alpha_{01} + \alpha_{11}\Delta M_{t-1} + \alpha_{21}\Delta E_{t-1} - \theta_{11}(M_{t-1} - \beta E_{t-1} - c)_{t-i} + \gamma_{11}DUMP + \gamma_{12}DUME + \gamma_{13}DUM1 + \varepsilon_{t1} \quad (5.4)$$

$$\Delta E_t = \alpha_{02} + \alpha_{12}\Delta M_{t-1} + \alpha_{22}\Delta E_{t-1} + \theta_{12}(M_{t-1} - \beta E_{t-1} - c)_{t-i} + \gamma_{21}DUMP + \gamma_{22}DUME + \gamma_{23}DUM1 + \varepsilon_{t2} \quad (5.5)$$

where,

- ΔM_t and ΔE_t is the change in natural log manufacturing and natural log electricity outputs, respectively.

- $M_{t-1} + bE_{t-1} - c$ in both equations represent the ECM term, which is essentially the long-run relationship lagged one period.

- α_{01} and α_{02} are the y-intercepts used to allow for deterministic time trends in the levels of the different variables.

- θ_{11} *represents the short-run adjustment of ΔM_t to the long-run relationship*

- θ_{22} *represents the short-run adjustment of ΔE_t to the long-run relationship*

- ε_{Mt} *and* ε_{Et} *represent the residual terms for the respective equations in the VECM system that are independent and have normal distribution, a zero mean and a constant variance.*

- DUMP, DUME and DUM1 represent deterministic (exogenous) terms in the VECM.

- DUMP represents an interaction dummy, DUME represents the power outage dummy and DUM1 represents the credit crunch dummy. These variables are defined below.

DUME is the power outage Dummy which takes on the value of 1 over the period 2007 M10 to 2008M12 (otherwise, it is zero) since this is the period over which the power outages were frequent and with maximum intensity (that is in areas in South Africa were affected on average with blackouts lasting 2 hours per day during week days).

DUM1 is the credit crunch, the Dummy that takes the value 1 over the period 2007M10 to 2009M8 (otherwise, it is zero). This Dummy captures the credit crunch period over which the maximum impact felt in the South African economy. This Dummy is "interacted" with LP (Log of purchases of South African financial assets by foreigners). Thus;

DUM1 × LP = DUMP (Interaction Dummy).

This interaction Dummy is meant to isolate credit crunch effects from the power outage effects. During the credit crunch period foreigners were generally net sellers of South African stocks and bonds and it is also the period that the manufacturing industries suffered decline due to reduction orders due to credit crunch effects (see Mizen 2008:

564). It is hoped that the DUME Dummy will capture the power outage effects on manufacturing while the DUMP (interaction variable) will capture the credit crunch effects on manufacturing output.

Equations (5.4) and (5.5), which this study estimates in chapter 6, can be represented in more compact form, in the following Johansen (1991, 1995) VECM matrix equation, which could be used to represent the long-run cointegrating relationship between two I(1)series:

$$\begin{bmatrix}\Delta M_t \\ \Delta E_t\end{bmatrix} = \begin{bmatrix}\alpha_{10} \\ \alpha_{20}\end{bmatrix}\begin{bmatrix}\alpha_{11} & \alpha_{12} \\ \alpha_{21} & \alpha_{22}\end{bmatrix}\begin{bmatrix}\Delta M_{t-1} \\ \Delta E_{t-1}\end{bmatrix} + \begin{bmatrix}\theta_{11} \\ \theta_{21}\end{bmatrix}\left[\Delta y_{t-1} - \beta x_{t-1} - c\right] + \begin{bmatrix}\gamma_{11} & \gamma_{12} & \gamma_{13} \\ \gamma_{21} & \gamma_{22} & \gamma_{23}\end{bmatrix}\begin{bmatrix}DUMP \\ DUME \\ DUM1\end{bmatrix} + \begin{bmatrix}\varepsilon_{M1} \\ \varepsilon_{E1}\end{bmatrix} \quad (5.6)$$

Note that Zou and Chau (2006) employs a similar specification in their study of the relationship between output and electricity. Both endogenous (*M* , *E*) and deterministic variables (DUMP, DUME and DUM1) in equation 5.6 have been defined above. In this equation, the number of cointegrating vectors is represented by the rank of the α matrix, as will be seen in chapter 6, there can be either 0 or 1 cointegrating relationship in a bivariate model. Zou and Chau (2006: 3647) emphasize that the variables under investigation must be of the same order, for example, of order I(0) or of order I(1). Zou and Chau (2006: 3647) argue that if the two time series are cointegrated, then ε_{Mt} and ε_{Et} will be stationary and that ADF test can be used to check for the stationarity, from the perspective of the Engle and Granger (1987) two step procedure. However in this study the trace and maximum eigen value statistics were used to confirm cointegration and hence imply that the mentioned residuals are stationary without the need to conduct separate ADF tests.

Once the stationarity and cointegration status of the variables were established then VECMs were established using the South African data. If the lagged differenced variables of equation 5.4 and 5.5 are significant then on concludes that short-run causality between the variables exists specifically if α_{21} *is significantly different from 0*. Significant here implies that short-run causality runs from ΔE_{t-1} to ΔM_{t-1}. And if α_{12} *is significantly different from 0*, it implies that short-run causality also runs from the opposite direction, that is, from ΔM_{t-1} to ΔE_{t-1}. If $\theta_{11} < 0$ and θ_{11} it also implies that there is also long-run

bidirectional causality between *M* and *E*. The expectation that $\theta_{11} < 0$ suggests that when manufacturing output oversteps its long run equilibrium level with that of electricity in the previous period (since the ECM is lagged one period) , in the current period output must fall in order to restore equilibrium hence the adjustment coefficient is negative. Likewise since electricity was below the level that was required for the higher output in the current period it has to rise in order to restore the equilibrium relationship, hence $\theta_{12} > 0$. If only $\theta_{11} < 0$ then causality runs from *E* to *M* and if only $\theta_{12} > 0$ then causality runs from *M* to *E*.

vi. Granger-Causality Tests

Granger causality test is used to predict causal relationships between variables. They explain that if a variable E_t (for example electricity output in the case of the current study) Granger causes M_t (manufacturing in the case of the current study), then E_t can be viewed as a good predictor of the variable M_t and in the event that *M* causes E as well, then there exists a "feedback" relationship between the two time series as expressed in the following equation;

$$M_t = \sum a_i M_{t-1} + \sum \beta_i E_{t-i} \qquad (5.7)$$

If E_{t-i} Granger causes M_t then β_i will be significantly different from zero at the 95% level of confidence.

$$E_t = \sum a_i M_{t-1} + \sum \beta_i E_{t-i} \qquad (5.8)$$

If M_{t-i} Granger causes E_t then α_i will be significantly different from zero at 95% significant level. If there is unidirectional Granger Causality, then both X_i and β_i will be statistically significant at 95% level of significance. The above equations may be used for stationarity and cointegrated data. Since the Kenyan data was stationary, the study employed the VAR Granger causality test using level form of data.

After looking at the techniques used to analyse the quantitative data, the study considered those that are used to analyse qualitative data. Although the questionnaires were structured, few opinions were expressed by some respondents and analyzed using content analysis.

5.4.1.2 Ordinary Least Squares (OLS)

Ordinary Least Squares (OLS) are linear or coefficients equations with some fixed (constant) values as parameters, while the dependent and independent variables are made to change. The independent variables are the *y*-values and dependent variables are the *x*-values. The OLS method chooses the best fitness line that helps predict the *y*-values given the *x*-values in order to bring out a clear relationship between the two variables. Co-efficient of determination (R^2) measures the extent to which the variation in *y*-values is explained by the variation in *x*-values. The closer R^2 is to 1 the more accurate the line of fitness and the closer it is to zero the weaker it is (Sekaran and Bougie, 2010: 349).

The OLS method assumes that the data involved has a linear relationship between dependent and independent variables. Sekaran and Bougie (2010: 348) and Barbie (2010: 473-5) observe that regression analysis is carried out in a situation where the independent variable is assumed to affect the dependent variable. In this study, it is assumed that the electricity output has a linear relationship with the manufacturing output. According to Barbie, the relationship between the independent and dependent variables can be represented in a linear regression equation as follows:

$$Y = b_0 + b_1X \tag{5.9}$$

where,

- *"Y" is the dependent variable,(manufacturing output)*
- *"a" is the "y" intercept or the constant*
- *"b" is the co-efficient of the dependent variable (x)and*
- *"X" is the independent variable (electricity output).*

This equation implies that changes in "*x*" will affect "*y*". The equation (5.9 above) is a univariate model in the sense that there is only one explanatory variable, the *x*. The current study has various variables at play, therefore, the following multivariate linear model which was estimated using OLS was used instead;

$$Y = b_0 + bx_1 + bx_2 + bx_3 \ldots bx_n \quad (5.10)$$

This is equation is restructured for use for the current study as shown below;

$$M_t = b_0 + bE_t + b_2 M_{t-1} + b_3 DUME \quad (5.11)$$

where;

- M_t *is the manufacturing output,*
- b_0 *is constant,*
- b_1 *is the coefficient of the electricity variable E,*
- b_2 *is the coefficient of the variable of Past Production Effects and*
- b_3 *is the coefficient of the variable of the DUME, which represents power outages.*

The above model was used for the Kenyan data since all variables were demonstrated to be non-stationary (See Chapter Five Section 5.4.1.1 above (i) for discussion on stationarity concept).

Next the study discusses in some detail the use of the time series technique to analyse data. It includes first, an intuitive cum slightly technical account of the central feature of the methodology is presented. Thereafter, the stationarity, cointegration and Granger tests, the vector auto-regression (VAR), VECM (vector error correction model) and lastly, the Granger Causality models are described in detail.

5.4.3 Qualitative Data Analysis

Qualitative data cannot be analyzed using statistical tools. Such aspects as concepts, attitude, perception, to mention a few, can only be analyzed through content analysis. Sekaram and Bougie (2010: 385-6) observe that information that is textual in nature and

one that can identify its properties in such forms as, words, concepts, characters, themes or sentences can only be analyzed through content analysis. The current research categorized and coded the qualitative data (refer to Sekaram and Bougie for detail of this approach) that was collected within the structured items on the questionnaires. The themes were aimed at capturing the SMMEs' perception of the impact of the adoption of the benchmarking strategy by KPLC and Eskom on the well-being of their businesses. The impact was measured in terms of the losses and gains that the SMMEs encountered as a result of the reforms adopted by the electricity sectors.

The frequency of themes in the responses were then used to establish if there was any relational association between the variables involved, for example, if there was any relation between the responses of the SMMEs on the impact of the benchmarking practices on their businesses. Thematic content analysis was used. This technique requires the researcher to identify repeated patterns of meaning within the responses (Braun and Clarke, 2006: 86). The data was first extract from the questionnaires and then coded. Dominant themes were then developed from the coded data in these responses and were then subjected to quantitative analysis using percentages.

5.5 Summary

Chapter Five has discussed in some detail the research design and the research methodology. The research methods and the research instruments that were be used in the collection and analysis of data have been presented in some detail. This points out that the research is both quantitative and qualitative in nature. The next chapter discusses in some detail the actual data analysis to establish whether the researcher attained her objectives and whether the research achieved its objectives and answered the research questions. The study began by analyzing the data collected from various publications of KPLC and Eskom. Then the data collected from the SMMEs through a structured questionnaire was analyzed. Lastly, the series from Kenyan South African electricity sectors and the manufacturing sectors of the two countries were analyzed.

CHAPTER SIX

DATA ANALYSIS AND INTERPRETATION

6 INTRODUCTION

This research sought to achieve two main objectives; to establish the impact of the adoption of benchmarking strategy by KPLC and Eskom on these electricity sectors and the impact on the SMMEs of Kenya and South Africa. The SMMEs focused on were those which relied on electricity. The second objective was to establish if there was causality between electricity output and manufacturing output and the direction of this relationship, if any. As already explained in research objectives in Chapter One Section 1.7, this study sought to investigate Granger-causal relationship between manufacturing sector and electricity outputs in order to counter any biasness from the responses of SMMEs responses collected through a set of structured questionnaires. These entities did not provide any documented evidence to support their responses in as far as the impact of the power outages on their businesses was concerned. It was, therefore, speculated that the responses were likely to be subject to an extent, hence the need for verification.

Equally important was the fact that establishing Granger-causality between manufacturing and electricity outputs would enhance the general understanding that a stable long-run relationship between the two variables is likely to enable businesses at micro levels to engage in optimal choices to ensure profitability.

This chapter presented the results of the research findings. First a brief recap of the three data sets used and the data analysis methods which were presented in Chapter Five were revisited. The analysis and discussion of the results of the first and second data sets were then presented. Analyses and discussions of the results of the data pertaining to electricity and manufacturing outputs were also presented. This data was analyzed using the time series of the EViews statistical programme. Lastly, chapter six is summarized and a brief introduction of chapter seven is done.

6.1 Summary of Methodology

This research used a combination of a comparative and a time series designs. The comparison is between the Kenyan and South Africa electricity sectors with regard to their adoption of the benchmarking strategy. The impact of this adoption on the companies themselves and the SMMEs (which rely on electricity for their operation) of the two countries was the focus of this study. The data used to gauge the impact of the adoption of the benchmarking strategy on the companies themselves was collected mainly from the companies' publications. The researcher also collected data on the manufacturing output of both countries (refer to Appendices X and XI for sources of data). The first two sets of data (see *Section 6.1.1*) below were analyzed using SPSS and Excel programmes while the third set was analyzed using EViews' contemporary time series technique.

6.1.1 Data Used

The study utilized three sets of data;

1. Pooled yearly data on the expenditure and profits of KPLC and Eskom for the period between 2000 and 2009.
2. Pooled yearly data on the average profit and electricity expenditure for SMMEs of Kenya and South Africa for the period between 2000 and 2009 as well as other responses from questionnaires, concerning impact of benchmarking practices adopted by KPLC and Eskom.
3. Monthly time series of electricity output and monthly output of key products in the manufacturing sector for a number of years (for the Kenyan data, tea, sugar, soft drinks, cement and galvanized sheeting (measured in metric tonnes) were selected as they consistently fall in the category of key economic indicators for Kenya. South Africa data was available in quarterly manufacturing and electricity indices and these which were used).

The findings of the study using the above data were discussed and are presented below. First, the results of the Kenyan and South African time series are presented. Then the study

progressed on to the analysis of the impact of the adoption of the benchmarking strategy on KPLC and Eskom followed by the impact on SMMEs as brought out through their responses in the questionnaires.

6.2 Time Series Analysis and Presentation

The analysis in this section aimed at achieving the second main objective for this study which was, to gain a comparative understanding of the nature of the overall relationship between the outputs of the electricity sectors and that of the businesses that relied on electricity (here represented by manufacturing sector) in Kenya and South Africa.

The data set used to carry out this pertains to the Kenyan monthly and South African quarterly electricity and manufacturing outputs. The Kenyan time series were based on five different variables and these were; cement, galvanized sheeting, sugar, tea and soft drinks expressed in monthly output of metric tonnes. They had been considered as some of the leading economic indicators. It is worth pointing out that although sugar and tea, belong more to the agricultural sector, they have significant relationship and linkage with the manufacturing sector of the Kenyan economy which is in relation to their demand for local inputs (like electricity) into their production processes. Hence sugar and tea production become useful proxies for the manufacturing sector. Electricity output was measured in kWh. Secondly, the Kenyan time series had 55 observations.

On the other hand, the South African time series was expressed in terms of manufacturing and electricity monthly indices and had 266 observations. The analysis was carried out using different techniques because of variability found in the two sets of the time series. They were also discussed in two different sections: Section 6.3.1 presents the results of the Kenyan Time Series analysis while section 6.3.2 presents the results of South African Time Series.

The Kenyan data was found to be stationary (see T*able 6: 1* below), while South Africa data was found non-stationary. Therefore, the South African data was tested for

cointegration and it was then declared to be integrated of the order I(1), that is, it become integrated upon first differencing. Eventually, both Kenyan and South African data time series were subjected to Granger-causality test to establish the long-run equilibrium between the variables involved. The study began the analysis with the results of the Kenyan data and later move onto that of South Africa.

6.3.1 Analysis and Presentation of the Kenyan Time Series

Kenya time series had 55 observations. Once these were established to be stationary (see *Table 6: 1*), a quantitative analysis involving Ordinary Least Squares (OLS) was used to quantify the magnitude of the long–run relationship between the electricity and manufacturing outputs.

The results showed that all the variables were integrated to the order I(0), meaning they are stationary. This means that the time series are stationary in their levels, that is, they do not follow a random walk, they are mean reverting. This is visualized by the ADF test values which are below the critical statistic values at 1% significance level. Therefore, valid significant relationships can be obtained using OLS or VAR models in level forms. The results of the Kenyan ADF test are presented in the *Table 6:1* below, followed with the discussion on the same results.

Table 6: 1- ADF Test Results Based on SBC Lag Choice (Kenyan Time Series)

Sample period: 2005M11 to 2010M05		
Variable	ADF test (levels)	**Critical stat**
LCEM	-5.145 (ADF)	-4.134
LGS	-4.188 (ADF)	-3.555
LSU	-6.026 (ADF)	-3.555
LT	-3.750 (ADF)	-3.555
LSD	-5.869 (ADF)	-4.134

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

The final test in this analysis is to establish if electricity Granger-causes manufacturing or vice-versa or both. The Kenyan time series had four products considered to be among the leading economic indicators were used. These are cement, galvanized sheeting, sugar, tea and soft drinks. The OLS equation (refer back to Section 5.4.1.2 of Chapter Five), adapted from Barbie, 2010: 475 for a general specification, was used for this analysis.

$$LM_t = \beta_0 C + \beta_1 LE_t + \beta_2 LM_{(t-1)} + \beta_3 DUME \quad (6.0)$$

where;

- *LM is the Log of Manufacturing Output Indicators which is the output from manufacturing sector and it is the dependent variable (These indicators are defined in equation 6: 2 to 6:6 below)*
- *$\beta_0, \beta_1, \beta_2$ and β_3 are the coefficients of the variables they precede*
- *c is the constant or y-intercept*
- *LE_t is the Log of Electricity is the electricity output and is the independent variable*
- *LM_{t-1} is the one period lagged of Manufacturing Output Indicator which represents the past factors of production that may contribute to the current production output.*
- *DUME is the Dummy for electricity and it represents power outages (blackouts and or load shedding).This takes on the value of during power outage in the period (refer to* Appendix X and XI - Sources of Time Series Data and Evidence of Power Outages*) between May 2008 and May 2010.*

This model assumed that manufacturing output is a function of electricity output, past manufacturing effects and the DUME. It was expected that the coefficient β_1, (which is used to measure the electricity output) should have a positive sign. What this meant was that an increase in electricity output would result in an increase in the output of the manufacturing sector and the reverse was expected to be true.

Similarly, β_2, (which relates to past effects of productivity variables such as improved learning curve, improved employee skills, improved technology, among others), was expected to have positive sign. β_3 was expected to bear a negative sign since a decrease in electricity outages was expected to boost manufacturing output. This variable was expected to bring out the effect of power outages on manufacturing. The equations for the

specific economic indicators (cement, galvanized sheeting, sugar, tea and soft drinks) used in the Kenya time series are shown below each indicator in the following section.

6.3.1.1 Discussion on Results of Kenyan Time Series

These five products are among the leading economic indicators in the Kenyan economy were subjected to unit root test to establish their stationarity status. They were proved to be stationary of the order I(0) (see *Table 6:1* above). The study presents the results of the OLS analysis of the five variables, starting with cement.

i. Cement (C):

$$LogC_t = \beta_0 c + \beta_1 LogE + \beta_2 LogC_{(t-1)} + \beta_3 DUME \quad (6.1)$$

From the results in *Table 6-2a* below, it is evident that there was a significant increase in cement production despite the power outages experienced in Kenya. The results (β_3) indicate a coefficient with a positive sign, an indication that there was an increase of 112% rise 112% rise in cement output. One period lagged cement output (β_2) has a significant impact on current cement output.

This suggests that the past investment in cement production, the experience of management and workers and other positive past production effects served to boost the current cement production. Lo (2010) proposes that such outcomes may also result due to departure from use of labour intensive in the earlier years of production to capital (and or technology) intensive production and also due to economies of scale, however it is not reflected in statistics since β_0, which represents technology and scale factors is insignificant.

Table 6:2a- OLS Analysis for Cement

Dependent Variable: LCEM		Method: Least Squares		
Sample (adjusted): 2005M11 2010M05		Included observations: 55 after adjustments		
Regression	Coefficient	Std. Error	t-statistic	Prob
Constant (β_0)	1.149	1.143	1.005	0.320
LE (β_1)	1.123	0.190	5.926	0.000
LCEM(-1) (β_2)	0.332	0.092	3.605	0.001
DUME (β_3)	0.120	0.030	3.966	0.000
R-squared				0.911
Adjusted R-squared				0.906
Durbin-Watson Statistic				2.087

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

The Granger causality test (see results in *Table 6.2b* below) reveals bidirectional causality between cement production and electricity. The respective chi-sq value of 6.47 (Electricity excluded from the equation, where the coefficients of lagged electricity in the VAR are restricted to zero, thus implying electricity does not Granger cause cement production) and 6.5 (coefficients on lagged cement output are restricted to zero, ie., suggesting it does not cause electricity production), are higher than the chi-critical value of 5.99. These results indicate that cement production was critically dependent on electricity output and vice versa.

One can infer from the above results that the cement industry is likely to be one of KPLC's preferred consumers so that the company was supplied with adequate power which boosted their output despite electricity outages. However, there may be other factors at play in this complex relationship, for example, economies of scale in the procurement of the electricity.

Table 6: 2b- Granger-Causality Test Results for Cement

VAR Granger Causality/Block Exogeneity Wald Tests (FOR CEMENT) Sample 2005M10 2010M05 Included observations: 54			
Dependent variable LGS			
Excluded	Chi -sq	Df	Prob
LE	6.472	2	0.039
All	6.472	2	0.039
Dependent Variable LE			
Excluded	Chi-sq	Df	Prob
LGS	6.514	2	0.039
All	6.514	2	0.039

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

It is possible that other factors such as past positive production effects, for example improved technology, could have contributed to this contradicting scenario of increase cement output despite the presence of power outages. However, the main reason for this outcome is that Bamburi Cement Company is noted to have substituted its source of energy from cashew-nut and rice husks to help offset the high fuel and power costs. Osano (2008: 6) reveals that in 2007 the company was able to achieve a 28% alternative fuel substitution. Osano (ibid) adds that generators had also been used by some cement companies to provide alternative source of electricity in the event of frequent power outages. Equally important and to the advantage of this large cement company, is the fact that this company enjoyed economies of scale. Osano (2008: 8) notes that Bamburi Cement Company remained efficient and innovative in its use of electricity, ending up reducing its energy cost by 11% as opposed to an increase of 14% in its output. Lastly, Osano (2008: 5) notes that the growth in the building and construction industry spurred the search for the alternative sources of energy, hence the enhanced cement output despite the presence of power outages. And this also explains why the coefficient β_3 on *DUME* variable is positive sign.

ii. Galvanized sheeting (GS):

$$LogGS_t = \beta_0 c + \beta_1 LogE + \beta_2 LogGS_{(t-1)} + \beta_3 Dume \quad (6.2)$$

The OLS results for galvanized sheeting, see *Table 6.3a* below, indicate that electricity is a significant factor in the production of galvanized sheeting, since the electricity coefficient is significant at the 10% level of significance (90% confidence interval) and a calculated t-value of 1.67, as compared to a t-critical value of 1.69. The results also indicate that power outages reduced galvanised sheeting production, although this is not quite significant. Electricity has a 10% significant factor in the production of galvanised sheeting and a 1% rise in kWh of electricity production results in a 48% rise in galvanised sheeting output, per month. The results in *Table 6: 3a* below, show that a 1% rise in kWh of electricity output results in 48 % rise in galvanised sheeting production. β_3 has the expected sign, that is, a negative sign, indicating that power outages caused a reduction in galvanized sheeting production. However, these results are not statistically significant.

VAR Granger causality test was carried out to establish the direction of the causality between electricity and the manufacture of galvanized sheeting. The number of lag can be determined by Akaike Information Criteria (AIC), Schwarz Bayesian Criteria (SW) and Hannan Quinn Criteria. For this study used Schwarz Bayesian Criteria to determine the number of lags and it selected 3 lags at 5 % level of confidence. (See *Table 6: 3b* below).

The calculated chi-sq value was at 10.859, a value that is much higher than the critical chi-sq value of 5.99. The chi-sq of galvanized sheeting (10.859) is much higher than that of electricity (1.239) meaning that galvanized sheeting production is dependent on electricity output and not vice versa. These results reveal that there is unidirectional causality between galvanized sheeting production and electricity output running from electricity to galvanized sheeting (refer to *Table 6: 3b*).

Table 6: 3a- OLS for Galvanized sheeting (GS) Output Indicator as the independent variable to electricity output, past effects of galvanized sheeting productivity, DUME.

Dependent Variable: LGS Method: Least Squares Sample (adjusted): 2005M11 2010M05 Included observations: 55 after adjustments				
Regression	Coefficient	Std-Error	t-statistic	Prob
Constant (β_0)	2.963	1.962	1.510	0.137
LE (β_1)	0.485	0.287	1.691	0.097
LGS(-1) (β_2)	0.378	0.129	2.933	0.005
DUME (β_3)	-0.003	0.037	-0.088	0.930
R-squared	0.270			
Adjusted R-squared	0.227			
Durbin-Watson Statistic	2.104			

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

Table 6: 3b- VAR Granger causality test results for Galvanized sheeting.

VAR Granger Causality/Block Exogeneity Wald Tests; Sample 2005M10 2010M05 Included observations: 53			
Excluded	Chi -sq	Df	Prob
LE	10.859	3	0.013
All	10.859	3	0.013
Dependent Variable LE			
Excluded	Chi-sq	Df	Prob
LGS	1.239	3	0.744
All	1.239	3	0.744

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

iii. Sugar (SU), Tea (T) and Soft drinks (SD):

The results for sugar, tea and soft drinks indicate that there are no causality relationships between these three variables and electricity as is shown in the Granger-causality test

results are displayed in the tables as follows; *Table 6: 4b-* sugar, *Table 6: 5b-* tea and *Table 6: 6b-* soft drink.

Table 6: 4a- OLS Analysis for Sugar (SU)

Dependent Variable: LSU		Method: Least Squares		
Sample (adjusted): 2005M11 2010M05		Included observations: 55 after adjustments		
Regression	Coefficient	Std. Error	t-statistic	Prob
Constant (β_0)	7.963	3.228	2.467	0.017
LE (β_1)	-0.053	0.446	-0.118	0.907
LSU(-1) (β_2)	0.282	0.137	2.061	0.044
DUME (β_3)	0.040	0.060	0.664	0.510
R-squared				0.099
Adjusted R-squared				0.046
Durbin-Watson Statistic				1.899

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

Table 6: 4b- VAR Granger causality test results for Sugar

VAR Granger Causality/Block Exogeneity Wald Tests:			
Dependent variable LSU			
Excluded	Chi -sq	Df	Prob
LE	1.735	2	0.420
All	1.735	2	0.420
Dependent Variable LE			
Excluded	Chi-sq	Df	Prob
LSU	0.329	2	0.848
All	0.329	2	0.848

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

The results for sugar, tea and soft drinks were discussed and presented below. The analysis revealed that there was no strong causal link between the sugar, tea and soft drink output

and electricity output. Whereas tea had the expected (negative) coefficient sign (which is -0.053) of the DUME, it was not significant. Both sugar and soft drinks had a positive sign on the coefficient of DUME (0.04 and 0.59, respectively), which is an unexpected sign.

Table 6: 5a- OLS Analysis for Tea (T)

Dependent Variable: LT		Method: Least Squares		
Sample (adjusted): 2005M11 2010M05		Included observations: 55 after adjustments		
Regression	Coefficient	Std. Error	t-statistic	Prob
Constant (β_0)	-1.187	3.704	-0.320	0.750
LE (β_1)	0.926	0.583	1.590	0.118
LT(-1) (β_2)	0.551	0.114	4.856	0.000
DUME (β_3)	-0.053	0.077	-0.681	0.499
R-squared				0.359
Adjusted R-squared				0.322
Durbin-Watson Statistic				1.733

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

Table 6: 5b - VAR Granger causality test results for Tea (T)

VAR Granger Causality/Block Exogeneity Wald Tests Sample 2005M10 2010M05 Included observations: 54			
Dependent variable T			
Excluded	Chi -sq	Df	Prob
LE	1.835	2	0.013
All	1.835	2	0.013
Dependent Variable LE			
Excluded	Chi-sq	Df	Prob
LT	0.571	3	0.752
All	0.571	3	0.752

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

Tea and sugar are predominantly agricultural outputs and, therefore, they are likely to be affected more by climatic conditions, soils and other agricultural inputs. However, they are linked to the manufacturing sector due to their consumption of electricity as a production input. Sugar has a calculated chi-sq value of approximately 1.74 which is way below the chi-sq critical value of 5.99, whereas soft drinks has a calculated chi-sq of 0.08, way below the chi-sq critical value of 3.84. Both were calculated at 5% significance level. On the other hand, tea has a calculated chi-sq value of 1.84 as opposed to chi-sq critical value of 5.94 at 5% significance level. Although tea has a correct DUME (of power outages) coefficient sign, (that is, -0.05), it is not significant.

Table 6: 6a- OLS Analysis for Soft Drink (SD)

Dependent Variable: LSD Method: Least Squares Sample (adjusted): 2005M11 2010M05 Included observations: 55 after adjustments				
Regression	Coefficient	Std. Error	t-statistic	Prob.
Constant β_0	3.751	3.183	1.178	0.244
Ln E β_1	0.373	0.472	0.791	0.432
Ln SD(-1) β_2	0.401	0.125	3.196	0.002
DUME β_3	0.059	0.065	0.894	0.376
R-squared				0.304
Adjusted R-squared				0.262
Durbin-Watson Statistic				1.995

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

Tea also has a correct sign on electricity (0.93) however, it is statistically insignificant. These results therefore, indicate that no causality was established between the output sugar, tea and soft drinks and that of electricity. Thus, electricity is not a good factor to use in explaining sugar and tea production. It is likely that since sugar and tea are more of agricultural productions, there are other factors that may be more contributory to their output than electricity. Furthermore, one of the main sugar producing companies in Kenya, Mumias Sugar Company, is involved in the co-generation of and sells electricity to KPLC (See Departmental Committee on Energy, Communications and Information on the Ownership and status of KPLC (2010: 8).

Co-generation of electricity by sugar companies need to be encouraged and significantly supported to ease the problem of recurrent power outages. Karekezi, Kimani, Atiang' Onguru and Mbithi (2007) sugar companies in Kenya generate bagasse which could then be used in co-generation of electricity.

