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THE EFFECT OF FUEL REGULATION ON CONSUMER PROTECTION IN KENYA: A CASE STUDY OF GULF ENERGY LIMITED

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May, 2016

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Signed……..Date…28th MAY 2016……..

Priscilla Nduta

MBA/77542/13

This proposal has been submitted for examination with my approval as the University Supervisor Dr. Thomas Kibua

Signed……Date…28/05/2016……

ABSTRACT

Fuel is widely used across all sectors of Kenyan economy with no effective cost-beneficial substitute available. The industry was liberalized in 1994 which resulted in increase in number of independent oil distribution companies in Kenya. Kenya imports all its fuel through the Open Tender System, whereby petroleum products are purchased by a single company for the entire market on the basis of a public tender and shared among all marketing companies in proportion to their share of the market. Over the years, fuel price dynamics became relatively volatile which resulted into the regulation of fuel through the ERC in December 2010.

The main objective of the study was to investigate the effect of Government fuel regulation practices on consumer protection (quantity, quality and price of the fuel products) in Kenya. The study was carried out at Gulf Energy Limited. Secondary data on fuel prices and transport costs was collected and analyzed while questionnaires were being administered.
A total of 105 questionnaires were administered to employees with 81 actually responding representing a response rate of 77%. In addition, out of the 400 possible responses from consumers, 53% responded and this was considered adequate. The study used a descriptive research design. Questionnaires were the main data collection instruments. In addition, descriptive analysis was used; this included the use of standard deviation, relative frequencies and percentages. The data is presented using charts, tables and graphs.

The findings revealed that the relationship between independent variables consumer satisfaction, regulating costs and ensuring or enforcing compliance and dependent variable consumer protection was significant i.e. $P<0.05$. When fuel regulation factors were considered individually, regulating costs had a very strong positive correlation with consumer protection at $r=.834$ followed by consumer satisfaction at $r=.661$ then ensuring or enforcing compliance at $r=.596$. This shows that on the overall, the most important factor that affects consumer protection is regulating cost although consumer satisfaction and ensuring or enforcing compliance are also important. Furthermore, when regression analysis was carried out on costs and prices for year 2004-2014, R^2 showed that 15.1% of variation in consumer protection is explained by regulating costs. This implies that besides regulating costs, there are other factors under fuel regulations that explain variations in consumer protection which in this study could include consumer satisfaction and ensuring or enforcing compliance. The study recommends that ERC should regulate costs, enhance compliance and ensure consumers are satisfied especially through price stability.

Key Words: *Fuel Regulations, ERC, consumer protection*

DEDICATION

I dedicate this research project to my family, friends and colleagues.

ACKNOWLEDGEMENT

I hereby acknowledge a team of people who their immense support, contributed to the completion of this project. Firstly I thank God for his divine wisdom, guidance and strength from the start till the end. To him is all the glory.

Special thanks to my family for their continuous encouragement and prayers.

Thanks to my supervisor Dr. Thomas Kibua whose wealth of wisdom and understanding enabled me to gain a deeper insight into research and the subject matter. Grateful for his mentorship and guidance throughout this project.

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LIST OF ABBREVIATIONS

PMS – Premium Motor Spirit (super petrol)

RMS – Regular Motor Spirit (regular petrol)

AGO – Automotive Gasoil (diesel)

IK – Industrial Kerosene (kerosene)

ERB - Energy Regulatory Board

ERC - Energy Regulatory Commission

GDP - Gross Domestic Products

KPC - Kenya Pipeline Company

KPRL - Kenya Petroleum Refineries Limited

NOCK- National Oil Corporation of Kenya

OTS - Open Tender System

SPSS - Statistical Package for Social Sciences

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This study focused on the Kenya Petroleum Industry, its transitions from a regulated market to a liberalized one and later back to a regulated market. The objectives guiding these transitions were analyzed in regard to consumer protection in ensuring that the petroleum products offered to the end users meet the quality, price and quantity requirements. Consumers of refined petroleum products use them for heating, cooking, lighting, transportation or industrial use. In this regard, consumer prices will solely address retail pump prices and not the prices of associated commodities. This chapter provided a background of the Kenya Petroleum Industry including the market structure in the period before 1994 and after 1994 to 2014, a statement of the problem, research objectives and questions. It also highlighted the significance of the study to previous research conducted on consumer protection.

The rest of this study is organized as follows: Chapter 2 provided a comprehensive and critical review of literature relevant to the topic under study and in line with the factors listed in objectives. In chapter 3, the research design and approach of inquiry that grounded the study was discussed. In chapter 4, detailed findings of the study were discussed. In chapter 5, conclusions and recommendations were provided. The recommendations for action and for further studies were also discussed.

1.2 Background of the Study

In Kenya upstream activities are guided by the Petroleum (Exploration and Production) Act (cap 308) last revised in 2012. The Government vests significant powers to the Ministry of Energy and Petroleum to oversee exploration activities through a state Oil Company –the National Oil Corporation established in 1980 for this purpose. However in 1997, the state corporation ventured into the retail business and was controlling 5% of the market by 2014. BP and Shell initiated exploration work in the 1950's and drilled the first well in 1960, which attracted more oil and gas companies to pursue further exploration over the next 50 years. These included Exxon, Total, Chevron, Woodside and CNOOC. 16 wells out of the 33 dug prior to 2012 indicated signs of non-commercial hydrocarbons. In late 2012, Tallow oil, drilled 6 blocks in the Turkana Rift basin and announced oil discovery on 26th March 2012 and a further discovery in

November 2012. Kenya being an oil importing country is affected by changes in world prices. Imported crude is refined into oil products at the Kenya Petroleum Refineries Limited (KPRL) which Essar managed to acquire 50% interest through a consortium of BP, Shell and Chevron. Essar had committed to invest an estimated USD 500 for a significant upgrade of the refinery, a project which later stalled (Deloitte, 2014).

Petroleum is a major energy source providing approximately 67% of the commercial and industrial needs. The Government spends up to 4% of the country GDP on fuel imports to carter for the estimated annual growth in demand of 3-5 % and this makes it a key driver of inflation (Institute of economic affairs, 2000). It serves as a pillar for other sectors such as Transport, Agriculture, Commercial and Industry. Initially only kerosene was imported in tins but later gasoline was also imported in tins and drums. The first depot was set up in Shimanzi in Mombasa by the Royal Dutch Shell. The Kenyan oil industry has experienced significant changes in its market environment with marked changes in its consumer prices. The study background will examine role of the ERC in regulating Kenya fuel retail prices and compare the Kenyan markets with other countries where regulation has been attempted; studies conducted in this area of study will also be reviewed including empirical studies and the merits and demerits of the various types of regulations in relation to the Kenyan market.

The refined oil products include Liquefied petroleum gas, unleaded premium gasoline, regular petrol, automotive gasoil, Industrial diesel, kerosene, fuel oil and special products like bitumen and grease. Kerosene is mainly used for household cooking and lighting as a substitute for wood fuels while diesel is mainly used for power generation, transportation and Agriculture. Regular petrol has since been phased out of the market. Imports of crude petroleum decreased from 997,000 tonnes in 2012 to 567,000 tonnes in 2013 a 43% decrease, while imports of refined petroleum products increased from 2,803.4 tonnes in 2012 to 2,985.9 tonnes in 2013, a 6.5% increase. This is explained by the closure of KPRL as the country opted to import more white products to suffice national demand (Energy Regulatory Commission, 2013).