Table 6: 6b - VAR Granger causality test results for Soft Drink (SD)

VAR Granger Causality/Block Exogeneity Wald Tests			
Dependent variable LSD			
Excluded	Chi -sq	Df	Prob
Ln E	0.082	1	0.775
All	0.082	1	0.775
Dependent Variable LE			
Excluded	Chi-sq	Df	Prob
Ln SD	1.776	1	0.183
All	1.776	1	0.183

Source: *Researcher's own calculations based on Kenyan time series data (2010).*

That could partly explain why the power outages may not have had a significant impact on the sugar output. The presence of Feed-in-Tariffs (Energy, Environment and Development Network for Africa –AFREPREN/FWD-, 2009: 2), which ensures that electricity generated from renewable resources is automatically bought, should be another incentive for the sugar companies to cogenerate electricity to ease the recurrent outages.

6.3.1.2 Summary on Kenyan Time Series

The Kenyan data which proved to be stationary was analyzed using OLS of contemporary time series technique. The technique established bidirectional causality between electricity and cement outputs, unidirectional causality between electricity and galvanized sheeting output, running from electricity to galvanized sheeting but found no causality between the outputs of sugar, tea and soft drink and that of electricity.

6.3.2 South African Time Series

The South African time series which were in form of quarterly manufacturing and electricity indices were used to bring out the relationship between the economic factor (manufacturing) and electricity output (the energy factor). Once the stationarity test proved the time series to be non-stationary, the cointegration test was carried out. The cointegration tests that were based on the Trace test and maximum Eigenvalue statistics showed that a long-run cointegration relationship exists between electricity and manufacturing outputs for the South African data. Then a Vector Error Correction Model (VECM) was developed using the Johansen methodology (refer back to equation 5.7 Chapter Five Section 5.4.1.2).

One important feature of the South African data is that it showed that it was non-stationary but upon taking first differences it became stationary. The *LogM* (log of manufacturing) and *LogE* (log of electricity) possessed critical values which were lower than the t-statistic values. This suggested that each of the variables possessed unit root.

The ADF test results reveal that the variables under consideration were I(1) and upon first differencing, they were rendered stationary (see *Table 6: 7* below for ADF results). The ADF critical value (-2.6) is greater than -3.99 which lies outside the acceptable region at 1% degree of freedom for the level of *LM*. Similar conclusions can be drawn for *LE* and *LM*. However, upon first differencing, the new ADF test statistic is -20.04 which is greater than -3.99 thus, it implied that the differenced *LM* is stationary. Similar results were demonstrated for LE_t and LP.

Table 6: 7- Augmented Dickey-Fuller Unit Roots Test on D(LM) and LE, respectively

Null Hypothesis D(LM), D(LE) & D(LP) have unit roots. Exogenous: Constant, Linear Trend. Lag Length: 1 (Automatic based on SIC, MAXLAG= 15)				
Variable	ADF test (One level)	Critical stat	ADF test (1st Difference)	Critical stat.
LM	-2.609 (ADF)	-3.994	- 20.042 (ADF(1))	-3.994
LE	-2.266 (ADF)	-3.994	- 6.105 (ADF(1))	-3.995
LP	-2.499 (ADF)	-3.994	-15.79 (ADF(1))	-3.994

Source: *Researcher's own calculations based on South African time series data (2010).*

The study tested for conintegration between *LM* and *LE* to verify that long-run cointegrating relationship exists. The tests were based on the Trace and maximum Eigenvalue tests and the results are displayed in *Table 6: 8* below. Note that LP was not included in the long-run cointegrating relationship, it was used to create an interaction term that appeared in the short-run VECM relationship.

Table 6: 8- Cointegrating Test between LM and LE

Sample (adjusted): 1988M05 2009M12; Included observations: 250 after adjustments

Trend assumption: Linear deterministic Series: LM LE Exogenous series: DUME DUMP DUM1

Unrestricted Cointegration Rank Test (Trace)

	Trace Test			Maximum Eigenvalue Test		
	No of hypothesized cointegrating eqns	Trace Statistic	5% Critical Value	No. of hypothesized cointegrating eqns	Maxi-Eigen Statistic	5% Critical Value
LM	Ho: r = 0 , H_1: r ≥1	17.075*	15.495*	Ho: r = 0 , H_1: r =1	0.061*	15.495*
LE	Ho: r ≤1 , H_1: r ≥2	0.632	3.842	Ho: r ≤ 1 , H_1: r =2	0.02	3.842

Trace test indicates 1 conitegrating eqn at the 0.5 level .

*denotes rejection of hypothesis at 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

	Eigenvalue			Maximum Eigenvalue Test		
	No of hypothesized cointegrating eqns	Max-Eigen Statistic	5% Critical Value	No of hypothesized cointegrating eqns	Max-Eigen Statistic	5% Critical Value
LM	Ho: r = 0 , H_1: r ≥1	16.443*	14.265	Ho: r = 0 , H_1: r =1	0.061*	14.265
LE	Ho: r ≤1 , H_1: r ≥2	0.632	3.842	Ho: r ≤ 1 , H_1: r =2	0.02	3.842

Max-eigenvalue test indicates 1 cointegrating eqn at the 0.05 level.

*denotes rejection of hypothesis at the 0.05 level

Note: Swartz Baysian criterion suggested lag length of 3 hence VECM is of one lag order lower and thus a second order VECM was estimated.

Source: *Researcher's own calculations based on the South African time series.*

In regard to the long-run relationship, technically speaking, if two time series x_1 (for example, electricity) and x_2 (for example, the manufacturing index or some other manufacturing proxy) are co-integrated, this implies that a linear combination of $ax_1 + bx_2$ is stationary. See to section 5.4.1.1, for detailed definition of DUME, DUM1 and LP (Log

purchases of stocks by foreigners). This illustrates how the credit crunch effects were isolated from power effects in this study.

6.3.2.1 Discussion of South African Time Series

In the above results, it showed that there exists bidirectional relationship causality between manufacturing output and electricity output in the long-run equilibrium and not in the short-run. The results also reveal that the DUME (which is the dummy for electricity blackout) causes a 6% reduction in manufacturing per month (see *Table 5: 9* below). The results showed that the deterministic terms (the DUME, DUM1 and the DP) affect the short-run adjustments but not the long-run cointegrating relationships. In the calculations, the DP which is the interaction dummy (created by multiplying the purchases of shares by foreigners and the DUM1) was included because some of the blackouts ran concurrently with the credit crunch period. The study, therefore, needed a credit crunch indicator in order to separate its effects from the blackout effects, hence the creation of DUM1. DUM1 took the value of 1, over the period 2007M10-2009M8, which was generally regarded as the maximum impact phase of the credit crunch (see Mizen, 2008), outside this period the value of zero was assumed, which is otherwise zero (also refer back to section 5.4.1.1 of Chapter Five- p. 133-, for detail on DUME, DUM1 and DP).

The results also established that there was no short-run causality in either direction between the manufacturing and electricity outputs. In equation 1 (see equation 5.4 in Chapter Five for details) of *Table 6: 9,* the coefficients of ΔE_{t-1} and ΔE_{t-2} are statistically insignificant, thus, there is no short-run causality from ΔE_{t-1} to ΔM_t. In equation 2 (also see equation 5.5 in Chapter Five for details) of *Table 6: 9* one notices that the coefficients on ΔM_{t-1} and ΔM_{t-2} are statistically insignificant, suggesting that there is no causality running from ΔM_{t-1} to ΔE_t.

However, the results clearly showed that there is long-run bidirectional causality between M_t and E_t. Since both the short-run and the long-run relationships are statistically significant, when manufacturing output oversteps its long-run equilibrium, relationships with electricity in the previous period as captured by the VECM, then in the current period

there is a downward adjustment of 8% per quarter to restore equilibrium. Furthermore, electricity also adjusted to the mentioned disequilibrium by raising its output of 8% per quarter. The rate at which the system returns to equilibrium is measured by the coefficient θ (Refer to *Table 5: 9* below for an example). The θ is 0.08 for both *M* and *E*, hence there is an 8 % quarterly adjustment in these variables to restore equilibrium. It takes 3 years for equilibrium to be restored. The coefficient on DUME is 0.06, that is, there was a 6% drop in the manufacturing output during the electricity blackout period. The DUME coefficient 0.02 for the electricity equation suggests that in the dummy of power outage period, electricity output fell by 2% per quarter. Note, the coefficient on DUM1 (credit crunch) has a correct sign for both equations, their respective magnitude are implausibly high.

The results point out the Eskom needs to ensure an enhanced electricity generation to avoid the losses in manufacturing sector (which this study established to be 6% per month). As already discussed, the manufacturing sector contributes immensely to the economy. This means the percentage loss in the country's economy from the manufacturing sector is 6% per month. Therefore, it is proper to note that electricity shortage had a negative impact on the businesses that relied on it. Eskom, like KPLC, needs to review their benchmarking strategies in order that the economy does not suffer due to recurrent power outages. The study used the purchases of shares by foreigners in order to capture the effects of the changes in the sentiments. The interactions of the DUM 1 and the changes in the sentiments during the credit crunch resulted in plausible coefficients as those shown in *Table 6: 9* below.

6.3.3 Summary on the Time Series Analysis

From the above analysis and discussion, it is evident that both the Kenyan and South African manufacturing sectors which rely on electricity were affected by the power outages. Therefore, it is necessary that KPLC and Eskom revise their benchmarking strategy so as to enhance the production in this sectors that are of high impact to the economies of their countries. In order to assess the impact of electricity shocks (power

cuts) and its impact on manufacturing output, it is necessary to consider the impulse Response Functions (IRFs) which is analysed and discussed below.

Table 6: 9- VECM for Manufacturing and Electricity, as dependent variables

VECM Equation 1;Dependent variable is change in Manufacturing output (ΔM_t)			VECM Equation 2 Dependent variable is change in Electricity output (ΔE_t)		
Variable	Coefficient	t-statistic	Variable	Coefficient	t-statistic
ΔM_{t-1}	-0.52	-8.75***	ΔM_{t-1}	-0.06	-1.23
ΔE_{t-1}	-0.08	-1.04	ΔE_{t-1}	-0.27	-4.25***
ΔM_{t-2}	-0.38	-6.67***	ΔM_{t-2}	-0.09	-1.88*
ΔE_{t-2}	-0.08	-1.10	ΔE_{t-2}	0.18	2.89***
DUME	-0.06	-2.79**	DUME	-0.2	-1.15
DUM1	-2.91	-5.0***	DUM1	-0.94	-1.97*
DUMP	0.28	5.05***	DP	0.09	1.97*
ECM	$\theta_{11} = -0.08$	-2.32**	ECM	$\theta_{12} = 0.08$	2.85**
Long-run Cointegrating Relationship in form of an error correction mechanism: $ECM = (LM_t - 1.1\,LE_t - 6.1)_{t-1}$ (t statistic: 7.44 ***)					
$R^2 = 0.37$			$R^2 = 0.20$		

Notes: Swartz Bayesian criterion suggested lag length of 3, for the VAR model hence the above cointegration test is based on a second order VECM, as a result of one order being lost due to the taking of first differences.

**** ** and * represents 1%, 5% and 10% significance levels respectively.*

Source: *Researcher's own calculations based on South African time series data (2010).*

6.4 Impulse Response Functions (IRFs) and Variance Decompositions of Bivariate VAR

Impulse response function (IRF) tracks the impact of any variable on others in the system, in the current study it is the impact of electricity (power outages) on the manufacturing output that is being assessed. The impulse response functions can be used to produce the time path of the dependent variables in the VAR, to shocks from all the explanatory variables. If the system of equations is stable any shock should decline to zero, an unstable

system would produce an explosive time path. On the other hand Variance Decomposition sequence is an alternative of impulse response to receive a compact overview of the dynamic structures. This is a method that is also based on a vector moving average model and orthogonal error terms. However, unlike impulse response, the task of variance decomposition is to achieve information about the forecast ability (Jen-Shi and Jin-Chung, 2010: 74, Roland, 2008: 16). The current research employed a bivariate recursive VAR model for both the Kenyan and South African time series. The study begins the analysis and discussion with the Kenyan time series.

6.4.1 IRFs and Variance Decompositions (VD) of Bivariate VAR Model for Kenyan Data

The Impulse Response Functions (IRFs) were generated using monthly manufacturing and electricity output for the Kenyan time series for cement and galvanized sheeting only. This is because sugar, tea and soft drinks were found to rely much more on agricultural input than manufacturing input.

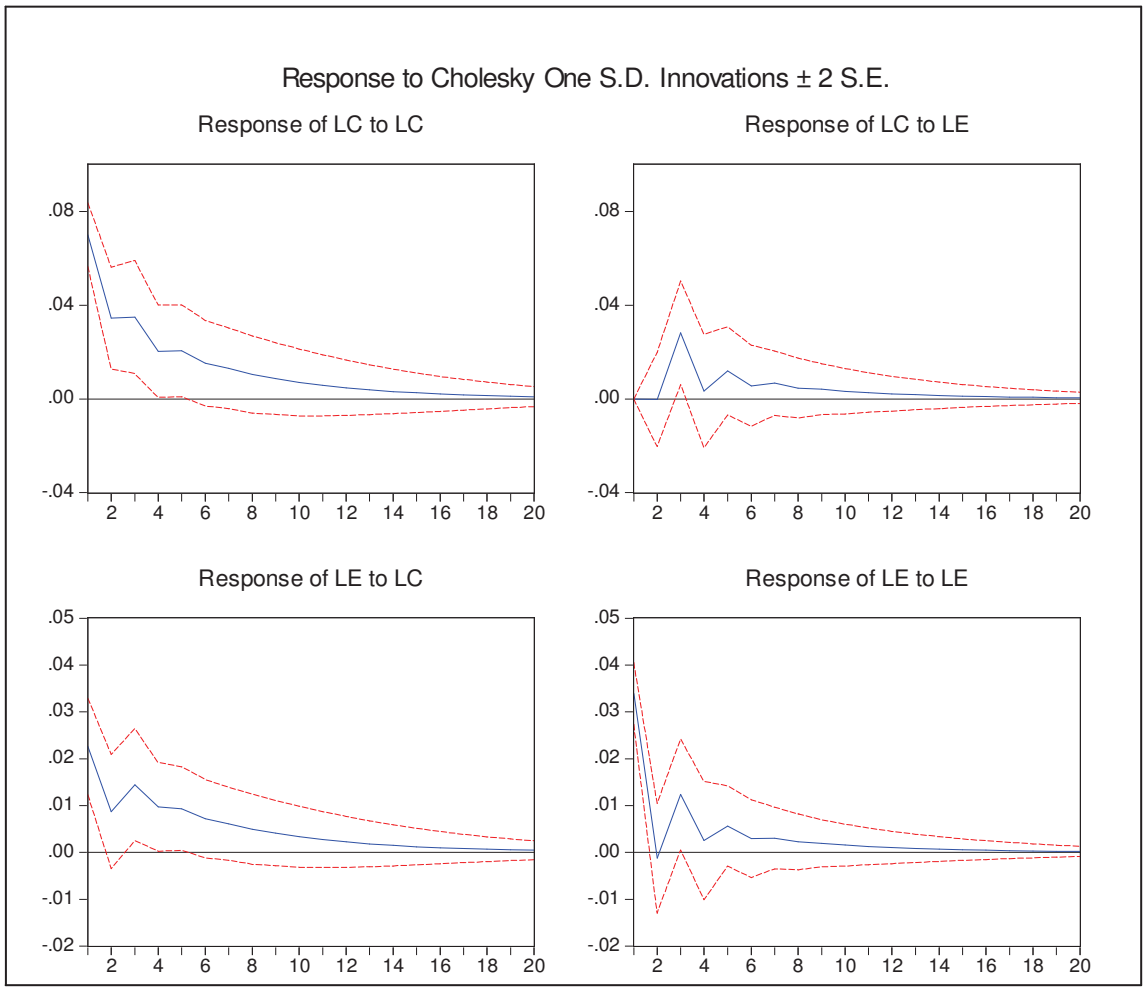
6.4.1.1 IRFs and VD Bivariate VAR Model for Cement and Electricity Data

The following IRFs and variance decomposition results were generated using monthly cement production and electricity output data. Since a number of Kenyan SMMEs provide input and services to the cement industry and many cement manufacturers can be classified as medium sized firms, cement output serves as a good proxy variable for a subsector of SMMEs. The bottom left graph (*of Figure 6: 1* below) shows that electricity's response to a positive one percentage shock to manufacturing is just over 2% but its adjustment is not persistent. It diminishes relatively fast and it is at insignificant levels within a year. This analysis is consistent with empirical observations that the Kenyan electricity suppliers have responded only weakly to electricity demand by manufacturing sector.

The graph of the top right corner depicts the response of the cement manufacturing sector to a positive one unit shock to electricity, one notes that it takes about two months for the

manufacturing sector to respond positively which diminishes rapidly. This observation accords with reality, where Kenyan manufacturing have learnt to adapt to conditions where electricity supply are irregular, hence the impact of positive (or negative) shocks are not as persistent as in the case of South Africa. The graphs on the main Diagonal reports the own responses of electricity and manufacturing output to their respective unanticipated one unit shocks. Notice that the adjustment back to equilibrium is quick, which suggests that for own shocks they do not have lasting impacts, unlike the case of South Africa.

Fig. 6: 1- Bivariate VAR: Cement - Electricity



Notes: Swartz Bayesian criterion suggested lag length of 3 for the unrestricted VAR model. LE and LC represents the natural log of electricity and cement production respectively.

Source: Researcher's own calculations based on South African time series data (2010)

The results of *Table 6: 10* below, panel A, suggest there is a relatively small degree of interaction between the variables, for example after 12 to 30 months 14% of the forecast

error in cement output is explained by the electricity shocks in the recursive VAR model. This suggests that the cement production is not crucially affected by electricity production shocks, thus implying cement manufacturers have adjusted to electricity fluctuations. This contradicting outcome is explained in section 6.3.1.1 (to the effect that the cement companies sought alternative sources of electricity for example from energy cashew-nut and rice husks).

The results of Panel B indicate that after 2.5 years, 43% of the forecast error in electricity production is explained by the manufactured output shocks in the VAR system. This suggests that the cement industry production has a huge impact on electricity production. Thus implying the cement industry has an abnormally large influence of electricity production in Kenya and further research is required to unravel this peculiar phenomenon. The results of *Table 6: 10* below, panel A, suggest there is a relatively small degree of interaction between the variables for example after 12 to 30 months 14% of the forecast error in cement output is explained by the electricity shocks in the recursive VAR model.

Table 6: 10- The Variance Decomposition for Cement and Electricity

A) Variance Decomposition of LC:			
Period	S.E.	LC	LE
1	0.068593	100	0
3	0.08435	90.45467	9.545335
12	0.096064	86.29582	13.70418
24	0.096572	86.14315	13.85685
30	0.096579	86.14115	13.85885
B) Variance Decomposition of LE:			
Period	S.E.	LC	LE
1	0.039688	29.29832	70.70168
3	0.044889	37.33655	62.66345
9	0.048813	42.82553	57.17447
12	0.049172	43.25327	56.74673
24	0.049364	43.4747	56.5253
30	0.049367	43.47762	56.52238
Cholesky Ordering: LGS, LE			

This suggests that the cement production is not crucially affected by electricity production shocks, thus implying cement manufacturers have adjusted to electricity fluctuations. The results of Panel B indicate that after 2.5 years, 43% of the forecast error in electricity

production is explained by the manufactured output shocks in the VAR system. It also suggests that the cement industry production has a huge impact on electricity production. In essence, this implies that the cement industry has an abnormally large influence of electricity production in Kenya and further research is required to unravel this peculiar phenomenon.

6.4.1.2 IRFs and VD of Bivariate VAR Model for Galvanized Sheet and Electricity

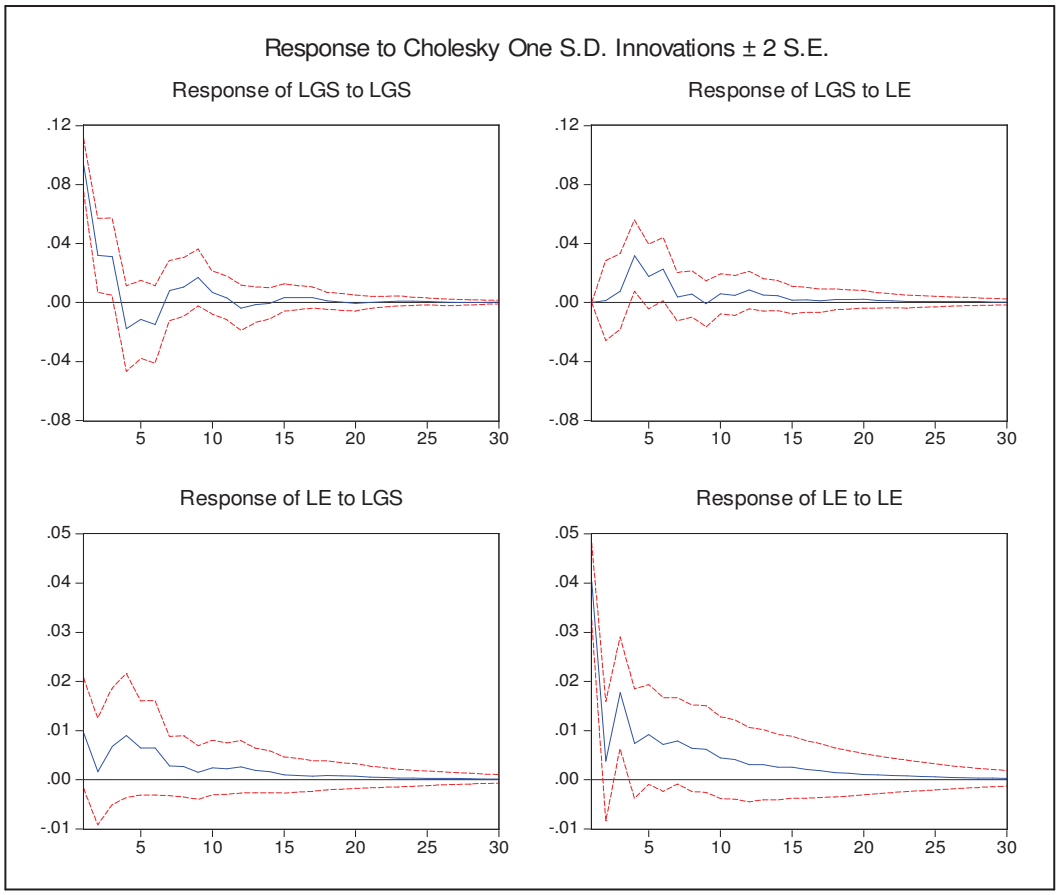
The following IRFs and variance decomposition results were generated using monthly cement production and electricity data. Since a number of Kenyan SMMEs provide input and services to the cement industry and many cement manufacturers can be classified as medium sized firms, cement output serves as a good proxy variable for a subsector of SMMEs. The bottom left graph of *Fig. 5: 2* (below) shows an immediate positive response of electricity production to a one unit shock to the galvanized steel production, followed by a rapid decline after a month and thereafter a rise until the first quarter and thereafter a quick decline to insignificant levels after 6 months.

Galvanized steel production rises about three months after the shock to electricity production and it remains at elevated levels for a very short while (about 2 months) before declining to insignificant levels. Here again electricity shocks have had minimal impact on steel production, perhaps due to firms becoming accustomed to electricity fluctuations and hence have learnt to become self sufficient in electricity provision via own generators.

With reference to *Table 6: 11* below, panel A suggest there is a relatively small degree of interaction between the variables for example after 12 to 30 months 15% of the forecast error in galvanized steel output is explained by the electricity shocks in the recursive VAR model. This suggests that the cement production is not crucially affected by electricity production shocks, thus implying cement manufacturers have adjusted to electricity fluctuations. The results of Panel B indicate that after 2.5 years, 13% of the forecast error in electricity production is explained by the manufactured output shocks in the VAR

system. This suggests that the galvanized industry production has a small impact on electricity production unlike the case of cement production.

Fig. 6: 2- IRF Bivariate VAR for Galvanized Sheeting and Electricity



Notes: Swartz Bayesian criterion suggested lag length of 3 for the unrestricted VAR model. LE and LGS represents the natural log of electricity and galvanized sheeting production respectively.

Source: Researcher's own calculations based on South African time series data (2010)

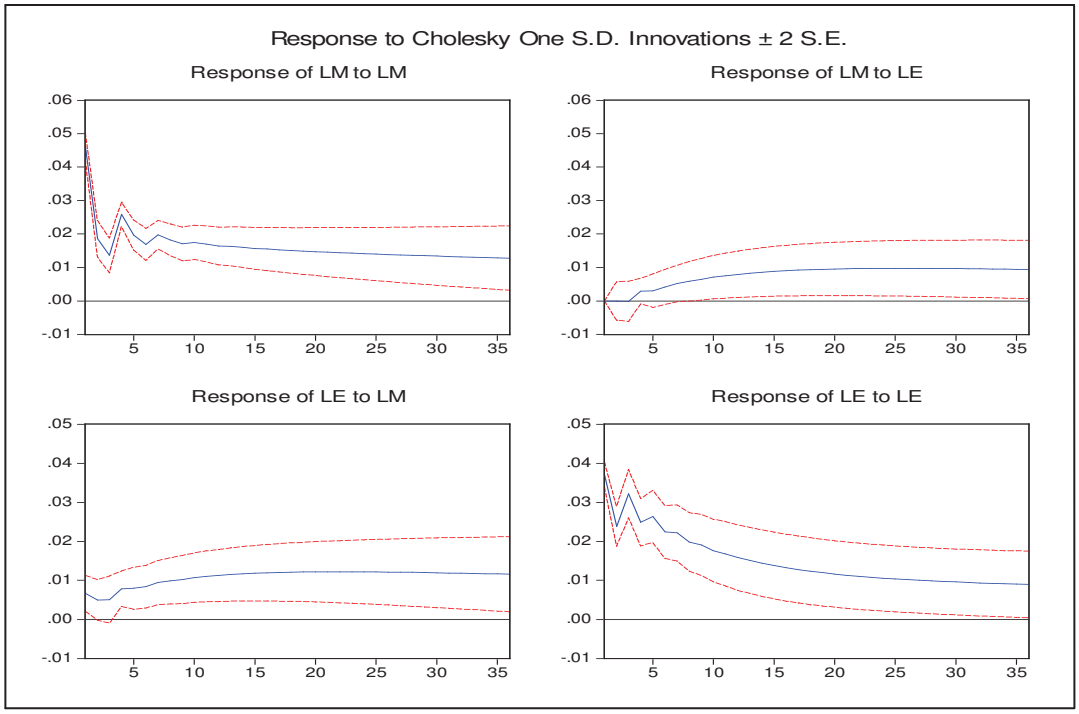
Table 6: 11- Variance Decomposition of Galvanized Steel and Electricity for Kenya

A) Variance Decomposition of LGS:			
Period	S.E.	LGS	LE
1	0.092939	100	0
3	0.103365	99.44409	0.555906
6	0.114844	85.59992	14.40008
12	0.117894	85.05238	14.94762
24	0.118371	84.65292	15.34708
30	0.118382	84.64179	15.35821
B) Variance Decomposition of LE:			
Period	S.E.	LGS	LE
1	0.041416	5.223352	94.77665
3	0.045731	6.623886	93.37611
6	0.049467	12.40445	87.59555
12	0.051685	12.69032	87.30968
24	0.052158	12.87597	87.12403
30	0.052171	12.88143	87.11857
Cholesky Ordering: LGS, LE			

6.4.2 Impulse Response Functions of Bivariate VAR Model for South African Data

Impulse responses trace out the response of current and future values of each of the variables to a one unit increase in the current value of one of the VAR errors (Stock and Watson, 2001: 6), (eg., an unanticipated rise or fall in electricity production or an unexpected increase or decrease in manufacturing output). Moreover it is assumed that this error returns to zero in succeeding future periods and that all other errors are equal to zero, in other words, the disturbance term of only one variable at a time is considered while all disturbances emanating from other variables are assumed to be zero. The idea of changing one error while holding the others constant is only viable when the disturbances are not correlated across equations, hence Impulse responses are typically calculated for recursive and structural VARs. This study employed a bivariate recursive VAR model with the Cholesky ordering of variables being log of manufacturing proxy followed by log of electricity, thus implying electricity production affects manufactured output with a lag, while electricity production is contemporaneously affected by manufactured output.

Fig. 6: 3- IRFs of Manufacturing and Electricity VAR Model for South Africa



Notes: Swartz Bayesian criterion suggested lag length of 3 for the unrestricted VAR model. LE and Lm represents the natural log of electricity and manufacturing output respectively.

Source: Researcher's own calculations based on South African time series data (2010)

The other VAR statistic that this studied applied involves the variance decomposition of the forecast errors. The forecast error decomposition is the percentage of the variance of the disturbance (errors) made in forecasting a variable (Roland, 2008: 23) (e.g., manufacturing output) due to a specific one unit shock (eg., the error term in the electricity equation) at a given horizon (30 months ie., 2.5 years is used in the this study). The following Impulse Response Functions (IRFs) were generated using monthly manufacturing and electricity data involving Manufacturing Output and Electricity.

The bottom left graph shows that electricity's response to a positive one unit shock to manufacturing is an immediate 0.5% response in electricity output then gradually rises to about 1% over time. This implies that electricity supply over the historical period has been responding to the demands by manufacturers. The graph of the top right corner depicts the response of the manufacturing sector to a positive one unit shock to electricity, one notes that it takes about three quarters for the manufacturing sector to respond positively which does not abate.

Table 6: 12- Variance Decomposition for the South African VAR Model: Manufacturing Output and Electricity Output

A) Variance Decomposition of LM:			
Period	S.E.	LM	LE
1	0.046189	100	0
3	0.051637	99.99951	0.000489
12	0.078737	94.99626	5.00374
24	0.099841	86.55906	13.44094
30	0.107987	83.66202	16.33798
B) Variance Decomposition of LE:			
Period	S.E.	LM	LE
1	0.037652	3.14642	96.85358
3	0.055469	3.088023	96.91198
12	0.088507	12.05413	87.94587
24	0.106967	23.40883	76.59117
30	0.11362	27.50662	72.49338
Cholesky Ordering: LGS, LE			

This observation accords with reality, where South Africa has experienced steady growth (including the manufacturing sector) in the post-Apartheid era with a concomitant increase in demand for electricity. This demand is still not fulfilled despite the soaring electricity prices in recent years. The response of output to a 1% shock to electricity is small and delayed, it is only after about three months that manufacturing output begins to respond and it rises to less than one percent over time.