The Kenya Pipeline Company (KPC) is responsible for the loading, distribution, storage and dispensing of the refined Petroleum products from KPRL in Mombasa to the hinterland through an 800km pipeline connected to terminals in Nairobi, Nakuru, Kisumu and Eldoret. The body also receives and back loads the refined product to and from ships and is responsible for transferring the product to the oil marketer's depots. The Pipeline coordinator collects and

analyses data from both KPRL and KPC to establish the country's demand one month in advance. Oil marketers are then invited to tender, a process that specifies the quantity, product and timeline requirements that bidders must meet to qualify. The process is coordinated by the Ministry of Energy in liaison with Kenya Bureau of Standards (KBS). KBS dictates the applicable country requirements for every product, but KPC can demand higher specifications to allow for flashpoint (the lowest point at which ignition takes place). Diesel has the highest flashpoint at 60 degrees Celsius while Premium and Kerosene have low flashpoints. This is so because Diesel is the main product used to move the other products through the pipeline as it can safely combine with all products. To facilitate this, the Pipeline demands refined diesel to be at a higher flashpoint of 66 degrees Celsius. After the product is moved the final product will have some components of diesel and the product that was being moved through the line. This mixture is directed to a slope tank where it is analyzed to establish the individual product contribution. The least component of the mixture is absorbed into the higher component by adding more of the latter in line with KBS and industry standards so as to have one product. Thus a higher specification for Diesel above the KBS requirement helps ensure that the product is still within the Country requirements after the absorption.

1.2.1 Fuel Regulation and Consumer Protection

Regulation is the mechanism whereby the providers of a service or facility are directed to provide the highest stand of service and customer care in the most cost effective manner possible (Green et al., 2006; Kirkpatrick et al., 2004). This is achieved by providing incentives to operators to bring their corporate desires and needs into line with the desires and needs of their customers. Benefits are passed to customers by encouraging open competition which will provide enhanced services to customers and create a series of controls where competition is weak or nonexistent. According to the OECD glossary of statistical terms (2008), regulation is defined as imposition of rules backed by use of penalties by Governments intended to guide the economic behavior of both firms and individuals in the private sector by use of regulatory instruments such as prices, output, information disclosure, rate of return, ownership and standards. The Kenya Government regulates fuel prices by setting maximum prices through the ERC. This contradicts the economic view that demand and supply forces should be left to define price and competition in any market so that consumers face the lowest possible prices (Kimeu, 2013).

Kenya embarked on fundamental structural and regulatory reforms in the energy sector in earnest after mid-1990's following the enactment of the Electric Power Act, 1997 and later the Energy Act 2006 (Munga, Njeru & Onyango, 2011). These legislations laid the foundation for the separation of generation from transmission and distribution in the electricity sector and the liberalization of the procurement, distribution and pricing of petroleum products in the country. The petroleum sub-sector was regulated by the Petroleum (Exploration & production) Act 1994 and the Petroleum Development Fund Act No. 4 of 1991. In addition, the Energy Act, 2006 established the Energy Regulatory Commission (ERC) as a single sector regulatory agency to specifically be responsible for economic and technical regulation of electric power, renewable energy and petroleum sub-sectors. The expectations of these reforms was that the newly introduced regulatory mechanisms would provide more powerful incentives for regulated firms to reduce costs and improve service quality in a cost effective manner, stimulate the introduction of new products and services and efficient investment in pricing of access to regulated infrastructure services.

1.2.2 An overview of Kenya's oil industry overview

Fossil fuels in Kenya are overwhelmingly dominated by petroleum accounting for about 25% of the total imports. Although oil and gas discoveries are being made in Kenya it is yet to start extraction and production from its reserves, it therefore entirely relies on imports of both crude and refined oil (Munyua & Ragui, 2013; Munga et al., 2011). Over the last decade, the composition of oil imports has switched from crude petroleum to refined petroleum fuels. This change highlights the increasing mismatch between Kenya's refining capacity and the demand for refined petroleum fuels in the country and the region. Indeed, the total production of refined oil from the oil refinery in Mombasa has been steadily declining over the last decade in spite of the increasing demand. This decline in refined petroleum is attributed to aging facilities leading to high inefficiency of the refinery facility at the port. Upgrading and regular maintenance is mandatory if Kenya is to continue refining petroleum at the old refinery in Mombasa. In Kenya, consumption of petroleum has been increasing by 3.7% annually over the last decade to reach 3,638,000 tonnes in 2012 (Petroleum Insight, 2012). Retail pump outlets are the main consumers with about 60% of the total consumption. The principal challenge of high petroleum consumption is the corresponding vulnerability of the economy to price fluctuations in the case of non-oil producing countries.

Before 1994, the Government set the wholesale and retail prices with the main objective of ensuring low consumer pricing. The Guiding legislation was the Petroleum Act Cap 116 of 1948 with a revision in 1972 and the legal Notice Number 197. The tariff structure adopted was aimed at maximization of Government revenue and subsidization of kerosene and Diesel by premium. These objectives carried over to the post liberalization period as the Government continued to derive over 10% of its revenues from fuel tax, which significantly contributed to the high consumer prices. The Government aimed at protecting the low income consumer but this was not effective as it had no effect on the incomes of the indigent households whose main concern was the low incomes and hence had no motivation to use more efficient fuels. Moreover the indigent group pays a price for the high tax as they travel due to the fact that the transport sector is one of the major consumers of petroleum products. Subsidization also saw a drop in consumption by the premium users and translated to increased substandard petroleum dispensing and storage sites and product adulteration cases that saw the small players recover on margins and offer discounts to gain market share (Institute of economic affairs, 2000).

The Market was characterized by very few players who also participated in fuel exportation to Rwanda, Tanzania, Democratic Republic of Congo, Uganda, Sudan, Burundi and trans-shipment to Comoros Islands. Due to the attractive transit margins some of the product scheduled for export was being dumped into the local market and cases of tax evasion became rampant. The Government imported more of crude compared to refined product and as such was affected by world oil price volatility attributed to global supply and demand forces that are dictated by macro environmental factors Political, Economic, Social, Technological, Environmental, Legal and global factors. High world prices resulted to expensive imported crude that was further subjected to high refining costs as a result of inefficiencies at KPRL due to its poor infrastructure. Moreover, the high refining costs discouraged small marketers, leaving only a few players with limited imports resulting to product scarcity that pushed consumer prices further up. Overall the consumer prices remained high and the market stagnated.

The second phase of the transition process (1994 till 2005), translated the industry from a controlled to a de-controlled system. The oil marketers were at liberty to import oil in crude or refined form which translated to a significant drop in crude imports (Institute of economic affairs, 2000). Oil marketers adopted a pricing system that allowed them to set their own margins and consumer prices. Market was open to competition which saw the entry of many small players but due to lack of efficient licensing systems the Government could not effectively

monitor and control their operations on the ground. As a result there were increased cases of dumping, tax evasion, product adulteration and substandard retail outlets. The sudden surge of small local players had nominal market share and hence monopolies and cartels continued to dominate the market, killing competition and eventually forcing out the small players and hence the consumers continued hurting at the pump due to the high prices. Unlike during the pre-1994 period when adulteration was mainly attributed to tax subsidization of Kerosene and Diesel by Premium, in the period after 1994, it was mainly done by the small players to mitigate against the competition posed by the big players by discounting on the pump prices and recovering their margin by adulterating. As a result, substandard petroleum storage and dispensing sites were on the increase and hence the customer purchased low quality product at a seemingly low price, which in reality was expensive due to the associated Environmental, Health and Safety risk factors.