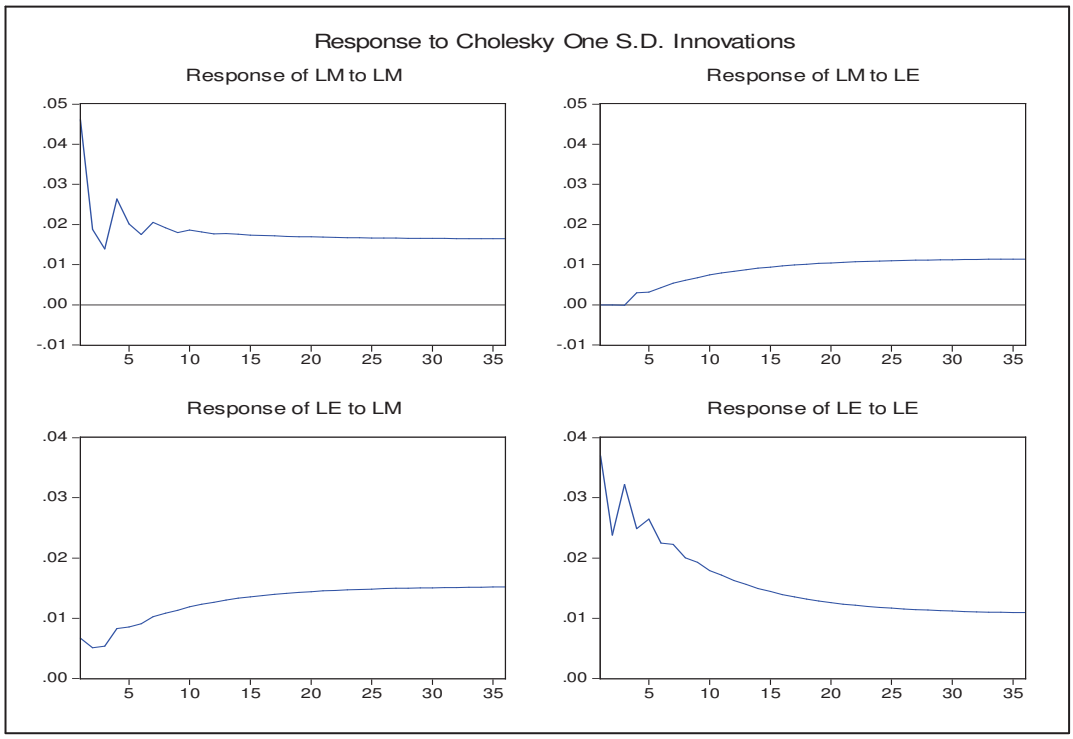
The graphs on the main Diagonal reports the own responses of electricity and manufacturing output to their respective unanticipated one unit shocks. Notice that the adjustment back to equilibrium is slow, which suggests that for sustained periods of time the variables stays away from equilibrium. The results of *Table 5: 12*, panel A, suggest there is a reasonable degree of interaction between the variables for example after 12 months 5% of the forecast error in manufacturing output is explained by the electricity shocks in the recursive VAR model, and at a 30 month horizon 16% of the forecast error is explained. Thus at longer horizons electricity shocks have an incremental effect on output fluctuations. The results of Panel B indicate that after 2.5 years, 28% of the forecast error

in electricity production is explained by the manufactured output shocks in the VAR system.

6.4.2 Impulse Response Functions of Bivariate VECM Model Bivariate for S.A. Data

The following Impulse Response Functions (IRFs) were generated using quarterly South African manufacturing and electricity data using the Johansen VECM model. Notice the IRF graphs are almost identical to *Table 6: 12*, above, hence the very same explanations apply. This is consistent with the notion that if the variables are cointegrated then OLS (on which the above VAR models are based) and VECM models should yield similar results, and which is the case in this instance.

Fig. 6: 4- IRFs of Manufacturing and Electricity VECM Model for S.A. Data



Notes: Swartz Bayesian criterion suggested lag length of 3 for the unrestricted VAR model, hence the VECM is a second order model due to the differencing of the I(1) variables. The full VECM results are presented in Table 5:23
**+(-)2 standard deviation is not generated by EViews for VECMs*

Source: Researcher's own calculations based on South African time series data (2010)

6.5 Impact of Adoption of Benchmarking on KPLC and Eskom

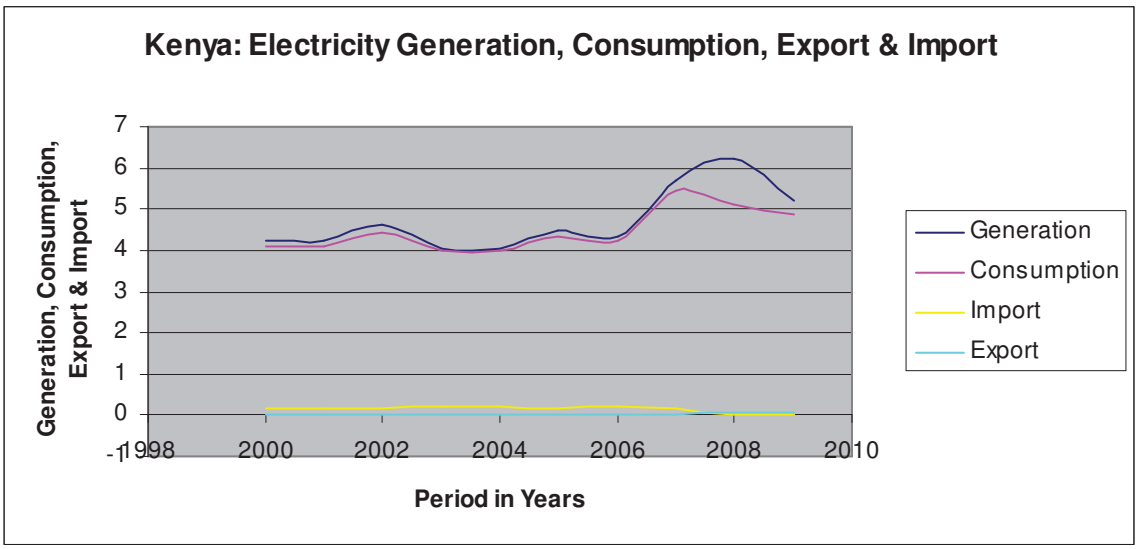
The data that was analyzed, discussed and presented in this section was collected from KPLC and Eskom Annual reports. Both sets of data were pooled between 2000 and 2009. The results of these two sets of data are expected to provide a feedback to the research objectives (Chapter One Section 1.7) and attempt to achieve the research questions (Chapter One Section 1.8) for this study. The two main objectives are:

i. To establish the impact of the adoption of benchmarking strategy by KPLC and Eskom on the companies themselves and on the SMMEs of the two countries,
ii. To gain a comparative understanding of the nature of the overall relationship between the output of the electricity sectors and that of the businesses which rely on electricity in Kenya and South Africa.

6.5.1 Impact as witnessed in Generation, Consumption, Export and Import Logistics

The impact of the adoption of the benchmarking strategy on KPLC and Eskom were gauged using the generation, consumption, export and import statistics of each sector as well as their levels of profitability. The results are summarized in Figures 6: 5 and 6: 6 below. Also refer to APPENDIX I for exact figures.

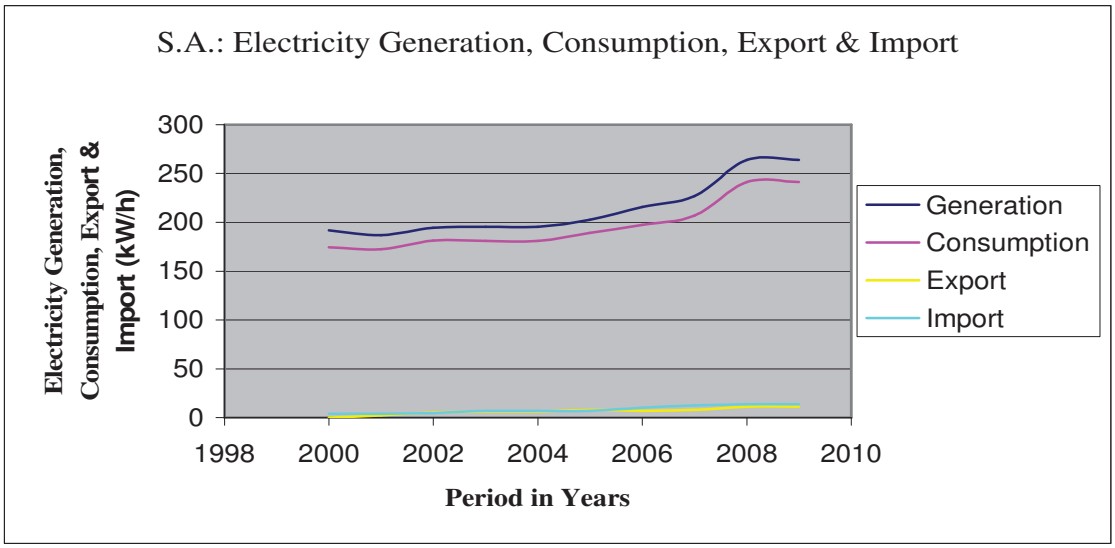
Fig. 6: 5- Kenya: Electricity Generation, Consumption, Export & Import (in bn kWh)



Source: *Researcher's own graph adapted from KPLC's Annual Report between 1998 and 2010.*

Whereas Kenya has generally recorded a relatively slow growth, stagnation and sometimes decline in the electricity generation, South Africa has recorded continuous improvement and in a few occasions maintaining certain high levels of electricity generation. Kenya's attempt to export electricity started in the year 2008 with as low capacity as 0.0583 billion kWh as opposed to South Africa, which was already exporting electricity by the year 2000. In that year, Eskom exported 4.093kWh of electricity. As at end of the year 2009 Eskom's electricity export was at 13.770 billion kWh. On the other hand, KPLC lagged behind in all these four aspects. Kenya started to export electricity in 2008 with as low capacity as 0.0583kWh and the same figure was export in 2009.

Fig. 6: 6- S.A.: Electricity Generation, Consumption, Export & Import (in bn kWh)

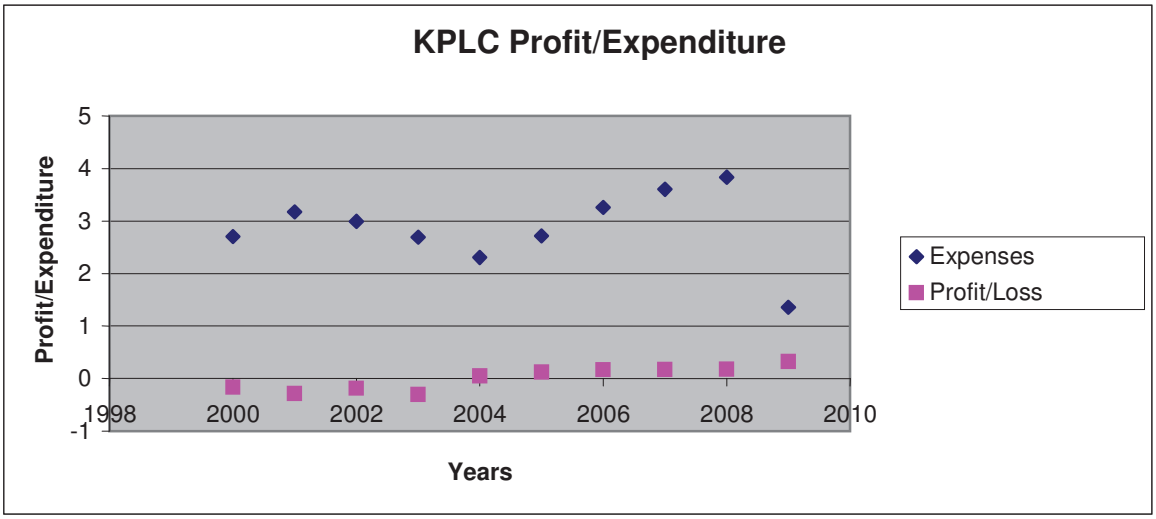


Source: *Researcher's own graph adapted from Eskom's Annual Report for period between 1998 and 2010*

It would be a good idea to compare these figures in relation to the current level of electrification in both countries. Whereas South Africa has been hailed for achieving high levels of national electrification (which was place at 73% as at 2011, Southern African Customs Union, SACU, South Africa, 2011: 349), Kenya was battling with very low levels. It was reported that Kenya has always staggered with electrification rates that are below those of the sub-Saharan Africa. For example, in 2000, these rates were 42% for Kenya and 51% for sub-Saharan Africa (Abdullaha and Markandya, 2010). This is a pointer to the fact that Kenya needs to largely review the benchmarking strategy it had adopted in order to enhance its national electrification levels.

As much as Eskom, like KPLC, is faced with recurrent power outages and a demand for electricity that has not been satisfied, the company has faired on relatively well. Eberhard, Foster, Briceño-Garmendia, Ouedraogo, Camos and Shkaratan (2008) and the Energy Ministers' 2009 Meeting (2009) proceedings reveal that the capacity of electricity generated by the whole of Africa is less than what is generated by Spain alone. They further reveal that South Africa alone produces about 40 gigawatts (GW), while the rest of Africa produces 28 GW.

Fig. 6: 7- KPLC's Profit and Expenditure (in Rbn) between 2000 and 2009



Source*: Researcher's own graph adapted from KPLC's Annual Report between 1998 and 2010.*

Despite the progress that Eskom has made, the company needs to revisit its objectives in order that it establishes what would be its best benchmark strategy. That would help it to reduce the outages and satisfy the ever increasing demand for the commodity. Malgas and Eberhard (2011: 3191) blame the magnitude of electricity supply on the hybrid reforms adopted by developing countries.

Thus comparing the electricity output and the national connectivity rate, coupled with the recurrent power outages, the study can conclude that the benchmarking strategy adopted by both KPLC and Eskom need to be revisited, although in different magnitudes. In the past South Africa had been one of the world countries leading in electricity reserve margins. This was depleting at a faster rate. Department of Minerals and Energy (2008: 4) of South Africa notes that this reserve has diminished from 25% in 2003 to a level between

8% and 10% in 2008. This also points to the fact that the nature of benchmarking strategy had been adopted by Eskom within this period needed to be restructured to reverse the alarming trends in the South African electricity reserve margin.

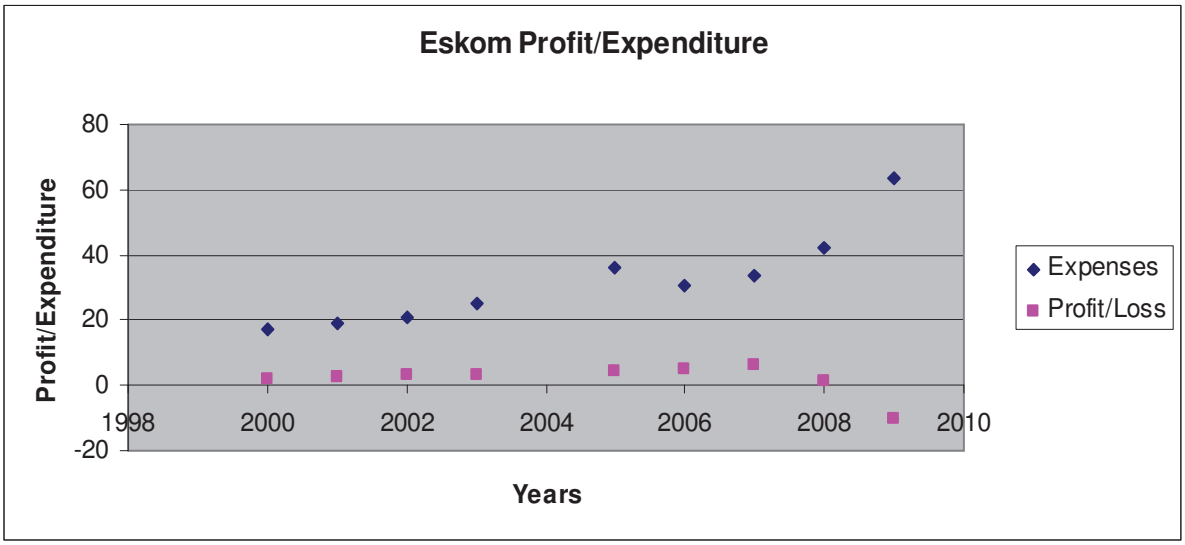
Consumption of electricity is expected to boost more electricity production and if this is not done, the result is minimal generation and therefore, minimal consumption and low profits. As pointed out by earlier researchers there exists causality between electricity consumption and the economy (see Chapter Four Section 4.1.3), it can be added here that minimal generation will to result in minimal consumption and therefore minimal growth of the economy. For example, whereas in Kenya, KPLC experienced a significant drop in electricity generation between 2008 and 2009 causing the consumption levels to drop as well, South Africa experienced a minute drop both in generation and consumption as well as a minute drop in the profit gained. In Section 6.2 of this chapter effort was made to establish if consumption of electricity (represented by the electricity output) affects manufacturing output and similarly if manufacturing output affects electricity consumption, both in the short-run and in the long-run.

Profits and expenditure for the two sectors were also been put into consideration when assessing this impact. Both companies were noted to have registered losses in certain years. For example, between the years 2000 and 2003, KPLC recorded losses (that is negative profit) in its operation and minimal profits for the year 2004 to 2008. It was only in 2009, that there was some marked improvement. On the other hand, Eskom recorded negative profit for the first time in 2009 which shows that it had operated efficiently, if profits should be used as a measure of efficiency. There could be other reasons for failure to record profits. Debt collection is one of these factors (refer back to Chapter Three Section 3.7.9) for this discussion, where both KPLC and Eskom encountered losses through failure to collect debts. Other factors include lack of adequate funds to invest in the sectors, among other reason that were discussed in Chapter Three Section 3.7.3.

Nevertheless, it is worth pointing out here that profit generation should not the driving force behind the operations of KPLC and Eskom, but should be used as a means to an end since they are public utilities. United Nations Economic Commission for Africa (UNECA) and United Nations Environment Programme (UNEP) Joint Report (2007: 99) notes that the reforms adopted by the electricity sectors by African countries may have aimed at

earning of profit as the main achievement instead solving the many power sector problems such as the shortfall in the generation capacity. Therefore, using profit levels as a measure of efficiency should be done cautiously if indeed profit is a means to an end for non-profit making organization such as the electricity sectors which are supposed to be public utilities.

Fig. 6: 8- Eskom's Profit and Expenditure (in Rbn) between 2000 and 2009



Source*: Researcher's own graph adapted from Eskom's Annual Report between 1998 and 2010.*

Demand satisfaction needs to be attained and may in the long-run serve as a measure of efficiency in the electricity sectors. Both KPLC and Eskom are yet to satisfy the electricity demand of their countries although Eskom's gain in this area is quite commendable. (The comparison clearly shows that South Africa's logistics in all the four aspects; generation consumption, export and import, is far above the one for Kenya. Note that, KPLC's figures (in Kenya Shillings) have been converted to ZARands (at a standard rate of I Rand=Ksh 10) to ease the comparison.

In conclusion, study wishes to give credit where it is due. The benchmarking strategy adopted by the two sectors had made some commendable contributions since their generation, consumption, the export and import of electricity had to some extent improved. The sectors like any other going concern battled with the global credit crunch which may have triggered other negative factors such as decline in supply of credit (Mizen, 2008: 531) to affect the well-being of the sectors. It should be noted that the population in both

countries is increasing and thus the logistics of providing electricity to a large and constantly increasing customer base is not an easy task. The study moves to assess the impact of adopting benchmarking on SMMEs.

6.6 Perceived Impact: Results of Questionnaire Survey

The data analyzed and discussed here was collected though structured questionnaires which contained 65 variables (see Appendices VII and VIII for Kenyan and South African SMMEs, respectively). The study began with the demographic data of the respondents.

6.6.1 Demographic Data

The researcher targeted to interview 200 SMMEs in each country. The results were as follows; 142 (71% response) and 124 (62% response) questionnaires were returned in Kenya and South Africa, respectively giving a total response of 266 (66.5%). The results indicate that more men, 87 (61.3%) than women, 55(38.7%) in Kenya participated in the survey, while 76 (61.3%) men and 48 (38.7%) women participated in South Africa as seen in *Table 6.13* below. In this study the results indicated that more men than women engaged in SMMEs. Some researchers support this view that more men than women are involved in businesses because of the many factors that affect women entrepreneurs. Hossain, Naser, Islam and Zaman (2009: 11) note that in Bangladesh 15.9% of women as compared to 50% of men engage in entrepreneurship.

Table 6:13- Gender of respondent Cross-Tabulation

		Male	Female		Owner	Manager	Employee
Data	Kenya	87(61.3%)	55(38.7%)	142(53.4%)	71(50%)	64(45.1%)	7(4.9%)
	S.A.	76(61.3%)	48(38.7%)	124(46.6%)	41(33.1%)	77(62.1%)	6(4.8%)
Total		163(61.3%)	103(38.7%)	266(100%)	112(42.1%)	141(53%)	13(10.4%)

Source*: Researcher's own calculations based on survey data (2010).*

Businessknow-How (2011) online publication and Kibas (2005) note that women-owned businesses are on the increase. Businessknow-How (2011) further reveals that the rate of failure of women-owned businesses is much higher than that of men, that more than 50% of start-up businesses are owned by women yet in existence there are less than 28% women owned small businesses.

Table 6:14- Frequencies of Age of Respondents

		Data	Frequency	Percent	Cumulative Percent
Kenya	Valid	Between 26-30yrs	26	18.3	18.3
		Between 31-35yrs	55	38.7	57.04
		Between 36-40yrs	32	22.5	79.58
		Between 41-45yrs	25	17.6	97.18
		Between 46-50yrs	4	2.8	100
	Total		142	100.0	
SA	Valid	Less than 20yrs	2	1.6	1.6
		Between 21-25yrs	15	12.1	13.7
		Between 26-30yrs	23	18.5	32.3
		Between 31-35yrs	20	16.1	48.32
		Between 36-40yrs	27	21.7	70.16
		Between 41-45yrs	16	12.9	83.07
		Between 46-50yrs	5	3.2	86.10
		Above 50yrs	16	12.9	100
	Total		124	100.0	

Source: *Researcher's own calculations based on survey data (2010).*

Factors responsible for the failure as cited by the publication include the dual responsibility that women shoulder. They are homemakers and, therefore, running of the business becomes difficult for them. Whereas in South Africa a good number (12.9% of 124) of the SMMEs are owned and ran by respondents above 50 years of age, no responses in this age bracket were captured among the Kenyan SMMEs. Similarly, Kenya had no respondents in age brackets of 25 years and below. Although these results are not 100% conclusive, it seems that in South Africa, almost all age brackets are involved in small business enterprises.

The frequencies of the age of the respondents indicate that most people engaged in SMMEs businesses are of 45 years and below although in South Africa, it seems that

SMMEs are almost evenly spread out within the age brackets. The age brackets with highest frequency of respondents in Kenya is between 31 and 35 years (55 respondents which gives 38.7%), followed by that of between 36 and 40 years (32 respondents which gives 22.5%) of the total Kenyan response of 142 SMMEs. The age brackets with highest frequency of respondents in South Africa is that of between 36 and 40 years (27 respondents which gives 21.7%), followed by that of between 26 and 30 years (23 respondents which gives 18.5%) of the total South African response of 124 SMMEs.

6.6.2 Business Characteristics

The majority of SMMEs businesses interviewed were present in both countries (see *Table 6: 15* below and Appendix III for a comprehensive list of those SMMEs interviewed in Kenya and in South Africa). The focus was on businesses reliant on electricity for their daily operation. Most SMMEs interviewed were similar in nature with service businesses forming a majority (see Appendix III) and this was made worse by the fact that similar businesses are located adjacent to each other as was observed by the researcher. Food related businesses have the highest frequency in both countries (16.7 and 20.2 for Kenya and South Africa respectively). For these ventures to survive competition, they need to be diversified. Pharmaceutical businesses (11.3%) and electrical sale and repair (16.9%) followed in second position for Kenya and South Africa, respectively.

It is generally believed that the service industry is one of the leading businesses category and also greatly contributing to a country's economy. The Organization for Economic Co-operation and Development (OECD) Report (2000: 3) notes that in their member states, service industry was overtaking the manufacturing industry in terms of their contribution to GDP of those countries. The report further notes that whereas manufacturing had dropped in its GDP contribution by 20%, service sector had increased by 70%. This could be the same situation that Kenya and South Africa are facing. And if this is true, then it makes the call for support for SMMEs that are reliant on electricity by KPLC and Eskom even stronger. Service industry was generally contributing a lot to world economy as it supplements in many other industries.

Most SMMEs in both Kenya and South Africa recorded a small number of employees. As indicated in *Table 6:15* below, majority of them had less than 20 employees. In Kenya 115 out of 142 (81%) SMMEs had less than 20 employees, while in South Africa, 100 out of 124 (80%) SMMEs had less than 20 employees. Comments accompanying this variable include the fact that the businesses were forced to retrench employees due to the high cost of doing business, hence save some costs.

Table 6: 15 Frequencies of Number of employees

Data			Frequency	Percent	Valid Percent	Cumulative Percent
SA		Less than 10	43	30.3	30.3	30.3
		Between 11-20	72	50.7	50.7	81.0
		Between 21-30	8	5.6	5.6	86.6
		Between 31-40	16	11.3	11.3	97.9
		Between 41-50	3	2.1	2.1	100.0
		Total	142	100	100	
Kenya	Valid	Less than 10	59	47.6	48.0	48.0
		Between 11-20	41	33.1	33.3	81.3
		Between 21-30	13	10.5	10.6	91.9
		Between 31-40	8	6.5	6.5	98.4
		Between 41-50	1	.8	.8	99.2
		Between 51-100	1	.8	.8	100.0
		Total	123	99.2	100.0	
		Missing	1	.8		
		Total	124	100.0		

Source: *Researcher's own calculations based on survey data (2010).*

The respondents to the questionnaires were either the owner of the business, a manager or an employee. The results indicated that in Kenya the participation of owner, manager and employee was as follows; 71 (50%), 64 (45.1% and 7 (4.8%) for owner, manager and employee, respectively. In South Africa, it was 41 (33.1%), 77 (62.1%) and 6 (4.8%) for owner, manager and employee, respectively. That means that majority of the responses were from the owners and managers of the businesses and overall, most responses came from the managers giving a total of 143 as opposed to owners who total 111 out of 266 respondents from both countries. However, there was a slight variation between the two

countries. Whereas in Kenya it was the owners of the businesses who formed a majority of respondents, in South Africa, it was the managers.

To help gauge the general overview of growth in SMMEs, the respondents were asked to indicate the year of registration and the year business began to rely on electricity. Out of the 142 SMMEs interviewed in Kenyan, 65 (45.8 %) were registered before 2000 and 105 (73.9%) started to rely on electricity before 2000. This implies that a good number of the businesses started operation before being registered as SMMEs. It also indicated that there are fewer SMMEs coming up. In South Africa, out of a total of 124 interviewed, 62 (50%) were registered before 2000 and 79 (63.9%) started to rely on electricity before 2000. interviewed had their businesses registered before the year 2000 followed by those registered between the years 2000 and 2003 (refer to *Table* 6: 16 and *Table* 6: 17 below).

Table 6: 16- Year business was registered as an SMME

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 2000	53	47.3	47.3	47.3
	Between 2000-2003	46	41.1	41.1	88.4
	Between 2004-2006	8	7.1	7.1	95.5
	Between2007-2009	5	4.5	4.5	100.0
	Total	112	100.0	100.0	

Source: *Researcher's own calculations based on survey data (2010).*

Most businesses interviewed were started before 2000 with the second majority having been registered in the period between 2000 and 2003. Similarly, most of the SMMEs interviewed had their businesses registered before the year 2000 followed by those registered between the years 2000 and 2003 (refer to *Table 6: 16* and *Table 6: 17*).

It also turned out that most of them began to rely on electricity around the period they were started, that is, before the year 2000. The researcher was interested in businesses that have been in existence between 2000 and 2009. The results showed that fewer businesses were registered after 2003, that is, if the year of registration and year of start to rely on electricity are indicators of the start of a business. The rate of implementation of small businesses should be enhanced if their contribution to the economy has to be more

effective. Similarly, their growth and survival must be guaranteed for this contribution to be immense.

Table 6: 17- Year business started to rely on electricity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 2000	2	1.8	1.8	1.8
	Between 2000-2003	1	.9	.9	.9
	Between 2004-2006	28	25.0	25.0	25.9
	Between 2007-2009	81	72.3	72.3	98.2
	Total	112	100.0	100.0	

Source: *Researcher's own calculations based on survey data (2010).*

If this situation represents the reality, then urgent intervention is required to step up the establishment, growth and survival of SMMEs to avoid losing on their contribution. The review in Chapter Two confirmed that the SMMEs contributed immensely to the global economic well-being. The review also showed that the rate of failure of SMMEs is high. Bruwer (2010: 1) puts this rate at between 70% and 80% within the first three months of operation. It is hoped that recommendations such as those suggested in Chapter Six Section 6.6 of this study would help salvage and reverse this kind of outcome.

6.6.3 SMMEs' Opinion on the Growth of their Business

The researcher was interested in gauging the rate of growth of SMMEs, despite the recurrent power failures. Growth of SMMEs is often associated with the overall firm success and survival. Six indicators were used. These were increase; in number of employees, number of customers, number of hours worked, the amount of electricity used, amount of work done and amount of working space. In both countries, the responses did not have extremes of the continuum although from South Africa there were four respondents who indicated very low growth in terms of space used. Generally, the responses showed a situation of mixed reaction.

In Kenya, 102 (71.8%) stated that the number of employees "*Greatly reduced*" and while a further 17 (12%) stated, the number "*Reduced*". Working space seemed to have remained

generally the same. 118 (83.1%) of the total Kenyan SMMEs respondents stated that the working space "*Remained the same*". Working space in the context of this study meant that the businesses had would need more space if they had expanded. This is a pointer to the fact in Kenya SMMEs growth is slow or relatively stagnated. What this implies on a wider perspective is that the chances of employment creation emanating from SMMEs in Kenya are either slow or stagnated. Since it was documented in the literature review in Chapter Two that SMMEs have potentially had a positive impact on the economy, a lot of effort has to be made to enhance the survival, growth and development of these business ventures.

In terms of growth in electricity usage 113 respondents, (79.6%) positively responded to this item. 77 (54.2%) noted that their business had experienced "*very high growth"* in the use of electricity, 30 (21.1%) had experienced "*high growth"* and a further 9 (6.3%) indicated that the use of electricity had "*remained the same"*. 29 (20.4%) did not respond to this item. However, in addition to this, 28 (19.7%) commented that it was not the increase in electricity usage, but the increase in expenditure on electricity.

As much as the responses from the South African SMMEs seemed relatively evenly spread out, there were areas that needed emphasis. Generally, the number of employees remained the same with a response of 73 (58.9%), while customers seemed to have reduced (64 respondents, 51.6%). Both hours worked and spaced used by South African SMMEs had generally remained the same. For hours worked, 89 (71.8%) respondents, and 94 (75%) respondents, respectively out of a total of 124 SMMEs interviewed noted that the working space remained generally the same. Like the Kenyan SMMEs, 16 (12.9) of the South African SMMEs pointed out that it was the expenditure on electricity that had increased but the amount of electricity used had remained relatively the same. This point of view was reinforced with the information encountered in the consumer complaint section, which the electricity tariffs keep raising (see Chapter One Section 1.4.1). Most consumer complaints were about frequent increase of tariffs.