The Oil Industry Stakeholders incorporated the Petroleum Institute of East Africa in 1999, to instigate creation of effective regulations and standards while providing a forum fostering self-regulation among the members. In 2003, the Government attempted to correct the market inequities and irregularities through a series of reactive regulations to define Business licensing, introduction of the Open Tender System (OTS) for imports and product doping to curtail adulteration and dumping (diversion of export product into the local market). The OTS enabled the Marketers to source for the lowest prices save costs and compete on margin. The lowest bidder would be awarded the tender in a bid to ensure low consumer prices. Product scarcity that was rampant in the period of price controls ceased but the critical issue of high consumer prices remained. This is attributed to the freedom for the margin driven marketers to set their own prices. In a bid to manage this situation, the Government resulted to price regulation in the Petroleum sector, through enactment of the Energy Act of 2006 that repealed the Petroleum act cap 116 and saw the change of the Electricity Regulatory Board (ERB) to the Energy Regulatory Commission (ERC) with effect from 7th July 2007 to consolidate the regulation and enforcement of the Energy sectors- Petroleum, Electricity and renewable energy under one body. As at 2014, the Industry had over 35 licensed marketers.

Table 1.1: Kenya Petroleum Sales Market Share March 2014

Company	%	Company	%
Total	21.7	RH Devani	0.6
Vivo	18.9	Royal	0.6
Kenol Kobil	13.9	EAGOL	0.6
Libya Oil	6.2	Banoda	0.5
Hashi	4.5	Tradiverse	0.5
National oil	4.3	Trojen	0.5
Engen	3.6	Ranway	0.5
Gapco	3.4	Tosha	0.4
Gulf Energy	2.8	Tiba	0.4
Petro	2.6	Olympic	0.4
Hass	1.7	Al-leyl	0.3
Bakri	1.7	Oryx Energies	0.3
Fossil	1.6	Towba	0.3
Galana	1.6	Topaz	0.3
Regnol	1.5	Afri-Oil	0.2
Essar	1	Dalbit	0.2
Mogas	0.9	Oilcom	0.2
Global	0.6	Other	0.9
TOTAL		**100%**	

Source: Petroleum insight quarterly magazine June 2014

1.2.3 Overview of Gulf Energy Limited

Gulf Energy Limited was incorporated in May 2005 with the sole objective of providing Energy solutions to an advancing Energy sector in the region. Gulf Energy Limited was initially a small company having started off as an export company and only ventured into retail in 2005 to establish its brand presence. The company currently has a total of 143 staff country wide with 75 being in the head office and the rest are spread across depots in Mombasa, Kisumu, Nakuru and Kisumu. Moreover, the Gulf Energy retail outlets are strategically located.

Table 1.2: Gulf Retail stations

	GULF ENERGY LIMITED RETAIL STATIONS
1	ELDORET
2	OJAY - NAKURU
3	KISUMU
4	MURANGA J
5	OUTERRING RD
6	NAKURU TOWN
7	TIGONI
8	THOME
9	RIRONI
10	NAMANGA
11	THIKA RD
12	NYERI TOWN
13	JOGOO RD
14	CHUKA
15	MAKINDU
16	YATTA
17	NYERI-SKUTA
18	MERU-RIVERLAND
19	GULF MENYA
20	EASTERN BYPASS
21	UKUNDA
22	NYAHURURU
23	NAROK
24	KISII-KEUMBU
25	MAKUYU
26	BULBUL - NGONG
*** Station names are based on actual location**	

Gulf Energy Limited ranks fourth countrywide with a market share of 6.1%. The company is expanding fast with a total of 26 geographically dispersed retail outlets. It plays a leading role in oil bulk supplies in East and Central Africa. Its fast growing, retail network and modern terminals in Nairobi and Mombasa present an optimal platform to display its vibrant brand and ensure world class service to its customers.

Gulf is a market leader in the supply of crude oil and refined products, Lubricants and Liquefied Petroleum gas. The company imports, exports, charters, stores and retails quality petroleum products from around the globe to various destinations in Africa. Its key Business units include

Shipping, supply and trading, terminal and distribution service, Sale of products to Retail, Export and transit markets, Industrial and Commercial markets and aviation (into- plane) fueling. The Company has recently ventured into the Power generation Sector having established the first 80.32MW medium speed diesel power plant in Kenya at Athi River. It has invested in storage facilities with the first state of the art depot in Nairobi's industrial area that also offers hospitality services and the recently acquired terminal in Mombasa dedicated to black oils and specialty products. At present, Gulf Energy Ltd enjoys flexibility between employees and the management in processes and procedures especially decision making. The oil marketer employs an organic organizational structure which allows free interaction, communication and enhanced relationships between top level management and the employees in the work place. This has improved efficiency and effectiveness in the organization leading to an increase in productivity. Moreover, Gulf Energy Limited ranks fourth countrywide with a market share of 6.1% as at December 2015 which marks an increase of 3.3% in market share compared to June 2014 statistics. This is attributed to its very aggressive expansion strategy that increased the network from 15 to 25 in 2015. The Company is on schedule for an additional 10 builds and 4 acquisitions in 2016.

Gulf Energy Limited is committed to ensure supply of quality products to its customers, of the right quantity and strictly adheres to the ERC regulations, to ensure that the consumer is protected. The supply team works to ensure proper planning of retail product requirements a month in advance to ensure no stock outs; even in cases of Industry shortages. The retail team reviews the stock levels in a bid to ensure 5 days stock holding per station and proceeds to issue orders to the customer service team who forward the requests to the respective depots. The logistics department works to ensure there is an adequate fleet to deliver the orders to the respective sites. The Engineering team works to ensure regular service of all equipment and minimal downtime which helps ensure the product is always available to the consumer. The retail team conducts regular training to the Managers, Dealers and customer attendants on "Gulf 7" that details a process that helps ensure excellent customer service at the retail sites with no or minimal complaints. Moreover, a dedicated customer service team works closely with the retail team to ensure any customer complaints on fuel (quality, quantity and price) are handled professionally and closed to the customer's satisfaction.

1.2.4 Overview of the ERC

Enacted under the Energy Act of 2006, its functions include regulating importation, exportation, transportation, refining, storage and sale of petroleum products. Under section 5 (a) (ii) its functions include licensing and issue of construction permits to help ensure all retail sites are of good standard. According to the ERC 2013/14 annual report the commission approved 607 license applications for licenses out of a total of 970 applications received. 363 License applications were rejected for not having met the ERC licensing requirements. The Petroleum sector of the ERC was aimed at countering the challenges experienced in the post-1994 period and focused on eliminating adulteration practices, promoting competition and establishment of safety and operation standards among the players. In December 2010, the Government started setting monthly Maximum retail prices per location through the Energy Regulatory Commission (ERC). The price calculation is based on average volumes and costs in the previous three months.

Government strategies to keep consumer price low have both positive and negative effects. Positive effects include increased operational efficiency between refiners and retailers which would be beneficial to consumers while some policies could influence the market power of refiners by reducing competition and in this regard negatively affect consumers. Governments must thus be careful of the extent of their intervention as effort to reduce the negative effects could also eliminate the consumer benefits (Borenstein & Bushnell, 2005).

1.3 Problem definition

Government employs strategies to keep fuel consumer prices low through quantity restrictions and price controls as seen in the pre – 1994 period in Kenya where it limited importation of crude oil. The Government of Kenya has transited from a controlled to a de-controlled market and much recently back to a controlled environment. Every transition was aimed at countering the challenges experienced in the earlier period. However, a common challenge that has marked all the three transitions has been high consumer prices, despite the high prices being driven by different factors (Munyua & Ragui, 2013; Munga et al., 2011).