6.6.4 SMMEs' Profitability versus Expenditure on Electricity

The researcher sought to compare the SMMEs' level of profitability and the level of expenditure on electricity with the aim of establishing the impact of the adoption of the benchmarking strategy by KPLC and Eskom on the SMMEs that rely on electricity. Interval measures of profitability and expenditure on electricity were collected from SMMEs. These were then transformed into single values by selecting the mid-points of every response, in order to make the comparison easy to manage. Yearly average mean profits and yearly average mean expenditure on electricity were used to gauge this impact. For ease of comparison, the Kenyan shilling was converted into South African (ZA) Rands (R) at an estimated average of R 1 = Ksh. 10 (See *Table 6: 18* and *Table 6:19* below).

Table 5: 18– Frequencies of Yearly Average Profit Means for SMMEs in Categories (Kenya)

Kenya	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Below R 0.05m	30 (21.1%)	30 (21.1%)	22 (15.5%)	13 (9.2%)	2 (1.4%)	0	0	0	0	1
Between R05m-0.1m	4 (2.8%)	4 (2.8%)	2 (1.4%)	2 (1.4%)	5 (3.5%)	3 (2.1%)	3 (2.1%)	0	0	5 (3.5%)
Between R.1m-0.15m	35(24.6%)	35(24.6%)	30 (21.1%)	39 (27.5%)	48 (33.8%)	38 (26.8%)	29 (20.4%)	32 (22.5%)	21 (14.8%)	15 (10.6%)
Between R.15m-0.2m	44(31 %)	44(31%)	47 (33.1%)	47 (33.1%)	38 (26.8%)	41 (28.9%)	45 (31.7%)	34 (23.9%)	41 (28.9%)	24 (19.4%)
Between R.0.2m-0.25m	9 (6.3%)	9 (6.3%)	15 (10.6%)	15 (10.6%)	26 (18.3%)	32 (22.5%)	34 (23.9%)	42 (29.6%)	44 (31%)	33 (23.2%)
Above R 0.25m	0	0	0	0	2 (1.4%)	3 (2.1%)	5 (3.5%)	8 (5.6%)	16 (11.3%)	38 (26.8%)
Missing	17(12%)	17(12%)	17(12%)	17(12%)	17(12%)	17(12%)	17(12%)	17(12%)	17(12%)	17(12%)
Cant disclose	9(8.5%)	9(8.5%)	9(8.5%)	9(8.5%)	9(8.5%)	9(8.5%)	9(8.5%)	9(8.5%)	9(8.5%)	9(8.5%)
Total	142	142	142	142	142	142	142	142	142	142
Mean	0.132	0.132	0.145	0.154	0.165	0.180	0.184	0.187	0.196	0.198

Source: *Researcher's own calculations based on survey data (2010).*

The responses from the Kenyan SMMEs showed that between the years 2005 and 2008 all of them recorded profits of above R. 0.05m. Recorded profits were unlike the previous years when none of them had recorded profits above this figure. Similarly, in the period between 2000 and 2003, none of them had recorded profit figures above R. 0.25m. The results also show that SMMEs in Kenya were worst hit in terms of profitability in 2007

and to a small extent in 2008. This was around the period when power outages and the electricity tariffs were on the increase. Nevertheless, it is not definite that it is the power outages alone that caused this turn of events although it may have contributed. It is worth noting that other factors which may have contributed are not included in this analysis, for example, the global credit crunch that was experienced around 2007 and 2008.

Out of the 142 Kenyan SMMEs, 125 (88%) respondents and South Africa's 112 out of 124 (90.3%) respondents supplied feedback on profitability. That means that the SMMEs are more willing to disclose about their expenditure than they are about disclosing their profits. The differences in the comparison could be partly explained by the effect of competition among SMMEs. The researcher observed that most businesses within a certain radius were similar in nature making them to be prone to competition. Other factors may include power outages that both countries have experienced in the last two years or so.

Table 6: 19– Frequencies of Yearly Average Profit Means for SMMEs in Categories (S. A.)

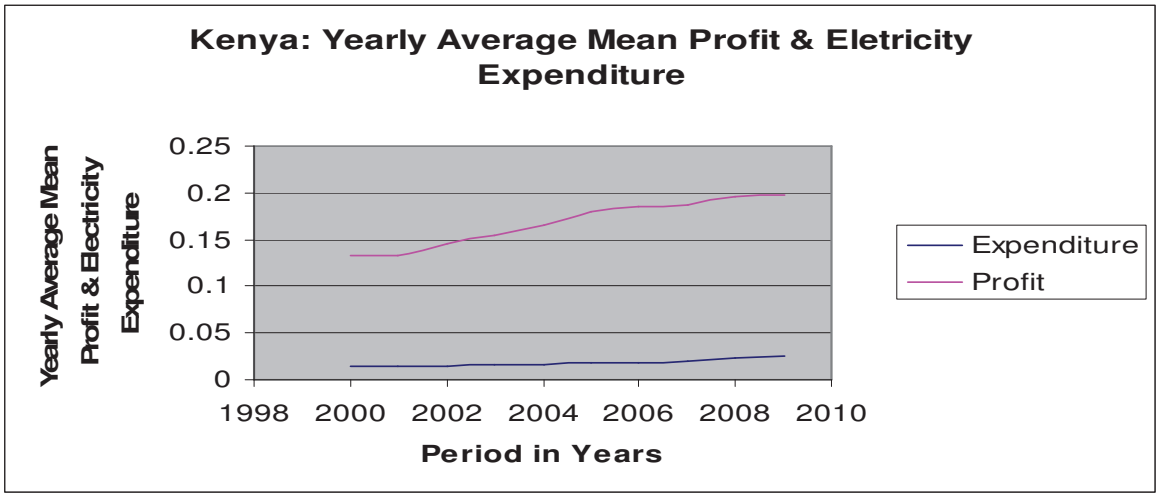
S.A.	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Below R. 0.05m	35 (28.2%)	36 (29%)	25 (20.2%)	6 (4.8%)	2 (1.6%	2 (1.6%)	2 (1.6%)	0	0	1 (0.8%)
Between R .05m-0.1m	2 (1.6%)	0	0	2 (1.7%)	2 (1.6%)	2 (1.6%)	2 (1.6%)	2 (1.6%)	3 (2.4%)	5 (4%)
Between R .1m-0.15m	15 (12.1%)	16 (12.9%)	20 (16.1%	22 (17.7%)	15 (12.1%)	14 (11.3%)	9 (7.3%)	9 (7.3%)	13 (10.5%)	11 (8.9%)
Between R .15m-0.2m	32 (25.8%	32 (25.8%)	34 (27.4 %)	40 (32.3 %)	43 (34.7%)	36 (29%)	34 (27.4%)	31 (25%)	24 (19.4%)	24 (19.4%)
BetweenR 0.2m-.25m	11 (8.9%)	11 (8.9%)	15 (12.1%)	24 (19.4%)	27 (21.8%)	31 (25%)	36 (29%)	38 (30.6%)	36 (29%)	32 (25.8%)
Above R 0.25m	15 (12.1%)	15 (12.1%)	16 (12.9%)	16 (1.9%)	21 (16.9%)	25 (20.2%)	27 (21.8%)	30 (24.2%)	34 (27.4%)	37 (29.8%)
Missing	6 (4.8%)	6 (4.8%)	6 (4.8%)	6 (4.8%)	6 (4.8%)	6 (4.8%)	6 (4.8%)	6 (4.8%)	6 (4.8%)	6 (4.8%)
Cant Disclose	8 (6.4%)	8 (6.4%)	8 (6.4%)	8 (6.4%)	8 (6.4%)	8 (6.4%)	8 (6.4%)	8 (6.4%)	8 (6.4%)	8 (6.4%)
Total	124	124	124	124	124	124	124	124	124	124
Mean	0.128	0.129	0.142	0.172	0.184	0.189	0.196	0.202	0.198	0.192

Source*:* Researcher's *own calculations based on survey data (2010)*

The responses from the South African SMMEs in relation to their average mean profits presented a mixed reaction. It is only in 2008 and 2009 when none of the SMMEs

recorded profits of above R. 0.05. In 2001 and 2002, none of them recorded profits between R. 0.05m and R. 0.1m. This can be interpreted to mean that generally, the South African SMMEs had always recorded improvement in profitability. However, this results need to interpreted with caution since there are various other factors that are likely to impact of the profitability of small business.

Fig. 6: 9 Yearly Average SMMEs Mean Profit & Expenditure (in R. millions) on Electricity (Kenya)



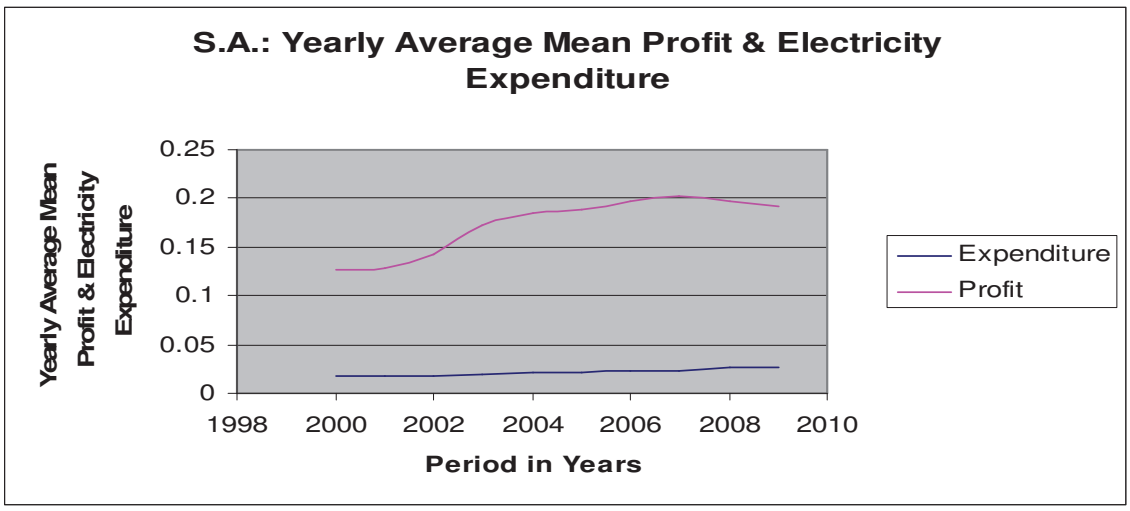
Source*: Researcher's own calculations based on survey data (2010)*

For example, such factors as the credit crunch (as discussed later in Chapter Five Section 5.4.2.1) and other factors such as lack of and or inadequate managerial training and education and skills, lack of access to credit both for start up and expansion of the business, unfavourable national policy and regulatory environment as well as inadequate business information may have contributed to the level of profitability that the SMMEs attained.

The SMMEs in both countries recorded a slight drop in profitability during the period of 2008 and 2009 when there was a major outcry of power outages. Whereas in the South African context the effect of the global credit crunch was isolated (Chapter Five Section 5.4.1.1; under *(iv). Vector Error Correction Model- VECM*) this was not possible in the Kenyan context due to inadequacy of data. Therefore, as much as the results may indicate a relatively faster rising trend in the SMMEs profitability compared to expenditure on electricity, this may not be the reality as there are other factors such as inflation that may not have been considered in the calculations that give forth these results. This effect was

discussed further in Chapter Six Section 6.2 the times series analysis in which the overall manufacturing and electricity outputs of the two countries under study are compared. The drop in South African SMMEs' profitability is more pronounced than the Kenyan one (see *Figure 6: 10* and *Figure 6: 11*, for Kenya and South Africa, respectively).

Fig. 6: 10 Yearly Average SMMEs Mean Profit & Expenditure (in R. millions) on Electricity (S.A.)



Source*: Researcher's own calculations based on survey data (2010).*

If and when all these other expenditures and factors that contribute to profitability are put into consideration, it would make sense to appeal to KPLC and Eskom to consider certain measures of support for SMMEs, for example selling electricity to SMMEs at subsidized rates. This appeal comes in relation to the contribution that the SMMEs are believed to make to the general well-being of the economy (which was discussed in Chapter Two Section 4.1.2). Otherwise, taking the expenditure on electricity in isolation may result in misconceived interpretation about why the SMMEs, like many other consumers of electricity, would complain about the increase in electricity price. The general concern for most of the SMMEs who had direct access to electricity expenses was that the cost of electricity was ever rising. Consumer complaints over electricity matters were discussed in Chapter One Section 1.4.1.

South Africa experienced a credit crunch around the same period. Apart from the high electricity tariffs, which may subject to the changes in the economy, there are other factors

which include inflation rate in most developing countries and also in some developed ones. For example, Kenya's highest consumer inflation rate (in terms of annual percentage change in consumer prices) was in 2009 and was placed at 26.3% while South Africa's was placed at 11.3% (IndexMundi, 2008).

Lastly on profitability, the researcher wished to establish the respondents' general opinion on the level of losses that their businesses may have experienced due to power shortages and the responses were as follows;

Table 6: 20- SMMEs' opinion on percentage loss on business due to power outages

i. Kenya						
Very High Losses	High Losses	Remained the Same	Minimal Losses	No Losses at All	Missing	Total
62(43.7%)	32(22.5%)	8(5.6%)	13(9.2%)	4(2.8%)	23(16.2%)	142
ii. South Africa						
45(36.3)	29(23.4)	19(15.3)	4(3.2%)	2(1.6%)	25(20.2%)	124

Source: *Researcher's own calculations based on survey data (2010).*

The above results revealed that the SMMEs in both countries had generally perceived high percentage losses on their businesses as a result of power outages. There were a few of them that perceived that they had not been affected and a few more could not comment on the level of business losses as a result of the outages. Nevertheless, there were various comments that accompanied these responses and these were analyzed using thematic content analysis. The comments helped the researcher to extract themes. The themes were then quantified in terms of the percentage number of SMMEs that indicated they had experienced the types of losses expressed through the comments. The results analyzed were presented in tabular form (See *Table 6: 21* below).

The results pointed out that indeed there were areas where SMMEs had experienced losses as a result of power outages despite the fact that their responses had indicated that majority of them had always registered rising levels of profitability. The Kenyan SMMEs were worst hit by slowed down business operation (46 or 32.4%), conflicts with customers (36 or 25.4%) and wastage of time (24 or 16.9%) as a result of the recurrent power outages.

The South African scenario was slightly different. Whereas a majority of the SMMEs preferred not to comment on the issue of the level of losses experienced (42 or 33.9%) a good number of them indicated that they were forced to seek alternative sources of energy (37 or 29.8 %). The second highest factor indicating areas of losses was the issue of slowed down business operation (30 or 24.2%). That means that generally in both countries, the SMMEs lost the efficiency with which to run their businesses due to power outages.

Table 6: 21-Content analysis illustrating level of business losses SMMEs experienced

Theme	Wasted/ Perished Goods	Conflict with customers	Idle employees/ Wasted time	Alternative Energy Sources	Slowed business operation	Damaged equipment	Missing
Kenya	19 (13.4%)	36 (25.4%)	24 (16.9%)	8 (5.6%)	46 (32.4%)	3 (2.1%)	12 (8.5)
N	142	142	142	142	142	142	142
South Africa	12 (9.8%)	10 (8.1%)	19 (15.3%)	37 (29.8%)	30 (24.2%)	1 (0.8%)	42 (33.9%)
N	124	124	124	124	124	124	124

Source: *Researcher's own calculations based on survey data (2010).*

6.6.5 Perceived Quality of Service Offered by KPLC and Eskom

Certain factors were used to measure the quality of service offered by KPLC and Eskom to their customers, represented by the SMMEs in this study. The results presented below indicated opinions expressed by SMMEs on the problem of power rationing, shedding or blackouts (all these terms have been used to refer to power outages). The SMMEs were asked to respond to the statement; "*Power interruptions have reduced in the past five years*". In Kenya, the results were as follows; 19 (13.4%) "S*trongly agree"* and 22 (15.5%) "*Agree*" with the statement. This meant that a majority of SMMEs in Kenya felt that the situation had worsened with a response of 50 (35.2%) and 51 (35.9%) noting they "D*isagree*" and "S*trongly disagree*" with the statement, respectively.

In South Africa, the situation seemed more or less the same as that of Kenya. 57 (46%) "S*trongly disagree"* and 26 (21%) "*Disagree"* to the statement, while 12 (9.7%) and 28 (22.6%) "*Agree"* and "S*trongly agree*" to the fact that power interruptions had reduced in the last five years. The responses showed that the SMMEs in both countries were in agreement on the view of power outages had generally increased. A total of 101 (71.1%) responses of Kenyan SMMEs and a total of 83 (66.9%) South African SMMEs indicated that the power interruptions had been on the increase. These statistics were compared to the overall electricity outputs of both countries. (Refer to *Figure 6: 10* and *Figure 6: 11* above show the levels of generation, consumption, export and import of electricity in Kenya and South Africa, respectively). Whereas South Africa had maintained relatively high levels of electricity generation Kenya had comparatively recorded stagnant and sometimes very low levels. Demand for electricity had been noted to be on a high increase and as new connections were installed, availability or supply tended to reduce. The recurrent power outages may be supportive of this fact.

Apart from the analysis carried out on yearly average means of the profits and expenditure on electricity, the researcher wished to establish the quality of service delivered by KPLC and Eskom to electricity consumers. One area that the researcher focused on was compensation by electricity companies, in the event that their institutions were liable for damage caused by electric faults. Four areas were outlined in the questionnaires, to establish how many SMMEs had experienced electric fault in these areas. Whereas in South Africa none of the SMMEs registered bodily harm as a result of electric fault, in Kenya there were only 6 such cases registered as follows; one SMME registered bodily harm once, an equivalent of 0.7%, four SMMEs registered bodily harm an equivalent of 2.8% and one SMME registered bodily harm more than three times, an equivalent of 0.7% of the total SMMEs interviewed.

These incidences could have been as a result of KPLC's (or Eskom's) fault or the fault of the SMMEs (employees or owner). As such, the respondents were asked to indicate if it was KPLC's (or Eskom's) fault or the business' (owner or employee) fault. Of the SMMEs that testified to have been affected by electricity fault, 13 (9.2%) in Kenya and 22 (17.7%) in South Africa indicated that it was the fault of the electricity companies. The researcher's aim here was to establish the consumers' response on the compensation given by the electricity companies due to such damages as caused by electric fault. In Kenya, 8

of the 13 (61.5%) noted that they were compensated, while in South Africa, 17 out of the 22 (77.3%) had been compensated. 4 (50%) of the 8 Kenyan SMMEs indicated they were satisfied with the compensation while of the 17 South African SMMEs, 9 (52.9%) were satisfied with the compensation. For electric fault resulting in machine damage, fire outbreaks and or damage of premise, the frequencies were as shown in Table 6:22 below.

Table 6: 22 – Frequency of incidences as a Result of Electric Fault

i. Kenya					
Result in:	Never	Once	Twice	Thrice	More than Thrice
Machine Damage	111(78.2%)	15(10.6%)	12(8.5%)	3(2.1%)	1(0.7%)
Premise Damage	139(97.9%)	3(2.1%)	0	0	0
Fire Outbreak	138(97.2%)	0	3(2.1%)	0	1(0.7%)
ii. South Africa					
Result in:	Never	Once	Twice	Thrice	More than Thrice
Machine Damage	85(68.5%)	12(9.7%)	14(11.3%)	3(2.4%)	10 (8.1%)
Premise Damage	114(91.1%)	6(4.8%)	0	2(1.6%)	2(1.6%)
Fire Outbreak	115(92.7%)	5(4%)	3(2.4%)	1(0.8%)	0

Source: *Researcher's own calculations based on survey data (2010).*

The general view is and it is implied from the results obtained from the SMMEs through the questionnaires, that both KPLC and Eskom had done a lot in controlling electric faults as well as showing concern for the consumer by compensating those affected if the fault was the companies'. That touches partly on their level of efficiency in the provision of the commodity. It may be probably beyond the researcher to comment on the few incidence of dissatisfaction with the compensation accorded unless further research in done. In any case this may border on policy issues which are specific to each company.

However, there is much more to consider when discussing the issue of compensation. It showed that both KPLC and Eskom had dealt with the issue of compensation fairly well. In any case, the cases mentioned form minimal percentage compared to the total SMMEs interviewed.

6.6.6 Other Relevant Factors of Concern

The concerns discussed in this section were encountered predominantly during the literature review research. The researcher used them to gauge the level of improvement on the quality of service delivered by KPLC and Eskom. Below is a discussion on these other areas of concern that were surveyed on using the questionnaires.

In Kenya, 85 (59.9%) "*Strongly agree"* and a further 48 (33.3%) "*Agree"* that prices are always adjusted up-wards. Only 9 (6.3%) "*Disagree*" with the statement. On the South African perspective, the responses were not so far from the Kenya's SMMEs' responses; 89 (71.8%) "*Strongly agree"* and a further 29 (23.4%) "*Agree"* with the statement and 1(0.8%) "*Strongly disagree"*, 2 (1.6%) "*Disagree"* and 3(2.4%) failed to respond to the statement.

Table 6: 23- Other Relevant Factors Considered

	Price adjust-ments com-municated in advance	Electricity Bills Delivered in Good Time	Bills are always Correct	Electricity Always installed in good time	Disconnecti ons are always genuine	Electricity reconnections done in good time
i. Kenya						
Strongly Agree	30(21.1%)	15(10.6%)	8(5.6%)	0	4(2.8%)	18(12.8%)
Agree	90(63.4%)	96 (67.6%)	107(75.4 %)	42(29.6%)	23(16.2%)	22(15.5%)
Disagree	21(14.8%)	31(21.8%)	27 (19%)	99(69.7%)	94(66.2%)	100(70.4%)
Strongly Disagree	1(0.7%)	0	0	1(0.7%)	21(14.8%)	2(1.4%)
	142	142	142	142	142	142
ii. South Africa						
Strongly Agree	20(16.1%)	41(33.1%)	25(20.2%)	20(16.1%)	16(12.9%)	19(15.3%)
Agree	52(41.9%)	55(44.4%)	36(29%)	52(41.9%)	47(37.9%)	35(28.2%)
Disagree	40(32.3%)	17(13.7%)	32(25.8%)	22(17.7%)	29(23.4%)	30(24.2%)
Strongly Disagree	10(8.1%)	7(5.6%)	28(22.6%)	23(18.5%)	25(20.2%)	33(26.6%)
Missing	2(1.6%)	4(3.2%)	3(2.4%)	7(5.6%)	7(5.6%)	7(5.6%)
	124	124	124	124	124	124

Source: Researcher's *own calculations based on survey data (2010).*

It is worth pointing out here that price increments formed one of the mainly voiced consumer complaints against KPLC and Eskom, as witnessed in the introduction review in

Chapter One Section 1.4.1. The others include such concerns as connectivity, communication and or information sharing, delivery of bills, use of prepaid meters, among others. The results in the below *Table 6: 23* shows a mixed reaction in so far as SMMEs' views of the level of quality of service offered was concerned. The South African situation seemed worst hit by this mixed reaction, probably because many of them (as confessed in the questionnaires) are not involved in matters concerning electricity logistics of their businesses.

They disclosed that landlords were "committed" to solving all issues related to bills, disconnection-connection of electricity, etc. As such, the SMMEs, as tenants, were compelled to pay a combined value for rent, electricity and water bills, as well as maintenance costs. The Kenyan situation seems slightly different as the tenants were directly involved in the matters pertaining to rent, water and electricity bills. The responses indicate that both KPLC and Eskom have a lot to improve in order to satisfy their electricity consumers.

On average, both Kenyan and South African SMMEs agree that, electricity price adjustments are communicated in advance, bills are delivered in good time and that they are always correct. In Kenya, combined responses for "*Strongly agree*" and "*Agree*" in the three areas are as follows; 120 (84.5%), 111 (78.2%) and 115 (81%), respectively. In South Africa, the situation is as; 72 (58.1%), 96 (77.4%) and 61 (49.2%), respectively.
However, considering the next three elements used to gauge the quality of service, the results reflect the opposite of the above discussion. SMMEs were requested to respond to the statements; "*Electricity is always installed in good time"*; "*Disconnections are always genuine"* and "*Reconnections are always done in good time*". The majority of responses were as follows; In Kenya, 42 (29.9%) agreed to the fact that electricity is always installed in good time while 99 (69.7%) and a further 1 (0.7%) disagreed and strongly disagreed, respectively. In South Africa, the situation presented a mixed reaction as follows; 20 (16.1%) strongly agreed and 52 (41.9%) agreed that electricity was always installed in good time.

The South African situation was relatively different with 22 (17.7%) and 23 (18.5%) disagreed and strongly disagreed, respectively with the statement. A few SMMEs did not give responses (see *Table 6:23* for percentage of missing values). Most comments

accompanying this section from South African SMMEs requested to be allowed to handle their electricity bills in order that they understand how much electricity they are consuming in relation to the cost incurred from this consumption.

Delayed installation of electricity as well as delayed reconnection, once reconnection fee has been paid would amount to financial losses for the SMMEs that are reliant of electricity for daily operation. The responses for delayed reconnections in both countries were high; 71.8% for Kenyan SMMEs and 50.8% for South African SMMEs. Similarly, erroneous disconnections cost the businesses the efficiency which is inherent in the availability of electricity, therefore, it also causes financial losses to the businesses. The percentage of responses declaring that disconnections are not genuine is relatively high (in Kenya 81% and in South Africa 43.5%).

6.6.7 Prepaid Meters and other Measures of Efficiency

When KPLC and Eskom announced the use of prepaid meters, the electricity consumers in both countries were generally opposed to it. Whereas prepaid meters were introduced in Kenya earlier on a pilot project, and increased usage in 2009 (Esi-africa.com, 2009), in South Africa, prepaid metres were introduced as far back as 1990 for domestic consumers. However, this difference in the period of introduction of prepaid meters does not correspond with the results of the survey. Both Kenyan and South African SMMEs had generally supported this initiative, although as noted in the literature review, consumers in the two countries were initially opposed to the move. The respondents were asked to comment on the statement, "*I support the use of prepaid meters*". The responses were nevertheless slightly different from this earlier stand (see *Table 6:24* below). For both countries, a majority of SMMEs supported the use of prepaid meters, that is, 91 (63.9%) for Kenya and 83 (66%) for South Africa. The main aim of prepaid meters was to capture losses the electricity sectors incurred as a result of consumers' failure to pay their bills.

Inefficient debt collection had been singled out in the literature review as one of those factors that hindered the efficiency of operation by the electricity sectors (Refer to Chapter Three Section 3.7.9). Both KPLC and Eskom have devised better systems of enhancing

electricity debt collection through the use of prepaid meters. The sectors had introduced "online vending clients" (Eskom Holdings SOC Limited, 2011) with the aim of improving efficiency in debt collection. The then Managing Director and CEO of KPLC, one Eng. J.K. Njoroge, in June 2011 noted that prepaid meters had some merits. These include the fact that they were cheaper, convenient as one had the ability to monitor and regulate their electricity usage, they were easy to top-up and no bills accumulate for the consumer.

Table 6: 24 Support for prepaid meters

i. Kenya		ii.South Africa	Total
Strongly Agree	15 (10.6%)	54(43.5%)	69(25.9%)
Agree	76 (53.3%)	29(23.4%)	105(39.5%)
Disagree	45 (31.7%)	14(11.3%)	59(22.2%)
Strongly Disagree	6 (0.4%)	21(16.9%)	27(10.2%)
Missing	0	6(4.8%)	6(2.2%)
Total	142	124	266(100%)

Source*: Researcher's own calculations based on survey data (2010).*

It should be noted here also that efficient debt collection is likely to go a long way in ensuring efficient investment and therefore, increased reliability in electricity supply. Prepaid metering, however, had its demerits. Eng. Njoroge noted that the prepaid metering posed some disadvantages; limited points of purchase accompanied with top-up delays through use of online money transfer (M-pesa: a mobile money transfer technique used in Kenya). Other disadvantages included long digits which may result in confusion, hence entering wrong ones. Variability in electricity units to be bought despite the same amount of money and lastly, long queues of customers, waiting to buy the tokens. Nevertheless, these are problems that can be done away with in due course. Thus, as much as both KPLC and Eskom aimed at solving the problem of efficiency and effectiveness by adopting prepaid meters, this was countered by the various disadvantages that need to have the strategy restructured.

Other factors used to gauge the quality of service delivered include the SMMEs opinion on how the use electricity has impacted on their businesses. The SMMEs were requested to respond to the following statements; "*Electricity has helped my business to grow*

financially", "Electricity has helped my business to operate efficiently", "*I can run my business effectively without electricity", "I can start another business with ease without relying on electricity", "Electricity company shares adequate information about proper use of power", "Electricity company has the capability to help SMMEs grow"*. The responses were based on a four-point likert scale with 4=Strongly agree, 3=Agree, 2=Disagree and 1=Strongly disagree. Table 6:25 (below) comparatively summaries the responses generated.

Table 6:25- Impact of Adoption of Benchmarking on SMMEs' growth and efficiency of operation

Kenya	Electricity has helped my business grow financially	Electricity has helped my run my business efficiently	I can run my business without relying on electricity	I can start another business without relying on electricity	Electricity company has he capability to help SMMEs grow.	Electricity company shares adequate information about proper use of power
Strongly agree	70(49.3%)	107(75.4%)	8(5.6%)	0	79(55.6%)	10(7%)
Agree	65(45.8%)	35(24.6%)	11(7.7%)	7(4.9%)	58(40.8%)	87(61.3%)
Disagree	7(4.9%)	0	99(69.7%)	88(62%)	5(3.5%)	39(27.5%)
Strongly disagree	0	0	23(16.2%)	47(33.1%)	0	5(3.5%)
Missing	0	0	1(0.7%)	0	0	1(0.7%)
Total	142	142	142	142	142	142
Mean	3.44	3.75	2.03	1.72	3.52	2.72
Std Dev.	0.590	0.432	0.686	0.551	0.568	0.645
South Africa						
Strongly agree	39(31.5%)	62(50%)	6(4.8%)	9(7.3%)	48(38.7%)	15(12.1%)
Agree	59(47.6%)	54(43.5%)	5(4%)	10(8.1%)	57(46%)	57(46%)
Disagree	17(13.7%)	4(3.4%)	30(24.2%)	27(21.8%)	11(8.9%)	34(27.4%)
Strongly disagree	9(7.3%)	4(3.4%)	83(66.9%)	78(62.9%)	8(6.5%)	17(13.7%)
Missing	0	0	0	0	0	1(0.8%)
Total	124	124	124	124	124	124
Mean	3.03	3.40	1.47	1.60	3.17	2.57
Std Dev.	0.864	0.709	0.791	0.919	0.843	0.879

Source: *Researcher's own calculations based on survey data (2010).*

Many of the SMMEs experienced that electricity had helped their businesses to grow and had also helped in running of them efficiently. Only 7 (4.9%) of Kenyan and 26 (21%) of South African SMMEs refuted that electricity has not helped their businesses grow financially. It should be pointed out here that most of the SMMEs purported to have recorded an annual profit of less than R 0,25m. The highest annual frequency with profit figures above R0.25m is 19 out of 142 (13.4%) for Kenyan SMMEs and 38 out of 124

(30.7%) for South African SMMEs. Similarly, no SMME in Kenya and only 8 (6.5%) of them in South Africa refuted that statement that electricity had enhanced the efficiency level operation of their businesses.

As much as the researcher did not go into the detail to find out how electricity could have contributed to the financial growth and efficiency, there are many ways its provision could contribute to these two factors. For example, time saving through the application of electronic machines for settling bills, reduced labour, quick and improved services, sufficient lighting, among others, are some of the benefits of electricity. Therefore, when there are blackouts, the businesses forego all these benefits and the result is profit losses and wastage of resources.

A good number of SMMEs in South Africa could not comment on the impact of modes of communication between them and Eskom on their businesses as they pointed out that they were not directly involved in matters concerning utility bills. Modes of communication used border on policy matters in the distribution of electricity, but many wished to be directly involved instead of being passive recipients. On the other hand the results displayed in *Table 5: 26* below imply that, both KPLC and Eskom had diversified the modes of communication between the sectors and their consumers.

This is in a way a form of information-sharing and it was used to determine the quality of service offered through interaction. Nevertheless, it looks that both the print and electronic media are the most frequent mode of interaction with the highest means of 4.29 and 4.53, respectively for KPLC and 3.73 and 3.70 respectively for Eskom.

Immediate feed-back would guarantee that the consumer becomes an active participant in the well-being of the public sector utility. Instant feed-back is necessary for continuous improvement of the services offered. If that is a suggestion to go by, then the use of mobile phones can offer good instant feed-back, besides, from the researcher's experience, it was cheap and many citizen consumers can afford.

Table 6: 26- Impact of mode of communication between KPLC, Eskom and SMMEs

Kenya	Frequency of use of print media	Frequency of use of electronic media	Frequency of use of company employees	Frequency of use of company newsletter	Frequency of use of mobile phone
Not all used	0		1(0.7%)	5(3.5%)	131(92.3%)
Least frequently used	0	1(0.7%)	52(36.6%)	75(52.8%)	9(6.3%)
Less frequently used	4(2.8%)	7(4.9%)	69(49%)	52(36.6)	2(1.4%)
Frequently used	93(65.5%)	50(35.2%)	9(6.3%)	9(6.3%)	0
Most frequently used	45(31.7%)	84(59.2%)	11(7.7%)	1(0.7%)	0
Total	142	142	142	142	142
Mean	4.29	4.53	2.77	2.35	1.09
Std Dev.	0.513	0.627	0.811	0.586	0.335
South Africa					
Not all used	13(10.5%)	16(12.9%)	64(51.6%)	16(12.9%)	42(33.9%)
Least frequently used	12(9.7%)	15(12.1%)	18(14.5%)	19(15.3%0	20(16.1%)
Less frequently used	26(21%)	24(19.4%)	9(7.3%)	23(18.5%)	17(13.7%)
Frequently used	33(26.6%)	22(17.7%)	9(7.3%)	16(12.9%)	12(9.7%)
Most frequently used	25(20.2%)	29(23.4%)	4(3.2%)	33(26.6%)	14(11.3%)
All information to property owner/manager	15(12.1%)	18(14.5%)	20(16.1%)	17(13.7%)	19(15.3%)
Total	124	124	124	124	124
Mean	3.73	3.70	2.44	3.66	2.94
Std Dev.	1.472	1.608	1.893	1.637	1.862

Source*: Researcher's own calculations based on survey data (2010).*

6.6.8 SMMEs' Opinion on KPLC's and Eskom's Overall Performance

Lastly, the researcher wished to gauge the overall impact of adoption of the benchmarking strategy by KPLC and Eskom on the SMMEs using an opinion statement, "*The general level of improvement of the services offered by the electricity company between 2000 to 2009*". The SMMEs were expected to respond to the statement using the following scale; "*Greatly improved*"=5, "*Improved*"=4, "*Remained the Same*"=3, "*Deteriorated*"=2, and "*Greatly deteriorated*"=1. The responses were as follows; In Kenya, 86 (60.6%) felt the

performance had improved, 40 (28.2%) felt it had remained the same and a further 10 (7%) felt the general performance of KPLC had deteriorated, while 6 (4.2%) did not give response. This means that generally, the company performance had improved however, the results show that (according to the Kenyan SMMEs) there was still a lot room for improvement, since no response indicated that the performance greatly improved. The SMMEs responses are supported by the recurrent power outages and in the ever increasing unsatisfied demand for electricity.

The South African scenario, 6 (4.8%) felt it had greatly improved, 48 (38.7%) felt it had improved, 47 (37.9%) felt it had remained the same, and 22 (17.7%) felt that the performance had deteriorated. One SMME did not respond giving a percentage of 0.8. Whereas in for KPLC no respondent felt the company had greatly improved, Eskom's general improvement was hailed by 6 respondents who felt the performance had greatly improved. Nevertheless, there was consensus that both companies, in the view of their consumers (represented by the SMMEs) needed to invest more in viable electricity sector reforms in order to enhance the level of efficiency in service provision. Thus their adoption of the benchmarking strategy needed to be reconsidered.

6.7 Summary

This chapter analyzed and discussed data emanating from the first two sets of data. The study then moved to discuss the results from the third set of data. This results indicated that as much as KPLC and Eskom had done a lot in the provision of electricity to their consumers, specifically the SMMEs for this study, the various power outages had cost the these entities some losses. What was lost due to the recurrent outages was mainly the efficiency with which to run the businesses and a few other losses discussed in Chapter Six Section 6.5.4. Similarly, they faced negative word of mouth from their clients, who were not ready to take the excuse of power failure. Many had to trim their businesses since lack of sufficient electricity supply means inability to work efficiently. The staff then became excess and a financial burden because the amount of work reduced in the event of

recurrent power outages. It is doubtless then that most businesses indicated that either the employees remained the same or were reduced (see Chapter Six Section 6.5.2).

A good number of SMMEs indicated that despite the fact that both KPLC and Eskom had shown some improvement, they needed to enhance the quality of the services delivered. As much as the two countries are indeed in different economic developmental stages, it seemed that the SMMEs' perception of the level of service quality was similar to some extent. Increasing demand for electricity and the presence of consumer complaints were a sure pointer to the fact that KPLC and Eskom needed to review the benchmarking strategy that each sector had adopted in the past.

The chapter has presented the data analysis which was basically in two types; the first was analyzed using OLS from the SPSS programme and also used the Microsoft Excel programme. The other was analyzed using EViews programme which also utilized OLS and contemporary time series.

The first part of the analysis sought to establish the impact of the adoption of the benchmarking strategy on the electricity sectors themselves and on then on the SMMEs. The results show that generally the adoption of the different reforms by KPLC and Eskom has had some positive impact. For example, South Africa has had an ever increasing generation capacity although the profits remain minimal and the consumer complaints are still present. The main complaint is that of high electricity tariffs in both countries. Kenya, on the other hand, has had minimal growth in the generation and sometimes reductions, with some losses in the period under study than profits.

The results of this research indicate that the cointegrating power outages between 2000 and 2008 caused a reduction in the manufacturing of cement and galvanized sheeting, therefore, electricity output is significant in their manufacture. Whereas the results showed that cement production enjoys a bidirectional long-run relationship with electricity output, in the case of galvanized sheeting, this relation is unidirectional running from electricity to galvanized sheeting. In the case of the other economic indicators (sugar, tea and soft drink) no statistical significant relationships were found. On the other hand, the cointegration analysis on the South African data demonstrated that power outages during the period of 2007 and 2008 resulted in 6 % loss of output per month.

Generally, the SMMEs noted improvement in the provision of services by the electricity companies in both countries. Nevertheless, there are a good number of these entities that feel the improvements generally remained the same. A smaller number feel the quality of service delivered has deteriorated. However, the SMMEs conclusions cannot be taken blindly. A lot more has to be considered from different angles. The level of national electricity connectivity of Kenya is still a mere 20% (ADF, 2010: 2), and the demand for electricity in both Kenya and South Africa is ever increasing. In addition, consumer complaints are recurrent, which means both KPLC and Eskom have a lot of room for improvement, although a different percentages. In the next chapter, the study discusses the research findings, research conclusions and policy recommendations.

End note

Note that this period co-insides with the dilapidating effects of the global crunch (refer to Mizens 2008 for details) on the Kenyan economy which might lead to ambiguity in interpretation of the results.

CHAPTER SEVEN

RESEARCH FINDINGS, CONCLUSION AND RECOMMENDATIONS

7 INTRODUCTION

In the previous chapter the study analyzed and interpreted data that was collected from KPLC and Eskom and data pertaining to the manufacturing sectors of the two countries from various publications. Data collected from the SMMEs of the two countries using structured questionnaires was also analyzed. In this chapter the study summarizes the research findings and interpretations related to these findings. The researcher also gives tentative policy recommendations that come about as a result of the study carried out. The research limitations of this research are also discussed in this chapter. The presentation begins by reviewing the objectives of the study and assess the extent to which they were achieved.

7.1 Main Research Objectives

This research had two main objectives to attain. The first objective was to establish the impact of the adoption of the benchmarking strategy on the KPLC and on Eskom and on the SMMEs of Kenya and South Africa. From the literature review pertaining to the benchmarking strategy and its adoption, it seems that there are many aspects of the strategy in the electricity sector that have been tried by both Kenya and South Africa. Whereas Kenya adopted vertical unbundling, South Africa adopted horizontal unbundling. Kenya has separated the generation, distribution transmission and functions of the electricity sector. South Africa has allowed participation at regional levels where it uses Regional Electricity Distributors to serve different regions of the country.

7.1.1 Causality between Electricity and Manufacturing

The second main objective was to establish if there exists Granger-causality between electricity and manufacturing outputs and the direction of this causality, if it exists. This objective was introduced in order to help verify the results obtained from the SMME respondents. The research established that there was Granger-causal relationship between the electricity output and the manufacturing sectors in both Kenya and South Africa. In Kenya, bidirectional causality was established between electricity and cement, unidirectional from electricity to galvanized sheeting and non causality between sugar, tea and soft drinks. In South Africa, unidirectional causality was established running from electricity to manufacturing.

The detailed results were a clear indication that insufficient supply of electricity has indeed caused a dent in the growth of the economy. It is true that without energy, almost no activity would take place in terms of business as energy has become a cornerstone in the production logistics in very many sectors. In the Kenyan time series, the specific products representing the manufacturing output were gathered from the list of leading economic indicators of the country. The analysis derived from cement indicates that without devising alternative sources of energy, the industry would have been greatly affected due to power outages (See discussion Chapter Six Section 6.3.1.1). It is possible that many other sectors which rely on electricity, but which cannot co-generator suffer great losses during blackouts.

The analysis of the South African time series established that there was Granger causality running from electricity to manufacturing, a clear indication that indeed power sector reforms have to be economically sound in order that they do not adversely affect the production of the sectors that are energy intensive. It is realistic to conclude then, that more production of electricity is required, if South Africa's economy is to continue to flourish. This revelation tends to confirm the SMMEs' and other electricity consumers' complaints that the electricity prices are rather high and it means that their businesses are negatively affected by the high electricity tariffs and the recurrent power interruptions. Supposing the cement industry had not taken the kind of energy alternative measures it took, that means both its qualitative and quantitative productivity would have been

adversely affected, and in the long-run lose on its profitability. It would have failed to satisfy the demand of its consumers.

Both Kenya and South Africa have plenty room for improvement. While Kenya benchmarks South Africa, the latter has to benchmark more strategic developments that are likely to be found in developed and a few developing economies. A few of them are discussed in Chapter Two Sections 2.1 and 2.2. South Africa is headed to be a developed economy and therefore should benchmark developed economies to provide examples for its African brothers and other developing economies. McAllister and Dawson (2010: 18-19) propose mandatory reliability standards as the one most effective way of dealing with frequent power outages, a mechanism that South Africa and other countries affected by frequent power outages can adopt. As much as the two researchers note that this system may not be 100% effective, they testify that since it was put into operation, it has a higher capability of *"preventing wide-spread outages"* (p. 25).

Irrespective of the outcome of the Granger causality, electricity sectors should revisit the initial objectives for power sector reforms and establish to what extent each company has achieved their set objectives. Zacahariadis (2007: 1234-1235) warn that conclusions from the results of Granger-causality tests should be interpreted carefully, since it is not always that those result are in line with reality. Equally important is the idea of self evaluation in an effort to establish the levels of individual country attainment in the rate of national electricity connectivity as well as their progress in reducing power outages as well as satisfying the general demand for electricity.

7.1.2 Impact of Adoption of Benchmarking on KPLC and Eskom

From the discussion in the literature review and in the analysis of the data, it has been revealed that South Africa has a lot to offer Kenya by way of example. South Africa had the comprehensive and adequate data needed for the study. For example, Kenya had scarcity of data required to run the Granger-causality test to establish the relationship between electricity and manufacturing. Kenya needs to beef up its information capacity to make it easily accessible. Another example that makes South Africa to take the title of a

benchmark is the fact that South Africa has higher levels of electricity generation, and consumption. There is a balance between the exports and imports and exports (see Appendix I). South Africa's electricity generation is constantly increasing and have been noted to be highest among Sub-Saharan African (40GW as opposed to the rest of Sub-Saharan African countries which produce 28GW). South Africa is also cited by the Secretary General Advisory Group on Energy and Climate Change (AGECC) Report (2010: 18) as a successful example of national electricity connectivity. The Report points out that South Africa has managed to connect over 2.5 million households in a period of about seven years.

Kenya's generation is surrounded with fluctuating trends, especially so because it relies heavily on rainfall patterns. The World Bank (2010: 4) argues that Kenya's over-reliance on hydro-power generation for electricity causes unreliable supply of electricity which in turn affects the economic growth and expansion. Therefore, Kenya needs to heavily invest in generation of electricity from coal and other sources other than over reliance of hydro generation, in order to reduce the cost burden on their consumers. South Africa's electricity generation and consumption aggregates are consistent with the country's newly found status as a newly industrialized nation. The rate of its industrialization demands more energy, most of which is found in the electricity generation from cheap coal and this shows that the country is doing well economically. Kouakou (2011: 3638) asserts that electricity consumption is a clear indication of a healthy economy for developing countries (although South Africa is in a superior quarter of the developing economies). Therefore, Eskom is a leader and KPLC needs to benchmark its strategies.

In addition to the above discussion, it is also worth pointing out that Eskom has been noted to enjoy the commitment and support of the South Africa government. UNECA and UNEP Joint Report (2007: 100) explains that government involvement and commitment is crucial for the success of long-run strategies of the energy sector. The Report notes that South Africa's government has had concern for the poor in its roll-out of the electrification programme. It adds that Kenya's reform implementation was hurried over, causing it to register unsatisfactory results such as high tariffs and reduced electrification levels. This calls for Kenya to look out on the ways through which South Africa implemented its energy reforms and note areas that can make positive impact on its socio-economic levels.

As much as South Africa's position as the benchmark is heralded, there is more room for improvement. For example, South Africa's electricity reserve has been rapidly diminishing despite the heavy investment in the generation from coal and renewable sources. Odhiambo (2009: 635) notes that South Africa's electricity reserve capacities are diminishing due to rapid economic growth through industrailisation that places a higher demand on electricity consumption. Similarly, Eberhard, Foster, Briceño-Garmendia, Ouedraogo, Camos and Shkaratan (2008) and the G8 Energy Ministers' 2009 Meeting (2009: 8) proceedings imply that African countries need to check on their cost of electricity generation which they note is very high (USD 0.18 per kilowatt-hour) as compared to such areas as South Asia and East Asia that generate at a cost of USD 0.04 and USD 0.07 per kilowatt-hour. South Africa has been noted by the same researchers to produce more than half of Africa's electricity, but it is important that Eskom strives to satisfy its consumers' electricity needs.

Much emphasis has been laid on privatization in the electricity sector. As much as this study has also advocated greatly for this strategy, it should not be adopted blindly. Many sectors in different countries have succeeded having adopted privatization. However, it should be approached with care. Clark, Eberhard, Gratwick and Wamukoya (2005: 3) warn that privatization may lay emphasis on profitability at the expense of efficiency, thereby targeting the ability to pay as opposed to efficient and sufficient supply. ADB-Guidance Note (2009: 5) also warns that privatization may come with its own disadvantages. The ADB-Guidance Note emphasizes that private investors would insist on maximizing on return on investment yet consumers would insist on low electricity prices, thereby pausing difficulty for the regulators to strike a balance between the competing interests of the consumers and the investors. The note explains that "… *If it favours customers, the investment level will be low and future electricity supply will be threatened. If it tilts toward the investors, the tariffs will be high without commensurate levels of service and security of supply…"* (p. 5)

That means, privatization must be approached cautiously, especially now that the aim is for both efficiency of service delivery to the citizen-consumer and at the same time taking care to deliver affordable services. The main goal for adopting privatization as a benchmarking strategy as brought out in the literature review is for the sake of enhancing

efficiency in operation, thereby improving the output, lowering costs and above all, attaining consumer satisfaction. This research reveals that there are still many consumer complaints which may be a sign of the level of efficiency that the electricity sectors have attained. To that front, it means that both Kenya and South Africa need to look beyond their immediate borders in search of benchmarks that can help them to satisfy consumer expectation. The sectors have to device suitable logistics through which to sell their product to different consumers so as to assist the countries of operation to attain their objectives, which are complex in nature. They are complex because the governments alone cannot fully satisfy the needs and wants of their citizens. They rely on intervention by such entities as SMMEs and the manufacturing sector to fill in certain gaps like employment creation and therefore, poverty alleviation.

7.1.3 Impact on Small, Micro and Medium Enterprises (SMMEs)

Various factors were used to assess this impact. Generally, the businesses enjoyed good amount of efficiency with the use of electricity. Thus, it follows that, the recurrent power outages denied the SMMEs that efficiency of operation. Apart from time saving, there was the aspect of accuracy in computing and general efficiency in delivery of services. Torrey and Russell (2001: 2) explain that power interruptions often cause businesses to come to a standstill. Some of the SMME businesses were housed in small rooms, which if electricity went off instantly, they would be forced to stop operation completely.

It also emerged that most SMMEs registered low profit margins. It may be true that the frequent power outages, may have negatively affected the profit levels, yet those profit margins are already low. As already pointed out in Chapter Six Section 6.5.4, the highest annual frequency with profit figures above R0,25 is 19 out of 142 (13.4%) for Kenyan SMMEs and 38 out of 124 (30.7%) for South African SMMEs. As much as the impact of power outages on the profits may be considered to be negative, this conclusion should to be taken with caution. For one, there are many other factors that may affect profitability that this study may not have put into account. Once that is considered, it means that their complaints about high electricity tariffs need to be attended to.

Electricity consumer complaints are mainly centred on price increments and power outages through black outs and rationing. Sometimes the regulators are seen as favouring the electricity sectors when they allow them to frequently review their tariffs upwards (see consumer complaints in Chapter One Section 1.4.1). Regulators are put in place to guard against exploitation of the consumer and ensuring smooth running of activities. However, as discussed earlier, regulation in South African municipalities has been viewed as a liability instead of being an asset to the people it is intended to protect. The municipalities, for example, have been characterized as being time wasting, costly and troublesome in the South Africa (Development Policy Research Unit Working paper 06/107, 2006: 1). NERSA and ERC need to do more and protect the consumers against exploitation that is if the consumer complaints on tariff increment are viewed are exploitative moves.

Although the SMMEs do not have documentary evidence of the frequency of the power outages, this can be gauged from the frequency of electricity consumer complaints and the various and rampant newspapers and magazine commentaries on the same. Eberhard et al., (2008: 4) note that while in the USA power outages could last for on average, one day in ten years, in Africa it could last on an average of 56 days in a year. Most losses that the businesses experience may go or cannot be unreported, for example, a disappointment expressed by a business customer for failure of the business to meet its obligation in a business transaction due to power failure. Torrey and Russell (2001: 2) note that it is not common to find electricity consumers take action (here read "legal action") against utilities for power related losses or damages. Several responses from both Kenyan and South African SMMEs indicated that they had to incur extra costs to seek alternative sources of power, for example, charcoal and gas stoves, or use generators to keep their on course.

This impact can further be reinforced by the data analysis of the electricity and the manufacturing sector outputs. For example, the results from cement output indicate that Bamburi Cement Company has had to seek alternative sources of energy in order that their enterprise does not suffer from failure of meeting their consumers' demand. However, not all those businesses that are reliant on electricity (and almost all, if not, all SMMEs fall in this category) have the capability to either generate their own electric power or have the ease to find alternative sources of power. These are the companies that are likely to suffer huge losses as a result of power failure. It should be noted that power failure disables reliability of service (which in turn reduces costs, improves efficiency, and stimulates growth for

small businesses that rely on electricity. This may result in a huge impact on the lives of poor people by creating jobs).

Other areas of losses cited are damage on machines although this was to a lesser extent. Nevertheless, it was noted that these ventures incurred losses in terms of wastage and "minimal" damage of machines and or output and merchandises for sale. It is not easy to quantify the losses without documentary evidence. Eberhard et al., (2008: 4) argue that rampant power outages result in extensive damages and losses, as high as 16% of the income in the informal sector. Also, the G8 Energy Ministers' 2009 Meeting Proceeding (2009: 9) reveal that in Kenya power outages cost the country's investment levels to drop citing that businesses lost sales revenue to the tune of 7% and a reduction in the GDP of 2%. Equally, Eberhard, Rosnes, Shkaratan and Vennemo (2009: 7) note that the 2008 World Bank data reveal that business losses as a result of electricity outages were placed at 2.1% of the Sub-Saharan Africa's GDP.

Business losses extend to the loss of customers and or negative word of mouth against a given business premise. These losses are likely to affect their efficiency and or profitability whose result would be failure, reduced growth or stagnation. Growth is the basic method of estimating the performance of a business but if power outages bring with them such losses, then the impact of the adoption of the benchmarking strategy may be said to be negative. To curb these negative experiences that businesses reliant on electricity go through, much investment is required by both KPLC and Eskom. This investment should be emphasized in renewable sources of energy especially for the rural connection and other areas that may far off from the conventional sources of generation.

The first item on the list of Millennium Development Goals (MDGs) is to eradicate extreme poverty (Business and the Millennium Goals: A framework for action, 2003: 5). If this goal has to be fully attained, SMMEs businesses have to be support through all possible means. A call should be made to all sectors that have commensurate turnover to enable this sector to thrive by enhancing its ability to grow, develop and eventually become self sustainable. AGECC (2010: 14) emphasizes that if the objectives of the MDGs are to be achieved, access to modern fuel and electricity is critical.

Generally speaking, the level of benchmarking strategy adopted by both KPLC and Eskom have, to some considerable extent, not been able to address the key issue of adequate and affordable supply of electricity to consumers, here represented by the SMMEs (and the manufacturing sector as discussed below). In essence, Kenya is far worse off than South Africa is. In fact, in terms of concern for the poor, Eskom has done a lot more than KPLC. Eskom has the Small Business Development section that is responsible for support of small businesses in South Africa. This is further enhanced by promotion of the same through hosting a series of expos (SouthAfrica.info, 2011), which was held for black-owned small, medium and micro enterprises (SMMEs) to help them to market themselves. There is very limited support if any, for SMMEs by KPLC, which is the more reason why this study is campaigning for them.

7.2 Factors that may have Influenced Adoption of Benchmarking

Another objective that was of interest to this research was to critically analyse the positive and negative factors that may have influenced the adoption of the benchmarking strategy by KPLC and Eskom. There are likely to be many factors that can influence the adoption of the benchmarking strategy of a given organization. The influence can be positive or negative. Many of these factors are already discussed in Chapter Two Section 2.4. They include, environmental and technological challenges, scarcity of resources, challenges related to organizational culture, company-stakeholder conflicts, politics related challenges and corruption, inadequate and or unreliable data, and last, but not least, inefficient debt collecting mechanisms. All these factors have been discussed in relation to both KPLC and Eskom and it has been established that each of these factors have negatively impacted on the companies to a certain degree.

7.3 Other Aspects of Benchmarking Strategy that are of Benefit

It was also the researcher's aim to establish other aspects of the benchmarking strategy used elsewhere in Africa or on the global scale that can be adopted by KPLC and Eskom for their advantage. The literature review of this study has brought together a wide range of aspects of this strategy as used globally and by other African electricity sectors. On the global front, the study has pointed out that such developed countries like the UK and USA have successfully established electricity sectors from which both Kenya and South Africa could borrow ideas. These are the two countries that are cited to have initiated power sector reforms and which countries have been benchmarked by the rest of the world in many aspects. The fact that the power outage of the USA happens on average at the ratio of one day in ten years (Eberhard et al., (2008: 4) is reason enough to establish their strengths in order to selectively borrow what befits the two countries under study in the research. Spain electricity sector is yet another country whose electricity sector's strategy needs to be earmarked since it is said to be generating an amount of electricity more than what the whole of Africa generates (the G8 Energy Ministers' 2009 Meeting Proceedings (2009: 8). How is their SWOT analysis like, so that Africa in general and Kenya and South Africa in particular could benchmark it?

As already mentioned Malgas and Eberhard (2011: 3191) point out that most African states turned to hybrid instead of the initially intended standard model of electricity sector reforms and this result in inefficient service provision as well as inability to satisfy demand. A few countries in Africa have achieved almost 100% national electrification and these include Tunisia (99%), Algeria (98%), Egypt (98%), Libya (97%), Morocco (85%) and South Africa is following closely with 70% (African Business, 2010: 1).

South Africa needs to benchmark what the first five African countries (which are northern African countries) have done in order to achieve that percentage level, only then would power outages and increasing demand for electricity would be a thing of the past. Kenya, like many other African countries has a long way to go and it needs to check on the strategies adopted by those countries whose national level of electrification is above average. Apart from Cote D'Ivoire whose connectivity is 50%, all other African countries have less than half of their population connected to power.

One factor that has helped Tunisia, Libya, Algeria and Egypt to attain enhanced national electrification is the government emphasis on and support for rural electrification (African Business, 2010: 1) "*…as a form of social development over the past 10 or 15 years…"p1.* Gratwick and Eberhard (2008) argue that partly enhanced privatization and a more favourable investment climate in the northern part of Africa than in Sub-Saharan Africa contributed to the high success in national electrification rates. Equally important was the fact that the IPPs had well defined policy frameworks and planning and there was also favourable equity, better debt and security arrangements in the northern part of Africa than their Sub-Saharan counterparts.

Prescribing a model or form of benchmarking strategy adopted by any one country successful that has succeeded in implementing that strategy may not be the best remedy for those electricity companies that seem to be faced with massive consumer complaints and unsatisfied demand. The reason is that each country may be faced with its own unique situation that may not have existed in the countries that have succeeded. However, each country needs to tract the reform strategy taken by those that have succeeded and see which aspect of the reform can suit their country's situation, and then adopt.

7.4 Research Recommendations

The main conclusion arrived at from the research findings was that although both KPLC and Eskom have achieved a lot to help enhance the well-being of their consumers (in this study represented by the SMMEs and the manufacturing sector), the recurrent power outages have tended to diminish this enhancement. Therefore, it follows that both companies need to revise the strategy adopted in as far as benchmarking in the companies is concerned. However, it should be noted that the level of achievement for the two electricity companies is of different magnitude and that the revision of the adoption of the benchmarking strategy is also on different levels as discussed in Chapter Six Section 7.1.

The recommendations are mainly other ways through which SMMEs can be supported and can support themselves so as to enhance their noble contributions to the countries' economy and to those that are involved in and with SMMEs in one way or other. The

category of those involved includes the employees and the consumers of the products and services that the SMMEs have to offer for sale. Also presented in this chapter are suggestions for further research.

7.4.1 Recommendations for Support of SMMEs

Despite the positive contribution that SMMEs make to the economic well-being on international scale, not enough has been done in Africa and other developing economies to enable these entities to further enhance this contribution. As already discussed in Chapter Four Section 4.1.3, there is a strong link between level of availability of energy and the level of poverty. Therefore, the electricity sectors and the government should make it their priority to support any business venture, like the SMMEs, that have the capability of utilising electricity to benefit themselves that also benefit those who are in their employment. The long-run effect of this is socio-economic development. Bruwer (2010: 1) reveals that South Africa alone has a failure rate of between 70 and 80% and that most of those starting collapse within three months of creation. Bruwer further observes that 80% of all small enterprises collapse in their first five years of commencement. Development Policy Research Unit Working paper 06/107 (2006: 1) reinforces Bruwer's views, that many SMMEs start-ups do not go beyond five years and a lesser number develops into full firms.

7.4.1.1 Public-private-partnership (PPP) in Problem-Solving

The first recommendation is a concerted effort in dealing with the survival of SMMEs. This study recommends the joining hands of governments and their stakeholders like the electricity sectors in an effort to boost the growth and development and hence the sustainability of SMMEs. This has already been discussed extensively in Chapter Three Section 3.1.2. No one entity- an individual, an institution or a government- can successfully resolve the difficulties inherent in the start-up, implementation, survival, growth and development and sustainability of SMMEs. Collaborated effort would be the

most viable solution and each entity that has capacity can make their contribution towards the well-being of SMMEs, directly or indirectly. Bruwer (2010: 7) contends that governments worldwide have tended to support SMMEs by providing enabling environments such as creating financial help and organizations that give advice to these entities to enhance their sustainability. Governments should now advocate for support of SMMEs to come from government entities like the electricity sector.

The support the governments have accorded the SMMEs in the past could also come from other government subsectors. An ILO report to the G20 Leaders' Summit, (2009: 27) explains that the SMEs cater for the majority of employment in most economies. The report adds that it is worth-while to target them for support especially in times of economic recess and it notes that one way through which they can be helped is using chances available in public procurement for they are disadvantaged by the tendering procedures that favour large organizations. The 2009 Kenya Economic Report (2009: 75) discloses that through the Sessional Paper No. 2 of 2005 the Kenya government introduced an affirmative policy action of reserving at least 25% of all government procurements to the MSE sector. That sounded a good move towards enhancement of growth, development and the sustainability of SMMEs. Nevertheless, the Report notes that this good promise has not been delivered by the time the report was being published. The Report emphasizes that, for it to be meaningful, the affirmative policy needs legislative backing or guidelines, as is done mostly in other countries such as South Africa, Brazil and Peru.

One concept that runs in almost all the discussions in literature reviews as to how efficient service delivery can be achieved in the public sector is privatization. This concept has been discussed in detail in the Chapter Two and three. The Kenyan and South African electricity sectors and SMMEs and the relationships between these sectors has also been discussed in detail. Summary of the main practices adopted by the KPLC and Eskom that are considered to be equivalent to benchmarking strategy include; introduction of regulators (ERC formerly ERB, for KPLC and NERSA for Eskom), privatization at generation level by bringing on board the IPPs and use of renewable sources of power generation. All these changes have impacted directly or indirectly on the consumers especially where price regulation is concerned. Further improvements on the practices that would help resolve the issues of pricing and general service quality in as far as timely and adequate information

dissemination is concerned as well as matters concerned with power installation, reconnection and billing are required.

Many calls have been made for privatization of the electricity sector, but as already pointed out in the literature review this strategy is not 100% perfect in itself. Holburn and Spiller (2002: 10) propose that sufficient empirical evidence is lacking to trump support for the electricity sector to turn to full or partial privatization that is good for long-term private investment.

Therefore, the current research advocates for a synergy between private and public enterprise (through public-private-partnership-PPP) in solving the problem of reliably and adequate supply of electricity. Full privatization may not be the way to go as it is feared that full private participation may cause hiking in electricity prices, thereby denying the poor access to it because the private sector believes in high price for high efficiency levels. The final recommendation by this study is that, before any verdict is made between implementation of full privatization, one critical question must be answered; "*What should be the most efficient number of sellers (and producers and transmitters in the case of electricity sectors) to supply a particular good or service given firm and market demand characteristics?* The idea behind this question is that not all who have gone private have succeeded 100% therefore, a lot of care should be exercised when demanding for privatization and similarly, when sticking to partial privatization. What best of the two worlds is denied of the other? It is best for policy makers to decide when and how much privatization is required at any one given time in the history of an industry, if and when that strategy seems desired.

7.4.1.2 Inter-Enterprise Self-Help Group Support for Sustainability

As much as the current research has strongly advocates for continued support for SMMEs by the non-governmental sector and the government coupled by its stakeholders (not just in Kenya and South Africa), it is good to point out that SMMEs need to motivate themselves. The current research suggests that SMMEs to also device their own means for growth and development thereby enhancing their sustainability. As pointed out in Chapter Seven Section 7.6 (Section on Further Research), SMMEs need to form and or enhance

their participation in cooperatives through which to support each other and therefore, lowering the cost of doing business and also through which to voice their concerns. As discussed in detail in section 3.8.1 of Chapter Three, economies of scale are a good means of lowering costs. Working together can enable SMMEs to buy, market and transport in bulk, therefore, reducing the costs of these logistics if they were done by individual SMMEs. The synergy inherent in large numbers can help the SMMEs to reduce on some of the problems they face due to their small sizes. Some of these challenges are discussed in Chapter Three Section 3.8.1 and include the liability of smallness.

Equally important is the support of young and up-coming SMMEs by the already established ones. There are several such enterprises which succeeded through support from other organizations; governmental, non-governmental, donors and even individuals. It is fair that once successful and well established, they in turn support the young ones to stability. That will enhance the possibility of interdependency among SMMEs leading to higher success rates of these ventures. Such support could come in by way of mentorship, information sharing training and even financial and technological support. The ultimate result of this would be increased job creation and therefore, enhanced poverty alleviation thus boosting the general well-being of the economy.

7.4.1.3 Cooperation with the Education Sector

SMMEs can benefit from the formal education through linkage to learning institutions, especially so, the higher institutions. There is need for these institutions to embrace the global trend of engagement in community as a legitimate activity Community-university partnership. Such an initiative is found at Monash, North West, Rhodes and StellenBosch Universities in South Africa (Community Team, 2011). The main objective of such an undertaking would be to promote interaction with community through learning by offering service as well as devising methodologies of study that are and community-based. This is essence enriches the synergy between the education sector and the community as each learn and benefit from the other. The International Council for Open and Distant Education (ICDE) (2009: 7-8) emphasis that the existing of a goes beyond mere teaching to involve research and service to community.

The White Paper 1995 of South Africa notes that SMMEs represent an important vehicle that addresses the challenges of job creation, economic growth and equity in the country. The paper emphasizes that from a global perspective, one finds that SMMEs are playing a critical role in absorbing labour, penetrating new markets and generally expanding economies in creative and innovative ways. It would, therefore, be worthwhile to use institutions of learning to mentor and, therefore, to further enhance the contribution made by these critical entities.

There is a possibility and there are likely to be benefits of higher institutions of learning collaborating with its local SMME sector. If and when the synergy between the theoretical perspectives at the university and the practice of the SMMEs are developed merged, the result is likely to be, first improved output by the SMMEs and second, there is likely to be enhanced employment creation which results in poverty alleviation. The SMMEs as a whole need to be evaluated to establish their potential to interact with higher education for the benefit of both the higher education and the SMMEs. These entities can possibly provide opportunities for work experience for students while the institutions could be doing far more to assist these enterprises in building their capacity to make a success of their business. There is room for universities to do more 'reach out' to its communities by making such entities as SMMEs to be aware of who the University is, how it can be accessed, what it can offer, and how it can assist them. The argument behind this is to make SMMEs competitive in their countries in particular and in developing nations in general.

7.5 Limitations of the Study

One area that proved challenging to the researcher is the access to information especially pertaining to financial statements of SMMEs. First and foremost, the SMMEs could not avail their financial information to the researcher for verification. SMMEs are not yet subjected to full disclosure of their financial statements. Institute of Certified Public

Accountants of Kenya (ICPAK) council (2011) and Stainbank (2008: 2-3) note that the requirements associated with accounting reporting for limited companies which have no public accountability (to which category SMMEs fall) are different from the requirements of companies with wide public interest. Therefore, accessibility to their financial statements was not extended to the researcher. It is for this reason that the researcher sought intervention from verifiable data from the manufacturing sector to compare with what responses that were generated from the SMMEs. The responses were used to establish the impact of the adoption of benchmarking strategies by KPLC and Eskom.

Another area the researcher experienced difficulty was in the actual research process. Once an appointment had been agreed upon with the SMMEs, time and again, the questionnaires would not be ready, thus several trips had to be made back to some respondents. Several noted that they had many customers and therefore, they could not leave their customers unattended to fill in the questionnaires. Also, several left a number of blank spaces in the questionnaires, especially pertaining to profit and expenditure on electricity interval data.
On the other hand and unlike the Kenya Power and Lighting Company (KPLC), the Electricity Commission of South African (Eskom) did not allow the researcher to carry out empirical research on their company. They cited company policy as the course of this move to bar "outsiders" other than company employees to carry empirical academic research on their premise (see the two letters attached in Appendices VII & VIII).

7.6 Further Research

There is much research potential in the area of SMMEs since their nature and importance keeps changing. This potentiality also springs from the fact that these are viable ventures to any given country and therefore, effort to initiate their implementation and help sustain their growth and development should be of great interest. Of prime importance is to investigate what SMMEs are doing in an attempt to help themselves. Thus it would be interesting to carry out a research to establish the extent to which these ventures are gearing themselves towards self-sustainability in order that they give the government and its stakeholders as well as the NGOs and donors motivation to support them. Such undertakings like forming and or joining cooperatives movement or societies, among other

initiatives to strategize themselves for continued sustainability would motivate other sectors to support them. At what development stage is each of the SMMEs and what have they been able to do for their sustainability? Is it possible for the SMMEs that have matured to mentor and give support to the "younger" ones? What type of support has been forth coming for the SMMEs, from whom and in what quantity? What other forms of support would the SMMEs value in future? It would be interesting to see the answers to these questions, hence need for further research in these areas.

It is equally important noting here that the researcher initially aimed at finding out the opinion of the management of both KPLC and Eskom on the possibility of helping SMMEs in their effort to establish and implement, grow and develop their ventures. This was not possible due to the policy of Eskom on empirical research at the Eskom premises by non-Eskom employees (See Appendix V). Therefore, the opinion of the management on this impact was not captured in this study. That being the case, it would be interesting to find out what the view of this category of respondents have on the impact of benchmarking on the sector itself and on those businesses which rely on electricity for daily operation.

A study to establish the current rate of SMMEs establishment, rate of failure and role of the regulatory environment in the growth and development of SMMEs is worth investigating. There is lack of sufficient data on the existing number of SMMEs on a global scale. This means that it is also not easy to establish the exact rate of success of failure of these critical entities. What is the rate of failure of those SMMEs that are reliant on electricity for their daily operation? The exact number and types of SMMEs in Kenya and South Africa are also an area that is worth for investigation.

7.7 Conclusion

There have been many attempts by the governments of Kenya and South Africa and the KPLC and Eskom to provide efficient and reliable supply of electricity. However, this has

not been fully attained, as consumer complaints bear witness to this. ADF (2010: 2) notes that despite the development of the Least Cost Power Development Plan for the period 2008-2028, which was updated in 2007, there is still a challenge in the efficient and effective transmission of electricity in Kenya.

As mentioned in the literature review in Chapter Two, benchmarking is about adopting strategies used competitors in a bid to outshine them to gain competitive advantage. It is also about identifying one's own business strategy with those of the best-in-class for the same reason of attaining competitive advantage or simply for the sake of continuous improvement. This research has established from the literature review collected about KPLC and Eskom and also from the statistics on the generation, consumption, export and import, that Eskom is the benchmark, the exemplar, from which KPLC can adopt practices. Kenya needs to expand her generation and therefore the consumption (accessibility of electricity for its citizen consumer) through import and or expansion of electricity generation through use of renewable resources. As much as Eskom has not yet near full satisfying its national electricity demand levels, it can be seen that efforts are being made not to fall below certain levels of generation (refer to Appendix I). The figures are either maintained or the subsequent periods' generation exceeds that of the previous period. Comparatively, KPLC needs to put in extra effort since its figures are constantly fluctuating with sometimes the production of current periods falling far below previous periods.

As much as the current study advocates for special prices for SMMEs as a special consumer for electricity, it is worthwhile to point out here that Eskom, in its corporate social responsibility docket, has already began to voluntarily support small businesses in general. The electricity company has incorporated support for small businesses in its corporate social responsibility initiative. Among its strategic objectives for the small business programme are four main tasks; skills development, job creation, capacity building and poverty alleviation (Eskom Development Foundation, 2011: 16). A lot more is being done to encourage the growth and development of these ventures, for example, through competition among the SMMEs. Again here, Eskom has also emerged as an exemplar in as far as support for SMMEs is concerned. This is an initiative that KPLC needs to initiate for its small business customers

Some companies like Mumias Sugar and Bamburi cement have devised ways of substituting electricity from waste products. Many more companies in Kenya and South Africa and beyond with that capability should take this example to allow their electricity sectors to carter for those businesses and individuals that lack that capability.

REFERENCES

Abdullah, S. and Markandya A. (2010). Rural Electrification Programmes in Kenya: Policy Conclusion from a Valuation Study. *http://ideas.repec.org/p/eid/wpaper/25-09.html.* [Accessed on 23rd March 2011].

Adoghe, A.U., Odigwe, I. A., and Igbinovia, S.O., (2009). Power Sector Reforms-Effects on Electricity Power Supply Reliability and Stability in Nigeria. *International Journal of Electrical and Power Engineering.* Vol. 3 No. 1: 36-42. [Accessed on 30th June 2010].

Advisory Group on Energy and Climate Change (AGECC) of the Secretary General. (2010). Energy for a Sustainable Future: Report and Recommendation. New York: 1-42. *http://www.iea.org/Platform/october/AGECC_report.pdf.* [Accessed on 09th July 2011].

African Business (2010). "*The long road to electrification*". African Business. *http://findarticles.com/p/articles/mi_qa5327/is_360...*[Accessed on 18th November 2011].

African Centre for Open Governance- Africog, (2008). *http://www.africog.org/reports/kplc.pdf.* [Accessed 25th July 2010].

African Development Fund (ADF) (2010). Electricity Transmission Improvement. *Environmental and Social Impact Assessment Document.* *http://www.afdb.org/fileadmin/uploads/afdb/Documents/Env...* [Accessed 30th June 2010].

African International Press-API (2008). Kenya: Price Rise on Electricity Threatens Industry. *http://africanpress.me/2008/09/23/ken-..*[Accessed on 30th May 2010].

Akampurira, E., Root, D. and Shakantu, W. (2009). Stakeholder perceptions in the factors constraining the development and implementation of public private partnerships in the Ugandan electricity sector. *Journal of Energy in Southern Africa.* Vol 20 No 2: 1-8. *http://www.nmmu.ac.za/default.asp?id=11656.* [Accessed on 26th June 2010].

Akintoye, I. R., (2008). Reducing Unemployment through the Informal Sector: A Case Study of Nigeria. *European Journal of Economics, Finance and Administrative Sciences.* Issue 11: 97-106. [Accessed on June 20th 2010].

Ali, I., and Pernia, E.,M., (2003). Infrastructure and Poverty Reduction-What is the Connection? *ADB*, *ERD Policy Brief Series*. *Economic and Research Department.* No. 13:1-15. *http://www.adb.org/Documents/EDRC/Policy...* [Accessed on 15th August 2010].

Amatayakul, W., Berndes, G., and Fenhann, J., (2008). Electricity Sector No-lose Targets in Developing Countries for Post-2012: Assessment of Emissions Reduction and Reduction Credits. *CD4CDM Working Paper Series,* Working Paper No. 6, UNEP: 1-22. *http://www.cd4cdm.org/Publications/ElectricityTargets*[Accessed on 3rd September 2010].

Andersen, B., Fagerhaug, T., Randmael, S., Schuldmaier, J. and Prenninger, J (1999). "Benchmarking Supply Chain Management: Finding Best Practices". *Journal of Business and Industrial Marketing*, Vol. 14 Nos. 5/6: 378-89. http://www.emeraldinsight.com/journals.htm?..[Accessed on 3rd June 2010].

Arianoff, A., (2010). Role of SMMEs in the Development of a Region. *International Information Centre. http://www.ruseu.com/events-fo*r...[Accessed 30th September 2010].

Asaha Test Method PDF Ebook, (2006). *What is Research Design? http://www.nyu.edu/classes/bkg/methods/005847ch1.pdf.* [Accessed 23 July 2010].

Asian Development Bank (ADB) Guidance Note (2009). Electricity Sector Risk Assessment. *http://www.adb.org/Documents/Guidel.....*[Accessed on 7th October 2010].

Auriol, E. and Picard, P. M. (2006). Infrastructure and Public Utilities Privatization in Developing Countries. CEPR DP 5643. *http://idei.fr/doc/by/auriol/developing.pdf.* [Accessed on 10th June 2010].

Barbie, E.R. (2010). *Practice of Social Research.* International Edition (12Edition), Wadsworth- USA: Cengage Learning.

Bhattacharyya, S. C., (2007). Energy Sector Management Issues: An Overview *International Journal of Energy Sector Management.* Vol. 1 No. 1:13-33. http://*www.emeraldinsight.com/journals.htm?* [Accessed on 5th August 2010].

Bogetić, Z. and Fedderke, J.W. (2006). International Benchmarking of South Africa's Infrastructure Performance. *Journal of Development Perspectives.* Vol. 2 No. 2:429-44. *http://www.econrsa.org/papers/p_papers/pp07.pdf.* [Accessed on 8th September 2010].

Bowen, J.T. and Shiang-Lih, C. (2001). The relationship between customer loyalty and customer satisfaction. *International Journal of Contemporary Hospitality Management.* Vol. 13, Issue: 5: 213-217. *http://www.mendeley.com/research/customer-loyalty-hotel-indust...*[Accessed on 9th September 2010].

Braadbaart, O. (2007). Collaborative Benchmarking, Transparency and Performance Evidence from The Netherlands Water Supply Industry. *Benchmarking: An International Journal* Vol. 14 No. 6: 677-692(16). http://*ww.lafollette.wisc.edu/publicservice/perfor...* [Accessed on 20th May 2010].

Braun, V. and Clarke V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology 2006; 3: 77-101.* *http://www.resilienceproject.org/.../braun_clarke_using_...* [Accessed on 31st July 2011].

Bredenkamp B. and Legodi, M. (2006). Energy Efficiency in Domestic Appliances and Lighting. Proceedings of the 4th International Conference Eedal'06. *Institute for Environment and Sustainability*. Vol. 1.

Brew-Hammond A. and Kemausuor, F. (2009). Energy for All in Africa—to be or not to be? *Current Opinion in Environmental Sustainability*. Vol. 1: 83-88. http://www*civil.emu.edu.tr/.../Energy%20For%20All%2..*[Accessed on 10th January 2011].

Brown, H., E., Suryanarayanan, S. and Heydt, T., G. (2010). Some Characteristics of Emerging Distribution Systems Considering the Smart Grid Initiative. *The Electricity Journal.* Vol. 23, Issue 5: 64-77.
http://.*www.eecl.colostate.edu/documents/Sid..*[Accessed on 7th July 2011].

Bruwer, J. (2010). Sustainability of South African FMCG SMME Retail Businesses in the Cape of Peninsula. *CPUT Theses & Dissertations.* Paper 126.
http://dk.cput.ac.za/td-cput/126. [Accessed on 23rd July 2010].

Business Daily, (2010). KPLC brief shows sharp rise in unpaid customer bills. *http://www.businessdailyafrica.com/Corporate+News...*[Accessed on 12th February 2011].

Business Daily, (2010). Chandaria wins Sh58m electricity bill refund. *http://www.businessdailyafrica.com/Corporate+New...[*Accessed on 12th Dec 2010].

Business Daily (2009). Kenya: Electricity Tariffs to Remain High Despite Onset of Rains. *http://allafrica.com/stories/200910191690.html*. [Accessed on 27th Dec 2010].

BusinessDictionary.com Online (2010).
http://www.businessdictionary.com/definition/gap-analysis.html

Business and the Millennium Goals: A framework for action (2003). The Prince of Wales International Business Leaders' Forum in Collaboration with the United National Development Programme.
http://www.iblf.org/~/media/Files/Resources/.../Business_... [Accessed on 3rd May 2010].

Businessknow-How (2011). Women Entrepreneurs. *Small Business Incorporation Special since 1972. http://www.businessknowhow.com/startu...*[Accessed on 10th October 2011].

BusinessReport, (2010). Eskom Top Management get 83 Percent Increase – union. *Edition. Powered by IOL* http://www.busrep.co.za/index...[Accessed 24th October 2010].

Centre for the Study of Social Policy (CSSP), (2007). Customer Satisfaction- Improving Quality and Access to Services and Supports in Vulnerable Neighborhoods-… *http://www.cssp.org/publications/constituents...s.pdf* [Accessed on 19th August 2010].

Chau, V. S., (2009). Benchmarking Service Quality in UK Electricity Distribution Networks. *Benchmarking: An International Journal*, Vol. 16 Issue: 1:47 – 69. http://*www.emeraldinsight.com/journals.htm?ar...*[Accessed on 6th July 2010].

Chen, S., Kuo, H., and Chen, C. (2007). The Relationship between GDP and Electricity Consumption in 10 Asian Countries. Energy Policy Vol. 35, Is.4, April 2007: 2611-2621. *http://www.amazon.com/relationship-between-electr..*[Accessed on 10th August 2010].

Chidaushe, M. (2010). South-South Cooperation or Southern hegemony? The Role of South Africa as a 'Superpower' and Donor in Africa: Special Report on South-South Cooperation 2010. http://www.*Roareport-fefaf-0eb28-pdf..* .[Accessed on 13th may 2011].

Christensen, T., and Laegreid, P. (2003). Trust in Government- the Significance of Attitude Towards Democracy, the Public Sector and Public Sector Reforms. Working paper 7-2003. *Stein Rokkan Center for Social Studies: 1-30.* *http://www.ub.uib.no/elpub/rokkan/N/N07-03.pdf* [Accessed on 7th May 2010]

Ciarreta, A. and Zarraga, A., (2009). Electricity Consumption and Economic Growth: Evidence from Spain. Applied Economics Letters. *http://www.ecomod.org/files/papers/89.pdf.* [Accessed 30th July 2010].

Clark, A., Davis, M., Eberhard, A., Gratwick, K. and Wamukonya, N. (2005). Power Sector Reform in Africa: Assessing the Impact on Poor People. *A study managed by the Graduate School of Business, University of Cape Town for ESMAP/World Bank.* *http://www.siteresources.worldbank.org/.../ESMAP.PowerSec..*[Accessed 27th May 2011].

Collier, P. (2007). Accountability in the Provision of Social Services: A Framework for African Research. *Centre for the Study of African Economies, Department of Economics, Oxford University.* *http://www.aercafrica.org/documents/isd_workingpap...*[Accessed on 15th February 2011].

Collis, J. and Hussey R. (2003). *Business Research: A Practical Guide for Undergraduates and Postgraduate Students.* 2nd Edition. USA: Palgrave Macmillan.

Community Team (2011). The Web Portal for Community Engagement Projects! *http://www.communityteam.org.za/* [Accessed on 12 October 2011].

Consumer Federation of Kenya- COFEK (2011). Kenyans loud outcry on quality of Kenya Power's prepaid meters and billing. *http://www.cofek.co.ke/index.php?option=com_content...*[Accessed on 3rd October 2011].

Conway, T., (1996) *Relationship Marketing within Not-for-Profit Sector* in Buttle F. (1996) *Relationship Marketing*: Theory and Practice. London: Paul Chapman Publishing, SAGE Publications.

Cooper, D., R., and Schindler, P.,S., (2001). *Business Research Methods.* Burr Ridge: McGraw-Hill International Edition: Statistics and Probability Series. 7th Edition.

Cornwell, K. and Inder, B. (2004). Migration and Unemployment in South Africa: When Motivation Surpasses the Theory. *Monash econometrics and business statistics working papers, 2/04. http://csae.ox.ac.uk/conferences/2004-GPa.../* [Accessed on 12th July 2011].

Coulter, M. (2010). *Strategic Management in Action.* Upper Saddle River: Pearson Prentice-Hall, International Edition.

DA Discussion Document (2008). Electricity Reform.
http://www.da.org.za/docs/625/Electricitysectorreform-do... [Accessed on 23rd July 2010].

Dagdeviren, H., (2009). Limits to Competition and Regulation in Privatized Electricity Markets. Annals of Public and Cooperative Economics, 80(4): 641-664.
http://dx.doi.org/10.1111/j.1467-8292.2009.00395... [Accessed 10th November 2010].

Das, R., R. (2010). Introducing Competition in the Power Sector in India: An Adoption of the US Model. *Journal of Indian Business Research.* Vol. 2 No. 2, 2010: 82-91.

Delpachitra, S. (2008). Activity-Based Costing and Process Benchmarking: an Application to General Insurance. *Benchmarking: An International Journal,* Vol. 15 No. 2: 137-47. *http://ww.emeraldinsight.com/journals.htm?a.* [Accessed on 4th August 2010].

Department For International Development (DFID), (2009). Africa: Eastern and Southern. *http://www.dfid.gov.uk/Where-we-work/Africa-*.....[Accessed on the 12th October 2010].

Department of Minerals and Energy, (DME) (2008). National Response to South Africa's Electricity Shortage: Interventions to address electricity shortages. *http://www.info.gov.za/otherdocs/2008/nationalresponse_*...[Accessed on 20th April 2011].

Department of Minerals and Energy, (DME) (2001). Reform of the Electricity Distribution Industry (EDI) in South Africa: Strategy and Blueprint.
http://www.EDIDMEBlueprintReportFeb2001.... [Accessed on 13th August 2010]

Departmental Committee on Energy, Communications and Information (The), (2010). Report of the Departmental Committee on Energy, Communications and Information on the Ownership and Status of KPLC.
http://ww.bunge.go.ke/index.php?option=com_docman&It...[Accessed *13*th August 2010].

Development Policy Research Unit (DPRU) Working paper 06/107, (2006). *Impact of Municipalities Regulations on SMMEs.*
http://ww.commerce.uct.ac.za/research_units/.../WorkingPape.[Accessed 20th May 2010].

Denkena, B., Apitz, R., and Liedtke, C. (2006) Knowledge-based benchmarking of Production performance. *Benchmarking: An International Journal.* Vol. 13 No. 1/2, 2006: 190-199. http://*www.emeraldinsight.com/journals.htm?ar.*.[Accessed on 30th July 2010].

Dickey, D.A. and Fuller, W.A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association.* Vol 74: 427-431. *http://www.mendeley.com/research/distrib...*[Accessed on the 4th October 2011].

DiLorenzo, T., J., (1998). The Myth of Natural Monopoly. *The Review of Austrian Economics.* Vol. 9. No. 2 (1996): 43-58. *http://www.ises.org/journals/rae/pdf/R92_3.pdf* [Accessed on 4th September 2010].

Dorcsh, J., and Yasin, M. M., (1998). A Framework for Benchmarking in the Public Sector Literature Review and Directions for Future Research. *International Journal of Public Sector Management.* Vol. 11 No. 2/3: 91-115. *http://www.emeraldinsight.com/journals.htm?articleid...*[Accessed on 3rd April 2010].

Drucker, P. (2006). The Essential Drucker: The Pre-eminent Management Thinker of Our Time. Oxford: Butterworth Heinemann.

Eberhard, E. and Gratwick, K. (2010). IPPs in Sub-Saharan Africa: Determinants of Success. *Management Programme in Infrastructure Reform & Regulation*: 1-61. *http://www.gsb.uct.ac.za/files/AEIPPs_30_8_201028995.pdf* . [Accessed on 5th July 2011].

Eberhard, A. and Pickering, M. (2010). Electricity Security: Urgently unbundle Eskom to unlock private investment. *BusinessDay.* *http://www.businessday.co.za/articles/Content...8783.* [Accessed on 26th October 2010].

Eberhard, A., Rosnes, O., Shkaratan, M. and Vennemo, M. (2009). Africa's Infrastructure, Investment, Integration Efficiency. *The World Bank.* *http://www.gsb.uct.ac.za/files/AfricasPowerInfrastruc...pdf.* [Accessed on 13th July 2011].

Eberhard, A., Foster, V., Briceño-Garmendia, C., Ouedraogo, F., Camos, D. and Shkaratan, M. (2008). Underpowered: The State of the Power Sector in Sub-Saharan Africa. *Africa Infrastructure, Country Diagnosis. Background Paper 6. The International Bank for Reconstruction and Development / The World Bank.* *http://www.infrastructureafrica.org/system/.../BP6_Power...*[Accessed on 25th July 2010].

Eberhard, A. and Gatwick, K. (2005). The Kenyan IPP Experience- Program on Energy and Sustainable Development. *Working Paper # 49. http://pesd.stanford.edu*. [Accessed 30th October 2010].

Electricity Commission of New Zealand (2010). Final Electricity Commission Annual Report. *http://www.parliament.nz/NR/rdonlyres/B32197...*[Accessed on 10th July 2011].

Electric Power Production Licence (2005). *http://www.erc.go.ke/Iberafrica.pdf.* [Accessed 25th July 2010].

Emirbayer, M. (1997). Manifesto for a Relational Sociology. *American Journal of Sociology, 103(2), 281-317*. http://www.*org.sagepub.com/co.*.[Accessed on 30 May 2010].

Enablis Entrepreneurial Network (Enablis) (2007). Enablis Launches East African hub in Kenya as newest region in its global entrepreneur Network Sh1bn for Kenyan entrepreneurs. *http://www.enablis.org/files/documents/Ena..*[Accessed on 4th March 2011].

Encyclopedia of Business.com
http://www.businessdictionary.com/definition/benchmark.... [Accessed 30th May 2010].

Encyclopedia of Small Business.com (2006). Economies of scale. Ed. Kevin Hillstrom and Laurie Collier. Hillstrom: Gale Cengage. *http://www.enotes.com/small-business-encyclopedia/economies-scale.* [Accessed on 11th March 2011].

Enders, W. 2005. Applied Econometric Time Series. 2nd Edition.
New York: John Wiley and Sons.

Energy, Environment and Development Network for Africa –AFREPREN/FWD, (2009). The Role of Feed-in Tariff Policy in Renewable Energy Development in Developing Countries: A Toolkit for Parliamentarians.
http://www.e- parl.net/eparlimages/general/pdf/0909...s.pdf. [Accessed on 20th June 2010].

Engle, R.F. and Granger, C.W.J. (1987) Cointegration and Error Correction: Representation, Estimation and Testing. *Econometrica*. vol. 55, issue 2: 251-76.
http://ww.ntuzov.com/Nik_Site/Niks_files/Research/.../ [Accessed on 24th August 2010].

Erbaykal, E., (2008). Disaggregate Energy Consumption and Economic Growth: Evidence From Turkey. *International Research Journal of Finance and Economics* - Issue 20. *http://www.eurojournals.com/irjfe_20_14.pdf.* [Accessed on 27th August 2011].

Erero, J., L., (2010). The Impact of Electricity Pricing Shock on the South African Economy: A CGE Analysis1-Draft. *Unpublished Article.*
http://www.kznded.gov.za/.../Impact%20of%20Electricty..[Accessed on 25th August 2010].

Esi-africa.com (2009). KPLC to Expand Prepay Metering. *The Online Power Journal for Africa. http://www.esi-africa.com/node/10116.* [Accessed on 23rd March 2011].

Eskom Development Foundation (2011). Corporate Social Responsibility.
http://www.eskom.co.za/content/Eskom%20Developm...[Accessed on 23rd October 2011].

Eskom Holdings SOC Limited (2011). Prepayment Electricity.

http://www.prepayment.eskom.co.za/default.asp... [Accessed on 23rd Oct 2011].

ESKOM Holding Limited Annual Report, (2009).pp.105-213.
http://www.ESKOM.co.za/annreport09/...2009/.../04_busine..[Accessed on 20th July 2010].

FinScope South Africa Small Business Survey 2010, (2010). *FinMark Trust*. Pp 1-45. *http://www.finscope.co.za/sme.html...* [Accessed on 12th June 2011].

Ford, N., (2006). Kenya to Build on KenGen Flotation Success: Huge Public Demand for Shares in Kenya's Power Generating Giant KenGen…*Business Publication. http://findarticles.com/p/articles/mi_qa5327/is_322/ai...* [Accessed on 20th June 2010].

Francis, J. (2008). Benchmarking; Get the Gain. *Supply Chain Management Review*. *http://www.imperiallogistics.co.za/document/ir-benchmark..* [Accessed on 19th May 2011].

G8 Energy Ministers' Meeting (2009). Africa Energy Poverty. *The World Bank.*
http://www.g8energy2009.it/pdf/27.05/G8_Africa_Ener... [Accessed on 18th April 2010].

Gaunt, C.T. (2005). Meeting electrification's social objectives in South Africa, and implications for developing countries. *Energy Policy.* Vol. 33, Issue 10: 1309-1317. *http://www.uct.ac.za/depts/commnetwork/publication...*[Accessed on 18th May 2010].

Generation Communication, (2007). ESKOM-Fact Sheet: GFS 0014 Revision 4. *http://www.ESKOM.co.za.* [Accessed on 20th June 2010].

Gipe, P., (2009). *South Africa Introduces Aggressive Feed-in Tariffs.*
http://www.renewableenergyworld.com/rea/news/article...[Accessed on 25th August 2010].

Global Network on Energy for Sustainable Development (GNESD), (2007). *Reaching the Millennium Development Goals and Beyond: Access to Modern Forms of Energy as a Prerequisite. http://www.gnesd.org/publications.html.* [Accessed 20th June 2010].

Gonzalez-Eiras, M., and Rossi, M. A., (2007). The Impact of Electricity Sector Privatization on Public Health. *Research Network Working Paper #R-524. Inter-American Development Bank. http://ww.iadb.org/res/publications/pu...* [Accessed on 2nd April 2010].

Government Notice no. 1389 (2008). *Electricity Pricing Policy (EPP) of the* South African Electricity Supply Industry.
http://ww.NERSA.org.za/Admin/.../Electricity%20Prici...pdf.[Accessed on 8th July 2010].

Government Gazette No. 29101. (2004).
http://www.info.gov.za/view/DownloadFileAction?id=67...[Accessed on 10th June 2010].

Gratwick, K. and A. Eberhard (2008). 'An Analysis of Independent Power Projects in Africa: Understanding Development and Investment Outcomes', Draft MIR Working Paper. *Development Policy Review*, 26 (3): 309-338. *http://www.ideas.repec.org/a/bla/devpol/v26y2008i3...[Accessed* on 29th September 2010].

Gratwick, K. and Eberhard, A. (2005). The Kenyan IPP Experience: Program on Energy and Sustainable Development-*Working Paper No. 49*. *http://www.iis-db.stanford.edu/pubs/20976/Kenya_IPP_Ex.* [Accessed on 21st July 2010].

Gudlaugsson, T., (2007). *The effect of Competition on Expectation, Perception and Loyalty of University Students*: 1-11. *http://notendur.hi.is/~th/efni/AM2006.pdf.* [Accessed on 25th July 2010].

Hanser, P.Q. (2010). On Dynamics of Prices: A Clash of Beliefs. *The Electricity Journal.* Vol. 23, Issue. 6: 36-66. *http://ww.brattle.com/Experts/ExpertDetail.asp?Expert...* [Accessed on 5th August 2011].

Heakal, R., (2003). "What are Economies of Scale?" *Investopedia.* 2003 . *http://www.investopedia.com/articles/03/060403.asp*. [Accessed on 3rd August 2010].

Healthcare Purchasing News (2002). *Benchmarking: best practices to improve central service – 1.http://findarticles.com/p/articles/mi_m0BPC/....*[Accessed on 25th July 2010].

Henze II. F. (2009). Electricity: If We Want it Clean, Firm and Cheap, We're Going to Have to Pick Two. The *Electricity Journal.* Vol. 22 No. 9: 81-87. *http://www.ideas.repec.org/a/eee/jelect/v22y2009i9p...*[Accessed on 29th December 2010].

Hinton, M., Francis, G. and Holloway, J., (2000). Best practice benchmarking in the UK. *Benchmarking: An International Journal.* Vol. 7 No. 1: 52-61. *http://www.emeraldinsight.com/journals.htm?articleid..*[Accessed on 6th November 2010].

Hsieh, C., Nickerson, J.A., and Zenger, T.R. (2007). Opportunity Discovery, Problem Solving and the Entrepreneurial Theory of the Firm. *http://uva.academia.edu/ChihmaoHsieh/.../Hsieh_C._N...[*Accessed on 10th January 2011].

Hoagland, S. R. (2008). Microeconomics and Public Policy. *Ebsco Research Starters. Academic Research Topics.* [Accessed on 3rd Nov. 2010].

Holburn, G.L.F. and Spiller, P.T. (2002). Institutional or Structural: Lessons from International Electricity Sector Reforms. *The Economics of Contracts: Theories and Applications.* Edited by Eric Brousseau and Jean-Michel Glachant, Cambridge University Press, 2002. *http://www.ivey.uwo.ca/faculty/ghol.* ..[Accessed on 10September 2010].

Hossain, A., Naser, K., Islam, R. and Zaman, A. (2009). The Difference between Public and Private University Women Graduates in the Development of Small Enterprises: Evidence from an Emerging Economy. *Journal of Applied Business and Economics www.wbiconpro.com/london%20economics/Hossain....pdf* [Accessed on 13th July 2011].

Howard, M. and Kilmartin, B., (2006). Assessment of Benchmarking within Government Organizations. *Accenture Publication.*
http://www.accenture.com/xdoc/en/services/Assessm.....pdf. [Accessed on 20th May 2010].

HR.com (2010). SMEs in Kenya Need a Structured Business Environment on Start-Up to Successfully Grow. *http://www.hr.com/en/app/blog/2010/09/smes-in-kenya-need-a-structured-business-environme_ged458fe.html* [Accessed on 2nd March 2012].

Iarossi, G., (2009). Benchmarking Africa's Costs and Competitiveness. *2009 World Economic Forum, the World Bank and the African Development Bank.*
http://www.weforum.org/pdf/AFCR09/selectedissues/1.4B... [Accessed on 23rd July 2010].

ILO Report (2011). Promoting Descent Work in Green Economy, an ILO Background Note to Green Economy: Pathyways to Sustainable Development and Poverty Eradication, UNEP 2011. *http://www.ilo.org/wcmsp5/groups/public/@...* [Accessed on 24thJune 2011].

ILO report to the G20 Leaders' Summit (2009). Protecting people, promoting jobs: A Survey of Country Employment and Social Protection Policy Responses to the Global Economic Crisis. *International Labour Office:* 1-50.
*www.**ilo**.org/pls/apex/f?p=109:51:2959678702187533...*[Accessed on 24th June 2011]

ILO (2003). *ILO launches global campaign on social security for all.* Geneva, International Labour Organization
*http://www.ilo.org/global/About_the_ILO/Media_and_publ*i...[Accessed on 8th May 2011].

Index Omundi (2008). Historical Data Graphs per Year.
http://www.indexmundi.com/g/g.aspx?v=81&c=ke&l=en. [Accessed on 20th May 2010].

International Atomic Energy Agency (IAEA, (2002). Energy and Poverty the World Needs Far More Electricity to Power Development, Latest Global Energy Study Finds. *http://www.iaea.org/Publications/Magazines/Bullet....pdf.*[Accessed on 23rd August 2010].

International Certified Public Accountants of Kenya (ICPAK) Council (2011). IFRS for SMEs. *http://www.icpak.com/index.php?option=com_conte..* [Accessed on 1st July 2011].

International Council for Open and Distant Education (ICDE) (2009). G*lobal Trends in Higher Education, Adult and Distance Learning.*
http://www.icde.org/filestore/Resources/Reports/FINAL...[Accessed on 30th August 2011].

International Energy Agency (2006). China's Power Sector Reforms: Where to from Next? *Organization for Economic Co-operation and Development (OECD).PP1-161. http://www.iea.org/textbase/nppdf/free/2006/chinapower.pdf.* [Accessed 23rd July 2010].

International Standards Organization-ISO, (2008). *ISO 9000 Essentials http://www.iso.org/iso/iso_catalogue/management_standar..*[Accessed 20th August 2010].

ITDG, IT Consultants, IT Power and ITDG Latin America (2006). Green Peace MDG-Sustainable Energy for Poverty Reduction: An Action Plan. *UN Energy Paper. PP1-65.* http://*www.practicalaction.org/docs/advocacy/itdg-greenp...* [Accessed on 13th July 2010].

Jamasb, T. Mota, R., Newberry, D., and Politt, M., (2005). Electricity Sector Reform in Developing Countries: A Survey of Empirical Evidence on Determinants and Performance. *The World Bank Policy Research Working Paper 3549, March 2005:1- 78.* http://*www.ideas.repec.org/p/wbk/wbrwps/3549.html* [Accessed on 12th July 2010].

Jean-Pierre, C., Huyen, N.T., Chi, N.H., Mireille, R., Francois, R. and Torelli, C. (2010). Comparing the Informal Sector in Vietnam and Africa, In *The Informal Sector in Vietnam: A focus on Hanoi and Ho Chi Minh City, Hanoi*: The Gioi Editions 2010: 1-21. http://*www.campus.iss.nl/~grimm/InformalityVietnamAfrica..*[Accessed on 23rd July 2010].

Jen-Shi, N. and Jin-Chung, L. (2010). The study in house market and stock market in China-HongKong-US // *2010 International Conference on Business and Economics Research vol.1. http://webcache.googleusercontent.com/search?...*[Accessed on 27th Feb 2012].

Johansen, S. (1988), "Statistical Analysis of Cointegration Vectors", *Journal of Economic Dynamics and Control* 12: 231-254. *http://www.ideas.repec.org/a/eee/dyncon/v12y1988i2-3p231-254.html.* [Accessed on 17th August 2011].

Johansen, S. (1991), "Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models", *Econometrica* 59: 1551-1580. *http://www.jstor.org/stable/2938278*. [Accessed on 17th August 2011].

Johansen, S. and Juselius, K. (1990), "Maximum Likelihood Estimation and Inference on Cointegration – with Applications to the Demand for Money", *Oxford Bulletin of Economics and Statistics* 52: 169-210. *http://paper.blog.bbiq.jp/Johansen_and_Juselius_1...* [Accessed on 27th September 2011].

Johansen, S., 1995, *Likelihood-Based Inference in Cointegrated Vector Autoregressive Models*. Oxford: Oxford University Press. *http:www.econpapers.repec.org* [Accessed on 31st June 2011].

Jooste S.,F., (2008). A New Public Sector in Developing Countries: Working Paper # 36. *Collaboratory for Research on Global Projects (GRGP):.1-22*

http://www.crgp.stanford.edu/publications/.../S_Jooste...pdf. [Accessed on 24thJune 2010].

Joskow, P.L. (2005). Regulation of Natural Monopolies. *Center for Energy and Environmental Policy Research- A Joint Center of the Department of Economics, Laboratory for Energy and the Environment and Sloan School of Management. 05-008* WP. *http://web.mit.edu/ceepr/www/publications/workinga*...[Accessed on 2nd April 2011].

Karlsson, J. and Rohl, D. (2002). Market Efficiency, Cointegration and Causality. International Monetary Economics Term Paper. *http://www.rlsson.net/DJTermPaper.pdf*. [Accessed on 8th June 2011].

Karekezi, S., Kimani, J. and Onguru, O. (2008). "Energy Access among the Urban Poor in Kenya". Energy for Sustainable Development. *The Journal of the International Energy Initiative, Volume XII, Issue No.4*. International Energy Initiative: Bangalore: 38-48. *http://unu.academia.edu/.../Papers/.../Why_Rural_Rich_Rem.*[Accessed on 1st June 2010]

Karekezi, S., Kimani, Atiang', J., Onguru, O. and Mbithi, J. (2007). Occasional Paper 31: Sustainable Energy & Community Participation in Biomass - Based Co-generation in Kenya. *HBF-HA and AFREPREN/FWD. http://www.afrepren.org/Pubs/occasionalp.htm*. [Accessed on 3rd May 2010].

Kauffmann, C. (2005). Financing SMEs in Africa. *Policy Insights No. 7 is derived from the African Economic Outlook 2004/2005, a joint publication of the African Development Bank and the OECD Development Centre. www.oecd.org/dev/aeo...*[Accessed on 2nd March 2012].

Kenya (2006) Bringing Competition into Regulated Sectors: Focus on Kenya. *http://www.unctad.org/sections/wcmu/docs/c2clp_ige7p24..pdf* [Accessed 30th May 2010].

Kenya Bureau of Standards, (2009).
http://www.kebs.org/quality_assessment_inspection.php#. [Accessed on 25th July 2010].

Kenya Association of Manufacturers (KAM), (2009). *Market Access for SMES through Private and Public Procurement in Kenya.*
http://www.kepsa.or.ke/pdfs/KAM_Profile_2009.pdf. [Accessed on 30th May 2010].

Kenya Economic Report (2009). *Building a Globally Competitive Economy*. Kenya Institute for Public Policy Research and Analysis.
http://www.marsgroupkenya.org/pdfs/2009/10/Kenya_Econo....[Accessed 30th July 2010].

Kevin Kennedy Associates, (2009). I*SO 9000.*
http://www.rapid-response-consulting.com/case-study..3.aspx. [Accessed 28th June 2010].

Khan, R.E. (2010). Developing Theoretical and Social Framework. Lecture J199.

http://www.scribd.com/patrisyal123/documents. [Accessed on 30th February 2011].

Khosroshahi, K., A., Jadid, S. and Shahidehpour, M. (2009). Electric Power Restructuring in Iran: Achievements and Challenges. *The Electricity Journal, Vol.efo 22, Issue 2:* 74-86.

Khumalo, G., Ntlokonkulu, L. and Rapoo, T. (2004). *Alternative Service Delivery Arrangements at Municipal Level in South Africa*. http://www.afrimap.org/.../Alternative%20service%20de..[Accessed on 23rd August 2010].

Kibas, P.B. (2005) Challenges Facing Women Entrepreneurs: A paper presented at the 3rd Africa Resource Bank Meeting, November 27-30, 2005. *http://www.africanexecutive.com/modules/magazine/ar..e7*. [Accessed on 23rd June 2011].

Kingdom, B., and Jaganathan, V., (2001). Utility Benchmarking. *View Point March 2001. No. 229.* Washington DC: The World Bank Group, Private Sector and Infrastructure Network.

Kipkirui, K. R., (2008). *Liberalization of Electricity Sub-sector in Kenya; Energy Act 2006 Enhancement of Access to Electricity.*
http://www.updea-africa.org/updea/DocWord/pdfEng/LI...pdf. [Accessed 18th May 2010].

Koller, M. and Salzberger, T. (2009) Benchmarking in Service Marketing – a Longitudinal Analysis of the Customer. *Benchmarking: An International Journal, Vol. 16 No. 3, 2009. pp. 401-414* [Accessed on 2nd May 2010].

Kotler, P., and Armstrong, G., (2010). *Principles of Marketing: Global and South African Perspectives.* Prentice-Hall; Pearson.

Kouakou, A.K. (2011). Economic Growth and Electricity Consumption in Cote d'Ivoire: Evidence from Time Series Analysis. *Journal of Energy Policy, Vol. 39, pp 3638-3644. http://www.sciencedirect.com/science/article/pii/S014...* [Accessed on 5th October 2011].

Kwiatkowski, D., Phillips, P.C.B., Schmidt, P. and Shin, Y. (1992). Testing the Null Hypothesis of Stationarity against the Alternative of a Unit Root. *Journal of Econometrics- North-Holland.* Vol. 54: 159-178.
http://www.ideas.repec.org/a/eee/econom/v54y199...[Accessed on 20 June 2010].

Lai, J. H. K., and Yik, F. W. H., (2008), "Benchmarking operation and maintenance costs of luxury hotels". *Journal of Facilities Management.* Vol.6 No. 4: 279-89. *http://www.emeraldinsight.com/journals.htm?articleid...*[Accessed on 10th May 2010].

Landsberg, B. E., (2004). The NonProfit Paradox: For-Profit Business Models in the Third Sector. *The International Journal of Not-for-Profit Law.* Vol. 6, Issue 2. *http://ww.medact.org/.../...*[Accessed 19th May 2010].

Langley, P., and Rogers, S. (2005). An Extended Theory of Human Problem-solving. Proceedings of the Twenty- *seventh Annual Meeting of the Cognitive Science Society. http://cll.stanford.edu/research/ongoing/icarus/...* [Accessed 19th Sept 2010].

Lauria, P. (2003). Benchmarking in an Era of Heightened Accountability and Budget Constraints. *http://www.mercury-assoc.com/resources/Be....* [Accessed on 19th June 2011].

Lo, D. Y.F. (2010). Urbanization and Economic Growth: Testing for Causality. *A paper presented at the 16th Annual Conference, January 24th -27th 2010, Wellington, New Zealand. http://www.prres.net/papers/Lo_Urbanization_Economic_G....* [Accessed on 9th June 2011].

Lukacs, E., (2005). The Economic Role of SMEs in World Economy, Especially in Europe", *European Integration Studies, Miscol*, Vol. 4 No.1: 3-12. http://*www.uni-miskolc.hu/uni/res/kozlemenyek/2005/pdf/* …[Accessed on 2nd May 2010].

Magombo, G. and Jeffrey F. (2009). Technical Report: National Energy Policy Strategy Implementation Plan. *AECOM International Development http://www.satradehub.org/energy-sector/.../energy.../ener..*[Accessed on 3rd March 2011].

Mail and Guardian (2010). Eskom gets price hike, inflation fears rise. *http://www.mg.co.za/article/2010-02-24-ESKOM-get..[*Accessed on 29th December 2010].

Mail and Guardian (2010). South Africa Invited to Join Brick Group. *http://mg.co.za/article/2010-12-24-south-africa-invite...* [Accessed on 4th February 2011].

Malgas, I. and Eberhard, A. (2011). Hybrid Power Markets in Africa: Generation Planning, Procurement and Contracting Challenges. *Journal of Energy Policy.* Vol. 39, Issue 6: 3191-3198. *http://www.gsb.uct.ac.za/files/Hybridpowermar...*[Accessed on 5th August 2011].

Malzbender, D., (2005). Domestic Electricity Provision in the Democratic South Africa. *Nordic Africa Institute's Conflicting Forms of Citizenship Programme. http://www.acwr.co.za/pdf_files/01.pdf.* [Accessed on 11th September 2010].

Mamman, A. Eldridge, D and Brannie, (2007). Skills Needs of SMEs and the Informal Sector in Africa: Problems and Prospects of Employment Creation in Nigeria. *Scientific Journal of Administrative Development.* Vol. 5: 145-177. *http://www.iad.gov.qa/arabic/images/stories/volume5.pdf* [Accessed on 16th August 2011].

Mathew, P., E. Mills, N. Bourassa, M. and Brook, M. (2008) *Action-oriented Benchmarking:* Using the CEUS Database to Benchmark Commercial Buildings in California. *Energy Engineering*. Vol. 105, No. 5: 6-18. http://*evanmills.lbl.gov/pubs/pdf/aob-eneng-part2.pdf* [Accessed on 4th June 2010].

Maxwell, T. W. (2003) Defining the (research) Professional Doctorate: Can the Notion of the Creative Arts Portfolio Contribute? *Paper Prepared for AARE Mini-Conference entitled, 'Doctoral Studies in Education and the Creative and Performing Arts. http://citeseerx.ist.psu.edu/viewdoc/summary?doi=...*[Accessed on 3rd May 2010].

Moriarty, J. P. (2008). A Theory of Benchmarking. *Lincoln: Lincoln University. http://www.researcharchive.lincoln.ac.nz/dspace/bitstr..*[Accessed on 8th May 2010].

Moriarty, J. P., and Smallman, C., (2009). En Route to Theory of Benchmarking. *Benchmarking: An International Journal.* Vol. 16 No. 4:. 484-503. *http://www.emeraldinsight.com/journals.htm?articleid...*[Accessed on 1st June 2010].

Martina, S., Hakvoort R., and Ajodhia, V., (2008). Benchmarking as a Management and Regulatory Instrument for Caribbean Electric Utilities. *International Journal of Energy Sector Management.* Vol. 2 No. 1: 75-89. *http://www.nextgenerationinfrastructures.eu/download...*[Accessed on 2nd July 2010].

Mbendi Information Services (2010) *Electric Power in South Africa. http://www.mbendi.com/indy/powr/af/sa/p0005.htm.* [Accessed on 20th July 2010].

McAfee, R. P. and Lewis, T. R. (2010). *Introduction to Economic Analysis. http://www.flatworldknowledge.com/node/154686.* [Accessed on 11th June 2011].

McAllister, L. And Dawson, K.L. (2010). Restoring Faith in the Bulk-Power System: An Early Assesment onf Mandatory Reliability Standards. *The Electricity Journal* Vol. 23 Issue 2: 18-28. *http://www.ferc.morganlewis.com/2010/..*[Accessed on 5th February 2011].

Micro-Finance Risk Management REport (2008). The Potential for Credit Scoring firm SMEs Lending in Kenya. *Financial Sector Deepening-Kenya Publication. http://www.fsdkenya.org/pdf_documents/FSD_Credit_Sco....*[Accessed 16th on May 2010].

Migiro, S. O. (2005). The financing Perspective of Small- and Medium-Sized Manufacturing Enterprises in Kenya. Un*published Thesis- University of Zululand.* [Accessed on 25th July 2010].

Mizen, P. (2008). The Credit Crunch of 2007-2008: A Discussion of the Background, Market Reactions, and Policy Responses. F*ederal Reserve Bank of St. Louis Review. 90*(5): 531-67. *http://research.stlouisfed.org/publications/rev...*[Accessed on 5th September 2010].

Moore, M., (2008). Benchmarking: How Xerox Regained its Competitive Edge. *Pacific International. http://www.improvementandinnovation.com/features/project/b...*[Accessed 30th July 2010].

National Energy Regulator of South Africa (NERSA) (2010). NERSA's Decision on Eskom's Required Revenue Application - Multi-Year-Price-Determination 2010/11 to 2012/13 (MYPD 2).
http://www.eskom.co.za/content/MediaStatementMYPD2.... [Accessed on 2nd Feb 2011].

National Energy Regulator of South Africa (NERSA) Annual Report (2008). *Department of Minerals and Energy.*
http://www.info.gov.za/view/DownloadFileAction?...93533. [Accessed on 30th July 2011].

National Labour and Economics Development Institute (NALEDI), (2006). Equity and Efficiency in the Restructuring of South Africa's Electricity Industry. *Global Policy Network. http://www.gpn.org.* [Accessed 30th June 2010].

National Consumer Forum (NCF), (2009). *Placing Consumer Issues on the Agenda.http://www.ncf.org.za/main.php?include=docs/pr/200..*[Accessed 20th June 2010].

Needham D., L., and Merrow, E., W., (2003). Benchmarking Petroleum Asset Development Requires Individual and System Focus. *Offshore Magazine-E-newsletter.* Vol. 63. Issue 1. Independent Project Analysis Inc. http://www.offshore-mag.com/index/article-display/166085/articles/shore/volume-...[Accessed 29th July 2010].

Neighbourhood (2011). Land Reform: A Broken Promise? *The Authoritative Journal of The Kenya Alliance of Resident Association.*
http://www.kara.or.ke/resources/KARA%20AUGUS...1[Accessed on 14th October 2011].

Neuman, W.L. (2011). *Social Research Methods: Qualitative and Quantitative Approaches.* Toronto: Pearson Education, Inc.

Newberry, D., (2006). The Role of Small- and Medium-Sized Enterprises in the Future of Energy Economies. *e-document*.
http://earthtrends.wri.org/features/view-features.php?=69&t... [Accessed 30th May 2010].

Ngigi, Ashington and Macharia Daniel (2006) "Kenya: Water Sector Policy Overview Paper", IT Power East Africa.
http://www.enable.nu/publication/D_1_7_Kenya_Water..[Accessed on 7th June 2010].

Nyangena, K., O., (2008). Privatization of Water and Sanitation Services in Kenya: Challenges and Prospects. *Council for the Development of Social Science Research in Africa, 2008. Africa Development,* Vol. XXXIII, No. 4, 2008: 117-131. *http://www.ajol.info/index.php/ad/article/view/57347* [Accessed on 1st November 2010].

Nyoike, P., (2002). Is the Kenyan electricity regulatory board autonomous*? Energy Policy*. Volume 30, Issues 11-12: 987-997.
http://www.sciencedirect.com/science/article/pii/S03014...[Accessed on 5th June 2010].

Odhiambo, N., (2009). Electricity consumption and economic growth in South Africa: A Trivariate Causality Test. *Energy Economics* Volume 31, Issue 5*: 635-640. http://www.ideas.repec.org/a/eee/eneeco/v31y2009i5p6...*[Accessed on 3rd May 2010].

Okatch, B.A., Mukulu, E. and Oyugi, L. (2011). The Motivation behind Subcontracting Relationships between Large Firms and Small and Medium Enterprises In the Motor Vehicle Manufacturing Industry in Kenya. *Australian Journal of Business and Management Research Vol.1 No.3. http://www.ajbmr.com/articlepdf/ajbmrv01n0303.pdf* [Accessed on 27th Feb 2012].

Olawale, F., and Garwe, D., (2010). Obstacles to the Growth of New SMEs in South Africa: A Principal Component Analysis Approach. *African Journal of Business Management.* Vol. 4 No. 5: 729-738.
http://www.academicjournals.org/.../pdf2010/.../Olawale..[Accessed on 1st June 2011].

Organization for Economic Co-operation and Development (OECD) Report (2000). Science and Technology Industry- The Service Economy. *Business and Industry Policy Forum Series. http://www.oecd.org/dataoecd/10/33/209056* **[**Accessed on 21st July 2011].

Osano, M. E. (2008). Analysis of Cement and Electricity: Value Chain in Kenya. DBA Assignment- Maastricht School of Management.
http:/// www.roundtableafrica.net/getattachment/Value...- -1k. Accessed on 23rd June 2011

Parker, D., (1999). Regulation of Privatized Public Utilities in the UK: Performance and Governance. *International Journal of Public Sector Management, Vol. 12 No. 3, 1999: 213-235. http://www.emeraldinsight.com/journals.htm?articl*..[Accessed on 7th May 2010].

Ploch, L., (2009). South Africa: Current Issues and U.S.A. Relations *Congressional Research Service. http://www.fas.org/sgp/crs/row/RL31697.pdf.* [Accessed on 5th November 2010].

Pope, S., L., (2002). California Electricity Hike Spikes: An Update on Facts. *Mirant Draft 12-9-02 CLEAN-PDF.*
http:www.hks.harvard.edu/hepg/.../Pope_CA.price.spike.updat… [Accessed 4th Sept 2010].

Pessoa, A., (2008). Public-Private Sector Partnership in Developing Countries: Are Infrastructures Responding to the New ODA Strategy? *FEP Working Papers* No. 266: 1-27. *http://www.ideas.repec.org/a/wly/jintdv/v20y2008i3*..[Accessed on 20th May 2010].

Potts, D., (2009). The urban informal sector in sub-Saharan Africa: from bad to good (and back again?). *Development Southern Africa.* Vol. 25: 2:151 - 167. *http://www.tandfonline.com/doi/pdf/10.1080/03768*...[Accessed on 30th May 2010].

Prasad, S., and Tata, J., (2006). Framework for Information Services: Benchmarking for Countries and Companies. *Benchmarking: An International Journal.* Vol. 13 No. 3: 311-323. http://*www.emeraldinsight.com/journals.htm?arti*..[Accessed 29th June 2010].

Public Services International Research Unit (PSIRU) (2007) *Electrifying Africa: Power Through the Public Sector. http://www.psiru.org/reports/2007*....[Accessed 26th July 2010].

Ralston, D., Wright, A. and Kumar, J. (2001). Process Benchmarking as a Market Tool for Strategic Planning, *Marketing Intelligence and Planning.* Vol. 19 No. 4: 273-281(9). *http://www.ingentaconnect.com/content/mcb/020/2001/.*.[Accessed on 30 August 2010].

Rao, S.K. (2010). The Global Economic crisis: Challenges and opportunities for Public Administration. *http://www.networkideas.org/alt/jun2010*.....[Accessed on 10th Feb 2011].

Roland, F. (2008). Financial Data Analysis. Department of Empirical Research and Econometrics. *Winter Term 2007/08 www.empiwifo.uni-freiburg.de/.../winter-term/...financial-data-analys...*[Accessed on 1st March 2012].

Ross, J., E., and Besterfield D., H., (2008). *Total Quality Management: Benchmarking. http://totalqualitymanagement.wordpress.com/2008/09/12/b*.....[Accessed 10th Sept. 2010].

Sekaran, U. and Bougie, R. (2010). *Research Methods for Business: A Skill Building Approach.* The Netherlands: John Wiley and Sons. 5th Edition.

Shukla, U. K., (2010). Analysis of UMPPs Framework. *Journal of Indian Business Research* Vol. 2 No. 2, 2010:109-122.
http://www.emeraldinsight.com/journals.htm?articlei..[Accessed on 30th December 2010].

Sioshansi, F., P. (2010). Electricity Currents. *The Electricity Journal, Vol. 23, Issue. 7*:1-14. *http://www.econpapers.repec.org/article/eeejelect*... [Accessed on 18th July 2011].

Southard, P. B., and Parente, D. H., (2007). A Model for Internal Benchmarking: When and How? *Benchmarking: An International Journal*, Vol. 14 No. 2:161-71. *http://www.emeraldinsight.com/journals.htm?articlei...*[Accessed on 4th September 2010].

South Africa. Info. (2011a). *South Africa: Open for Business*.
http://www.southafrica.info/business/investing/...htm [Accessed on 27th September 2011].

SouthAfrica.info. (2011b). South Africa Expos Calendar.
http://www.southafrica.info/news/conferences/cale...[Accessed on 10th November 2011].
South African Info (2010). *South Africa's Energy Supply.*
http://www.southafrica.info/business/economy/infrastructure/... [Accessed 27th Sept 2010].

Southern African Customs Union (SACU) South Africa (2011). South Africa-World Trade Organization. WT/TPRS/222.ZAF. *http://ww.wto.org/english/tratop_e/tpr_e/s222-04_e.doc* [Accessed on 25th on October 2011].

Stock, J. H. and Watson, M.W. (2001). Vector Autoregressions

Stucki, A. (2009). Open Innovation Models in Public Utilities as an Option to React on Reform Processes: The Case of Postal Sector. *Centre for European Policy Studies, Brussels*. *http://www.jcrni.org/extranet/public/cp38*...[Accessed on 29th May 2010].

Sub-Saharan Africa Power Outlook (2011). *KPMG in South Africa's Global Infrastructure and Projects Groups.*
http://www.kpmg.com/.../Sub-Saharan%20Electri...[Accessed on 23rd September 2011].

Swart, J. and Kinnie, N. (2010). Organizational Learning, Knowledge Assets and HR Practices in Professional Service Firms. *Human Resource Management Journal* Volume: 20, Issue: 1: 64-79. *http://*www.*onlinelibrary.wile* ..[Accessed on 30th January 2011].

Thachappilly, G. (2009). "Debt Ratios Look at Financial Viability/Leverage: The Ratio of Debt to Equity Has Implications for Return on Equity". *Journal of debt ratios analysis. http://www.tgopinathan.com/articles.php*. [Accessed on the 4th June 2010]

The Times 100 (2010). Methods of Growth, Economies of Scale. *The Times Newspapers Ltd and MBA Publishing Ltd 1995-2010 12th Edition*
http://www.thetimes100.co.uk/theory/theory--methods-grow.... [Accessed 28th June 2010].

Toda, H.Y. and Phillips, P.C.B. (1994). "Vector Auto-Regression and Causality: A Theoretical Overview and Stimulation Study". *Econometric Reviews* Vol. 13: 259-285. *http://www.econ.hit-u.ac.jp/~tanaka/ecmr/philli..[Accessed on 28th October 2010].*

Torrey, R. S. and Russell, W. J. (2001). Insurance Coverage for Power Interruption-Related Business Losses, Costs and Damages. *Dispute Resolution Management, Inc*
http://www.drmworld.com/Documents/outage.Mealeys...F... [Accessed on 15th July 2011].

TradeInvest Kenya (2009). Kenya to Improve Power Generation capacity. *http://www.tradeinvestkenya.com/news/208262*.... [Accessed on the 3rd May 2010].

Triantafillou, P. (2007). Benchmarking in the Public Sector: A Critical Conceptual Framework. *Journal of Public Administration* Vol. 85, No. 3: 829-46. *http://www. onlinelibrary.wiley.com/doi/10.1111/j.1467-9299.2007.*.[Accessed 13th October 2010].

Tutcher, G., (1994). How Successful Companies Improve Through Internal Benchmarking. *Managing Service Quality,* Vol. 4 No. 2, 1994: 44-46. *http://www.emeraldinsight.com/journals.htm?articlei*..[Accessed 10th July 2010].

Ugaz, C., (2003). Approaches to Basic Service Delivery: Privatization, Decentralisation, and Equity. *United Nations Research Institute for Social Development (UNRISD):1-17 http://www.ids.ac.uk/logolink/.../ Ugazbgpaper_En_UNRI...* [Accessed 30th August 2010].

United Nations Decade on Diversity (2011). Cooperating for nature: South Africa as a regional hub for South-South cooperation on biodiversity for development. *http://www.cbd.int/doc/press/2011/pr-2011-09-29-s...* [Accessed on 11th November 2011].

United Nations Development Programme (UNDP) Document, (2006). *Facing the Challenge: HV/AIDS Initiatives by the United Nations Development Programme in Kenya. http://www.ke.undp.org/index.php/resources/downlo...*[Accessed on 3rd November 2010].

United Nations Economic Commission for Africa (UNECA) and United Nations Environment Programme (UNEP) Joint Report (2007). *Making Africa's Power Sector Sustainable- An Analysis of Power Sector Reforms in Africa.*

United Nations Environmental Programme (UNEP), (2006). *Kenya: Integrated Assessment of the Energy Policy with Focus on the Transport and Household Energy Sectors.http://www.unep.ch/etb/areas/pdf/Kenya%20....pdf.* [Accessed 29th October 2010].

United Nations Population Fund- UNPF, (2009). Linking Population, Poverty and Development: Rapid Growth in Less Developed Regions. *e-Publication. http://www.unfpa.org/pds/trends.htm.* [Accessed 4th Sept 2010].

United States Agency for International Development- USAID, (2008). *The Role of Micro, Small, and Medium Enterprises in Economic Growth: A Cross-Country Regression Analysis.* microREPORT #135. http://www.*pdf.usaid.gov/pdf_docs/PNADN335.pdf* [Accessed on 25th September 2010].

Van Heerden, J. H., Blignaut, J. and Jordaan, A. (2008): "Who Would Really Pay for Increased Electricity Prices in South Africa?" In: *13th Annual Conference on Econometric Modelling in Africa. http://www.africametrics.org/.../day2/.../vanheerden_bl...*[Accessed on 3rd may 2010].

Van Nieuwenhuyzen, H., (2008). Impact of Municipal Regulations on SMMEs. *The Development Policy Research Unit- University of Cape Town. http://www.commerce.uct.ac.za/Research_Units/.../Conference*..[Accessed 30th Sept 2010].

Vine, E., (2008). Adaptation of California's Electricity Sector to Climate Change. *Public Policy of California. http://www.ppic.org/main/publication.a...* [Accessed 31st Aug 2010].

Vorhies, D., and Morgan, N.A., (2005). Benchmarking Marketing Capabilities for Sustainable Competitive Advantage. *Journal of Marketing,* Vol. 69, No.1: 80-94. http://*www.mendeley.com/.../benchmarking-marketing*..[Accessed on 25th July 2010].

Wahid, R. A. and Corner, J., (2009). Critical success factors and problems in ISO 9000Maintenance. *International Journal of Quality and Reliability Management*, Vol. 26 No. 9: 881-893. http://*www.emeraldinsight.com/journals.*.[Accessed on 6th May 2010].

Wanjohi, A. M., (2009). Challenges Facing SMEs in Kenya. *Buzzle.com. Life on the Web. http://www.buzzle.com/articles/challenges-facing-smes-i*...[Accessed 4th October 2010].

Western Cape Provincial Economic Review & Outlook, (2007). *Small, Medium and Micro Enterprises and the Informal Sector: 151-74. http://www.capegateway.gov.za/Text/2007/8/chapter_6_sm*..[Accessed on 20th July 2010]

Williams, C.C., (2007). Small Business and the Informal Economy: Evidence from the UK. *International Journal of Entrepreneurial Behaviour and Research,* Vol. 13 No. 6: 349-366. *http://www.emeraldinsight.com/journals.htm?ar.*.[Accessed 27th May 2010].

Williams, D. & Roberts, J. 2010. Eskom price hike will cause 'serious pain'. *http://www.mg.co.za/article/2010-01-23-eskom-price-hike-a*.[Accessed on 16th July 2011].

Winkler, H. (2008). Renewable Energy Policy in South Africa: Policy Options for Renewable Electricity. *Energy Policy,* Vol. 33 27–38. *http://www.erc.uct.ac.za/Research/.../05Winkler_Re*...[Accessed on 25th September 2010].

Wolde-Rufael, Y. (2006). Electricity Consumption and Economic Growth: A Time Series Experience for 17 African Countries. *Energy Policy,* 34 (2006): 1106–1114. *http://www.ideas.repec.org/a/eee/enepol/v34y2006i1*...[Accessed on 6th August 2010].

Wooldrige, J.M., (2005). Introductory to Econometrics: A Modern Approach 4th Edition *http://books.google.co.za/books?id.* [Accessed on 5th Oct 2010].

World Bank (2010). Project Appraisal Document on a Proposed Credit in the Amount of SDR 217.4 Million. Report No: 54147-KE. *http://www-wds.worldbank.org/external/default/WDSContentS*.. [Accessed 9th May 2011].

World Bank, (2004). *Project Appraisal Document on a Proposed Credit in the Amount of SDR 15 Million (Us$22 Million Equivalent) to the Republic of Kenya for a Micro, Small, and Medium Enterprise Competitiveness Project.* Report No: 29354-KE. *http://www.worldbank.org/afr/.../KE_Project_Appraisal%20...* [Accessed 13th May 2010].

Wynn-Williams, K. L. H., (2005). Performance Assessment and Benchmarking in the Public Sector: An Example from New Zealand. *Benchmarking: An International Journal* Vol. 12 No.5: 482-95. http://*www.emeraldinsight.com/journals.htm?a*...[Accessed on 3rd June 2010].

Yasin, M.M. (2002), The Theory and Practice of Benchmarking: Then and Now. *Benchmarking: An International Journal*, Vol. 9 No. 3: 217-43. *http://www.mendeley.com/.../the-theory-and-practice-*...[Accessed on 7th July 2010].

Yasin, M. M., and Zimmer, T. W., (1995). The Role of Benchmarking in Achieving Continuous Service Quality. *International Journal of Contemporary Hospitality Management,* Vol. 7 No. 4: 27-32. *http://www.emeraldinsight.com/journals.htm?articl*..[Accessed on 9th May 2010].

Yoo, S. (2005). Electricity Consumption and Economic Growth: Evidence from Korea. *Energy Policy,* Vol. 33, Issue 12: 1627-1632. *http://www.sciencedirect.com/science/article/pii/*...[Accessed on 30th May 2010].

Zachariadis, T. (2007). Exploring the Relationship between Energy Use and Economic Growth with Bivariate Models: New Evidence from G-7 Countries. *Energy Economic* 29: 1233-1253. *http://www.ideas.repec.org/a/eee/eneeco/*..[Accessed on 10th October 2010].

Zou, G, and Chau K. W. (2006). Short and Long-run Effects between Oil Consumption and Economic Growth in China. *Energy Policy*, Volume: 34, Issue: 18: 3644-3655. *http://www.ideas.repec.org/a/eee/enepol/v34y2006i18p.*.[Accessed on 10th October 2010].

APPENDIX I: Electricity output and consumption in Kenya and in South Africa

	KENYAN SCENARIO				SOUTH AFRICAN SCENARIO			
Year	Electricity Production (billion kWh)	Electricity Consumption (billion kWh)	Electricity Exports (billion kWh)	Electricity Imports (billion kWh)	Electricity Production (billion kWh)	Electricity Consumption (billion kWh)	Electricity Export (billions kWh)	Electricity Imports (billions kWh)
2000	4.230	4.078	0	0.1440	192.015	174.49	4.093	0.005
2001	4.225	4.075	0	0.1460	186.903	172.39	3.884	2.457
2002	4.616	4.433	0	0.1400	194.380	181.52	4.549	5.294
2003	4.033	3.981	0	0.2300	195.600	181.2	6.910	6.200
2004	4.033	3.981	0	0.2300	195.600	181.2	6.910	6.200
2005	4.475	4.337	0	0.1750	202.600	189.4	6.950	7.873
2006	4.342	4.238	0	0.2000	215.900	197.4	10.140	6.739
2007	5.709	5.459	0	0.1500	227.200	207.0	12.400	8.026
2008	6.246	5.124	0.0583	0.0225	264.000	241.4	13.770	11.320
2009	5.223	4.863	0.0583	0.0225	264.000	241.4	13.770	11.320

Definition of Electricity - production: This entry is the annual electricity generated expressed in kilowatt-hours. The discrepancy between the amount of electricity generated and or imported and the amount consumed and or exported is accounted for as loss in transmission and distribution. **Definition of Electricity - consumption:** This entry consists of total electricity generated annually plus imports and minus exports, expressed in kilowatt-hours. The discrepancy between the amount of electricity generated and or imported and the amount consumed and or exported is accounted for as loss in transmission and distribution. **Definition of Electricity - exports:** This entry is the total exported electricity in kilowatt-hours. **Definition of Electricity - imports:** This entry is the total imported electricity in kilowatt-hours.

APPENDIX II

C/o Prof. E. Contogiannis
University of Zululand,
Faculty of Commerce Administration & Law,
Depart of Economics & Business Management
Private Bag X1001
KwaDlangezwa
3886
10th January 2011

Human Development Manager
Kenya Power and Lighting Company
P.O. Box 30099, Nairobi

Dear Sir,

Request for Permission to Conduct Research

I am a PhD student at the University of Zululand (South Africa). I am carrying out a research on the topic: **Benchmarking in the Electricity Sector and its Impact on the Small, Micro and Medium Enterprises (SMMEs): A comparative Study of Kenya and South Africa for the period 2000-2009.**

I kindly request that the Kenya Power and Lighting Company (KPLC) grants me permission to carry out research using ten members of the management team through a questionnaire survey. I look forward to carry out a similar research on Electricity Commission of South Africa (Eskom).

I promise to supply a copy of my finished thesis upon your request. Should you wish to contact another member of the university other than myself, please get in touch with the Dean Faculty of Commerce, Administration and Law, Prof. N. Van de Berg and my programme supervisor, Prof. E Contogiannis, whose contacts I have provided below;

Dean of Faculty:
Prof N. Van de Berg
Office No. +27359026123
Cell phone +27833993398
Email: nvande@pan.uzulu.ac.za

Supervisor:
Prof. E. Contogiannis
Cell phone +27829402345
Email: econtogi@pan.uzulu.ac.za

I want to thank you in advance for according this assistance.

Yours faithfully,
Mrs. Okonga Brigitte Wabuyabo.
(email: brigitte2005wab@yahoo.com
Mobile: +27730645585)

APPENDIX III

The Kenya Power & Lighting
Co. Ltd.

The Kenya Power & Lighting Co. Ltd.
Central Office - P.O. Box 30099 Nairobi, Kenya
Telephone - 254-20-3201000 - Telegrams 'ELECTRIC'
Fax No. 254-20-3514485
Stima Plaza, Kolobot Road

Our Ref: **KPLC1/5BA/42D/KK/go** 31st January 2010

Your Ref:

TO WHOM IT MAY CONCERN

RESEARCH APPROVAL – OKONGA BRIGITTE WABUYABO

Reference is made to the subject matter mentioned above.

Kindly allow Brigitte Wabuyabo, who is doing her PHD at University of Zululand (South Africa), to carry out a research project in the Company on ***"the Impact of Benchmarking, as a marketing strategy, in the Kenyan and South African Electricity Sectors on the Small Micro and Medium Enterprises".***

This authority not withstanding discretion must be exercised in the use of company information including business strategies and policy documents.

The Research Project should also not disrupt normal working hours and Company's flow of work.

Yours faithfully,
For: **KENYA POWER & LIGHTING CO. LTD.**

Mercy Muchira (Mrs)
For: HUMAN RESOURCE DEVELOPMENT MANAGER

APPENDIX IV

C/o Prof. E. Contogiannis
University of Zululand,
Faculty of Commerce Administration & Law,
Depart of Economics & Business Management
Private Bag X1001
KwaDlangezwa
3886
19 April 2011

Bhabhalazi Bulanga
HR Divisional Executive
Eskom Mega

Dear Sir,

Request for Permission to Carry-out Research

I am a PhD student at the University of Zululand (South Africa). I am conduct a research on the topic: **Benchmarking in the Electricity Sector and its Impact on the Small, Micro and Medium Enterprises (SMMEs): A comparative Study of Kenya and South Africa for the period 2000-2009.**

I have completed collecting data from Kenya's Kenya Power and Lighting Company (KPLC). I, therefore, kindly request the Electricity Commission of South Africa (Eskom) to grant me a chance by allowing ten members of the management team to participate through a questionnaire survey.

I promise to supply a copy of my finished thesis upon your request. Should you wish to contact another member of the university other than myself, please get in touch with the Dean Faculty of Commerce, Administration and Law, Prof. N. Van de Berg and my programme supervisor, Prof. E Contogiannis, whose contacts I have provided below;

Dean of Faculty:
Prof N. Van de Berg
Office No. +27359026123
Cell phone +27833993398
Email: nvande@pan.uzulu.ac.za

Supervisor:
Prof. E. Contogiannis
Cell phone +27829402345
Email: econtogi@pan.uzulu.ac.za

I want to thank you in advance for according this assistance.

Yours faithfully,
Mrs. Okonga Brigitte Wabuyabo.
(email: brigitte2005wab@yahoo.com
Mobile: +27730645585)

APPENDIX V

Eskom

To: Mrs Okonga B.M.W

Date:
13 May 2011

Enquiries:
Tel +27 11 800 4007

Dear Brigitte

Appeal to use Eskom as a research case study

Your appeal, that was directed to me, to use Eskom as a research case study was received on the 04 May 2011. This matter has been given some serious consideration by Eskom executive management, and we are still unfortunately unable to assist you in this regard.

Eskom would really like to help you in any way that we can, and we understand your frustration of preparing for so long for this research, only to be given a rejection letter from the Chairman of the Eskom Masters/Doctoral Further Study Committee.

However, we are unable to waive our policy of allowing external students to do empirical research into Eskom. This is a systemic request that affects a number of levels of security and ethics clearance in the organization. If we had to make an exception in your case, we would be guilty of "double-standards," as we have already turned down numerous other similar applications over the last year alone.

I hope that you will understand our delicate position in this regard. We wish you great success with your study and career endeavors.

Yours sincerely

Bhabhalazi Bulunga
DIVISIONAL EXECUTIVE (HUMAN RESOURCES)

Human Resources Division
Megawatt Park Maxwell Drive Sunninghill Sandton P O Box 1091 Johannesburg 2000 SA
Tel +27 11 800 8111 Fax +27 11 800 2021 www.eskom.co.za

APPENDIX VI

Dear Sir/Madam,

Re: Research Questionnaire

I am a PhD student at the University of Zululand (South Africa). The questionnaire you are about to complete forms the basis of the PhD study. The objective of the study is to establish the Impact of Benchmarking, as a marketing strategy, in the Kenyan and South African Electricity Sectors on the Small, Micro and Medium Enterprises.

You are requested to complete the questionnaire which may not take more than 15 minutes of your time. Your responses will be anonymous, so please don't enter your name and contact details.

I thank you in advance for your willingness to participate. Should you have any queries or comments regarding this study, you are welcome to contact me on the mobile phone number and email address provided below.

Thank you in advance.

Yours faithfully,

Mrs. Okonga Brigitte Wabuyabo

Tel: +254720572380
email:brigitte2005@yahoo.com
Student
University of Zululand
Department of Business Management

APPENDIX VII

Final Questionnaire for Kenyan Small, Micro, and Medium Enterprises (SMMEs)

Section A: Demographic data

1. Sex: (Tick one as appropriate) i. Male [ ] ii. Female [ ]
2. 2. Age:

Less than 20yrs	21-25	26-30	31-35	36-40	41-45	46-50	Above 50

3. Position held in the business:

i. Owner [ ] ii. Manager [ ] iii. Employee [ ]

Section B: Characteristics of Business

4. Please indicate the type of business _____Number of employees_____
5. Indicate when your business was registered:

   i. Before 2000 [ ] ii. Between 2000 and 2003 [ ]

   iii. Between 2004 and 2006 [ ] iv. Between 2007 and 2009 [ ]

6. Indicate when your business started relying on electricity:

   i. Less than two years [ ] ii. Between 3 and 6 years [ ]

   ii. Between 7 and 10 years [ ] iv. Over 10 years [ ]

Section C: Section gathers data concerning the impact of Eskom's practices on SMMEs.

7. Indicate the level of growth of your business in terms of the factors indicated below between 2000 to date. Use the scale below: 5=Very High Growth, 4=High Growth, 3=Remained the Same, 2=Low Growth and 1= Very Low Growth

	5	4	3	2	1
Number of employees					
Number of customers					
Hours worked					
Amount of electricity used					
Amount of work done					
Amount of working space					

8. The information below shows a range of levels of average profit. Please use the information to indicate the average yearly profit of your business.

Year	Below Ksh0.005m	Between Ksh. 0.005m – 0.01m	Between Ksh. 0.01m – 0.015m	Between Ksh. 0.015m – 0.02m	Between Ksh. 0.02m – 0.025m	Over Ksh 0.025m
2000						
2001						
2002						
2003						
2004						
2005						
2006						
2007						
2008						
2009						

9. The information below shows a range of levels of monthly expenditure on electricity. Use the information below to indicate the average yearly expenditure on electricity for your business.

Year	Below Ksh0.001m	Between Ksh. 0.001m-0.002m	Between Ksh. 0.002m-0.003m	Between Ksh. 0.003m-0.004m	Between Ksh. 0.004m-0.005m	Above Ksh. 0.005m
2000						
2001						
2002						
2003						
2004						
2005						
2006						
2007						
2008						
2009						

10. Please use the scale below to indicate your opinion on the level of losses your business experienced

as a result of power outages in the period between 2008 and 2009. Scale: 5= Very High Loss, 4=High Loss, 3=Remained the Same, 2=Minimal Loss and 1= Very Low Loss

Very High Loss	High Loss	Remained the Same	Minimal Loss	No Loss at All

11. Briefly discuss any issues in relation to above response on the level of loss your business incurred as a result of power outages.

_____

_____

_____

_____

_____

_____

12. Indicate the number of times you have encountered any of the following problems as a result of electric fault in the course of using electricity. Use the scale below:

	None	Once	Twice	Thrice	More than three times
Bodily harm					
Machine damage					
Premise damage					
Fire outbreak					

	Yes	No	N/A
Indicate if the cause the fault of KPLC. If no, tick N/A in next choices.			
If the answer above is yes, indicate if you were compensated			
If compensated, indicate if you were satisfied with the compensation done			

13. Indicate your opinion on the following the statements using the following scale: 4=Strongly agree, 3= Agree; 2= Disagree; 1=Strongly disagree.

	4	3	2	1
Electricity prices have always been adjusted upwards				
Price adjustments have always been communicated in advance				
Bills are always delivered in good time				
Electricity bills are always correct				
I support the use of pre-payment meters				
Electricity is always connected in good time				
Meter disconnections are always genuine				
Electricity reconnection is always done on time				
Power interruptions have reduced very much the last 5 years				
There are fewer incidents of exposed wires				
Electricity has helped my business to grow financially				
Electricity has helped me to run my business efficiently				
Eskom has the ability to help the SMMEs				
I can easily run my business without electricity				
I can easily start another business without relying on electricity				
KPLC shares adequate information on proper use of electricity				
My businesses inherited the electricity bill when they rented the buildings				

14. Please use the grid below to rate in order of frequency the most used mode of communication from the electricity company: 5=Most Frequent (MF), 4=Frequent (F), 3=Less Frequent (LsF), 2= Least Frequent (LtF), 1=Don't Get to Hear at all (DGH)

	MF	F	LsF	LtF	DGH
i. Through the print media					
ii. Through the electronic media					
iii. Through the mobile (sms)					
iv. Through Eskom employees					
v. Through Eskom newsletter					

Section D: This section is used to gauge the consumer's perception of the impact of benchmarking in the electricity sector on their businesses.

15. Please indicate below your opinion on the general level of improvement of the services offered by the electricity company between 2000 and 2009.

Greatly Improved	Improved	Remained the Same	Deteriorated	Greatly Deteriorated

16. Use this space below to recommend some measures that you would like the electricity sector to implement_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your cooperation.

APPENDIX VIII

Final Questionnaire for S.A. Small, Micro, and Medium Enterprises (SMMEs)

Section A: Demographic data

3. Sex: (Tick one as appropriate) i. Male [ ] ii. Female [ ]
4. 2. Age:

Less than 20yrs	21-25	26-30	31-35	36-40	41-45	46-50	Above 50

4. Position held in the business:

i. Owner [ ] ii. Manager [ ] iii. Employee [ ]

Section B: Characteristics of Business

4. Please indicate the type of business _____Number of employees_____

5. Indicate when your business was registered:

i. Before 2000 [ ] ii. Between 2000 and 2003 [ ]

iii. Between 2004 and 2006 [ ] iv. Between 2007 and 2009 [ ]

6. Indicate when your business started relying on electricity:

i. Less than two years [ ] ii. Between 3 and 6 years [ ]

ii. Between 7 and 10 years [ ] iv. Over 10 years [ ]

Section C: Section gathers data concerning the impact of Eskom's practices on SMMEs.

7. Indicate the level of growth of your business in terms of the factors indicated below between 2000 to date. Use the scale below: 5=Very High Growth, 4=High Growth, 3=Remained the Same, 2=Low Growth and 1= Very Low Growth

	5	4	3	2	1
Number of employees					
Number of customers					
Hours worked					
Amount of electricity used					
Amount of work done					
Amount of working space					

8. The information below shows a range of levels of average profit. Please use the information to indicate the average yearly profit of your business.

Year	Less than R. 0.05m	Between R. 0.05m – 0.10m	Between R. 0.1m – 0.15m	Between R. 0.15m – 0.2m	Between R. 0.2m – 0.25m	Over R. 0.25m
2000						
2001						
2002						
2003						
2004						
2005						
2006						
2007						
2008						
2009						

9. The information below shows a range of levels of monthly expenditure on electricity. Use the information below to indicate the average yearly expenditure on electricity for your business.

Year	Below R. 0.01m	Between R. 0.01m-0.02m	Between R. 0.02m-0.03m	Between R. 0.03m-0.04m	Between R. 0.04m-0.05m	Above R. 0.05m
2000						
2001						
2002						
2003						
2004						
2005						
2006						
2007						
2008						
2009						

10. Please use the scale below to indicate your opinion on the level of losses your business experienced as a result of power outages in the period between 2008 and 2009. Scale: 5= Very High Loss, 4=High Loss, 3=Remained the Same, 2=Minimal Loss and 1= Very Low Loss

Very High Loss	High Loss	Remained the Same	Minimal Loss	No Loss at All

11. Briefly discuss any issues in relation to above response on the level of loss your business incurred as a result of power outages.

_____

_____

_____

_____

_____

_____

12. Indicate the number of times you have encountered any of the following problems as a result of electric fault in the course of using electricity. Use the scale below:

	None	Once	Twice	Thrice	More than three times
Bodily harm					
Machine damage					
Premise damage					
Fire outbreak					

	Yes	No	N/A
Indicate if the cause the fault of Eskom. If no, tick N/A in next choices.			
If the answer above is yes, indicate if you were compensated			
If compensated, indicate if you were satisfied with the compensation done			

13. Indicate your opinion on the following the statements using the following scale: 4=Strongly agree, 3= Agree; 2= Disagree; 1=Strongly disagree.

	4	3	2	1
Electricity prices have always been adjusted upwards				
Price adjustments have always been communicated in advance				
Bills are always delivered in good time				
Electricity bills are always correct				
I support the use of pre-payment meters				
Electricity is always connected in good time				
Meter disconnections are always genuine				
Electricity reconnection is always done on time				
Power interruptions have reduced very much the last 5 years				
There are fewer incidents of exposed wires				
Electricity has helped my business to grow financially				
Electricity has helped me to run my business efficiently				
Eskom has the ability to help the SMMEs				
I can easily run my business without electricity				
I can easily start another business without relying on electricity				
Eskom shares adequate information on proper use of electricity				
My businesses inherited the electricity bill when they rented the buildings				

14. Please use the grid below to rate in order of frequency the most used mode of communication from the electricity company: 5=Most Frequent (MF), 4=Frequent (F), 3=Less Frequent (LsF), 2= Least Frequent (LtF), 1=Don't Get to Hear at all (DGH)

	MF	F	LsF	LtF	DGH
i. Through the print media					
ii. Through the electronic media					
iii. Through the mobile (sms)					
iv. Through Eskom employees					
v. Through Eskom newsletter					

Section D: This section is used to gauge the consumer's perception of the impact of benchmarking in the electricity sector on their businesses.

15. Please indicate below your opinion on the general level of improvement of the services offered by the electricity company between 2000 and 2009.

Greatly Improved	Improved	Remained the Same	Deteriorated	Greatly Deteriorated

16. Use this space below to recommend some measures that you would like the electricity sector to implement_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your cooperation.

APPENDIX IX: SMMEs that Participated in the Study

KENYA			SOUTH AFRICA		
Hotel/Cafeteria/Fastfood /e-food/Restaurant	24	16.9	Hotel/Cafeteria/Fastfo od/e-food/Restuarant	25	20.2
Cyber cafe/Internet bureau	12	8.5	Cyber cafe/Internet bureau	8	6.5
Salon/Barbershop	12	8.5	Salon/Barbershop	10	8.1
Photocopy/Typing/print ing/screen printing	9	6.3	Photocopy/Typing/prin ting/screen printing	5	4.0
Chemist/Pharmacy	16	11.3	Chemist/Pharmacy	9	7.3
Photo studio	9	6.3	Photo studio	1	0.8
Mini supermarket/Grocery	4	2.8	Mini supermarket/Grocery	8	6.5
Welding	7	4.9	Electronic tyre centre	1	0.8
Laundry/Dry cleaners	6	4.2	Laundry/Dry cleaners	3	2.4
Bakery	8	5.6	Bakery	6	4.8
Beauty parlour/Spa	3	2.1	Beauty parlour/Spa	5	4.0
Electrical sales/Repair/Video library	8	5.6	Electrical sales/Repair/Video library	21	16.9
Patrol station	4	2.8	Garage/Electronic wheel repair	3	2.4
Laboratory suppliers	2	1.4	Retail butchery	7	5.6
Hatchery	2	1.4	Financial services	2	1.6
Sale of aquarium	4	2.8	Tailoring/Designer/Clo thing shop	10	8.1
Tailoring/Designer/Clot hing shop	12	8.5	Total	124	100. 0
Total	142	100.0			

APPENDIX X

SOURCES FOR KENYAN TIMES SERIES (SOME OF THE LEADING ECONOMIC INDICATORS) AND DOCUMENTATION FOR POWER OUTAGES

2011

Source: Kenya Bureau of Statistics: Leading Economic Indicators
Base year 2010

2010

Source: Kenya Bureau of Statistics: Leading Economic Indicators
Base year 2009

2009

Source: Kenya Bureau of Statistics: Leading Economic Indicators
Base year 2008

2008

Source: Kenya Bureau of Statistics: Leading Economic Indicators
Base year 2007

2007

Source: Kenya Bureau of Statistics: Leading Economic Indicators
Base year 2006

2006

Source Kenya Bureau of Statistics: Leading Economic Indicators
Base year Oct 2005- Oct 2006

Power Outages
Light Bulb Moments To Be Rationed Due to Power Shortage In Kenya 2010
Source http://dailystandard.iblog.co.za/2010/09/light-bulb-moments-to-be-rationed-due-to-power-shortage-in-kenya/

KETRACO; Providing Reliable,Efficient and Effective Electricity Transmission Infrastructure

Source http://www.commerceandindustry.co.ke/?p=530

Power rationing announced for Aug-2009
Source www.ntv.co.ke/News/-/471778/635536/-/rr91n7z/-/index.html

Power Cuts add to Kenya's Woes 2008
Source nairobichronicle.wordpress.com/2008/.../power-cuts-add-to-kenyas-woes/

APPENDIX XI

SOURCES FOR SOUTH AFRICAN TIMES SERIES (SOME OF THE LEADING ECONOMIC INDICATORS) AND DOCUMENTATION FOR POWER OUTAGES

1984
Source: Bulleting of statistics, March 1986 Vol 20 No 1
Base year 1980

1985
Source: Bulleting of Statistics March 1987 Vol 21 No 1
Base year 1980

1986
Source: Bulleting of Statistics March 1988 Vol 22 No1
Base year 1980

1987
Source: Bulleting of Statistics March 1989 Vol 23 No1
Electricity data are from Bulleting of Statistics March 1988 Vol 22 No 1
Base year 1985

1988
Source: Bulleting of Statistics Dec 1998 Vol 23 No 4
Base year ?

1989
Source: Bulleting of Statistics March 1991 25 N0 1
Base year 1985
Note Electricity data are from March 1990 Vol 24 N01

1990
Source: Bulleting of Statistics March 1992 Vol 26 No 1
Base year 1985

1991
Source: Bulleting of Statistics March 1993, Vol 27 No 1
Base year 1990

1992
Source: Bulleting of Statistics March 1994 Vol 28 No 1
Base
year 1990

1993
Source: Bulleting of Statistics March 1995 Vol 29 No 1
Base
year 1990

1994
Source: Bulletin of Statistics March 1996 Vol 30 No 1
Base
year 1990

1995
Source: Bulletin of Statistics March 1997 Vol 31 No 1
Base
year 1990

1996
Source: Bulleting of Statistics Dec 1997 Vol 31 No 4
Base
year

1997
Source: Bulleting of Statistics March 1998 Vol 32 No 1
Base
year 1990

1998
Source: Bulleting of Statistics March 2000 Vol 34 No 1
Base
year 1995

1999
Source: Bulleting of Statistics March 2001 Vol 35 No 1
Base
year 1995

2000
Source: Bulletin of Statistics March 2002 Vol 36 No 1
Base
year 1995

2001
Source: Bulleting of Statistics March 2003 Vol 37 No 1
Base
year 1995

2002

Source: Bulleting of Statistics March 2004 Vol 38 No 1

Base year 2000

2003

Source: Bulleting of Statistics March 2005 Vol 39 No 1

Base year 2000

2004

Source: Bulleting of Statistics March 2006 Vol 40 No 1

Base year 2000

2005

Source: Bulleting of Statistics March 2007 Vol 41 No 1

Base year 2000

2006

Source: Bulleting of Statistics March 2008 Vol 42 No 1

Base year 2000

2007

Source: Bulletin of Statistics June 2008 Vol 42 No 2

Base year ?

2008

Source: Bulleting of Statistics March 2010 Vol 44 No 1
Data for manufacturing and electricity are from Bulleting of Statistics Dec 2009 Vol 43 No 4

Base year 2005

2009

Source: Bulleting of Statistics March 2010 Vol 44 No 1

Base year 2005

Data for Manufacturing are from Bulletin of Statistics Dec 2009 Vol No 4