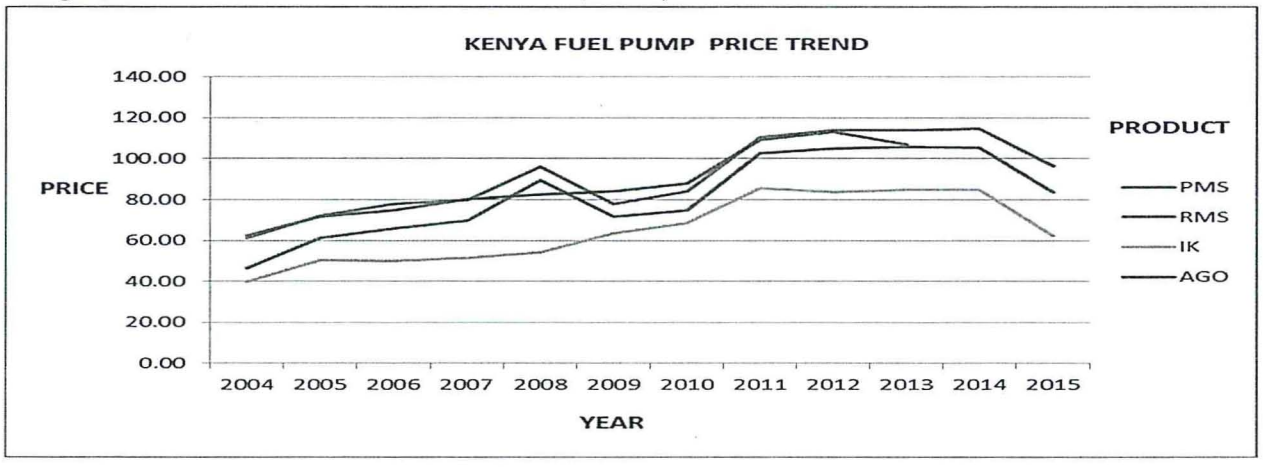
Before liberalization, the consumer prices were high due to scarcity attributed to limited import of crude oil with high refining costs that was passed down to the consumer, through cartels and monopolies. In response the Government liberalized the market in 1994 and successfully phased out scarcity by allowing for more importation of refined product. This however introduced a new

challenge as the Government was not equipped to license, monitor and control the sudden influx of many small players with substandard retail outlets who resulted to adulterating product in a bid to compete with the giants. The consumer continued to suffer high prices as the discounted product was actually of low quality. Moreover, the Government's objective to protect the consumer's interest seems to have lost its credibility as when pump prices go down, the fares for public transport and related commodities remain high, leaving the consumer still hurting. This transited to the current regulation of retail prices under the Energy Act 2006.

The Energy 2006 Act empowered the commission to regulate fuel prices from inception but this delayed until Dec 2010 after views were collected from stakeholders over a period of one year. Oil marketers resisted this change as they feared that the regulated retail prices would not accurately capture changes in world oil prices resulting to suppressed margins Wanjogu (2013).The public, consumer right groups and political pressure was critical as rising food and energy costs were causing protests and there was a general economic turmoil. Soaring fuels prices and uncontrolled market environment fueled by public outcries saw the implementation of petroleum price controls by the ERC in Dec 2010. This was to put some level of control and sanity in the pricing of petroleum products with the aim of protecting the consumer (Munyua & Ragui, 2013; Munga et al., 2011). The regulation meant that even the oil marketer's margins were also regulated unlike before where the marketers determined their own margins. This move meant that the marketers had to make some changes that would ensure that despite the controlled margin they were still justified to remain in business from a margin perspective (Njeri & Karanja, 2014).

As demonstrated in the price statistics shown in figure 1.1, pump prices of petroleum products have continued to rise unabated reaching a high of Kes 121.13 in May 2012 for a litre of gasoline compared to the price of Kes 94.03 before regulation in December 2010 an increase of 28.8% in eighteen months). Over the same period, the price of automotive diesel (gasoil) rose from Kes 87.45 in December 2010 to Kes 108.44 in May 2012, an increase of 24% in eighteen months, despite a reduction of taxes on gasoil to cushion consumers and tame inflation (Mwirichia, 2011). This trend has continued even after the introduction of specified oil products in December 2010.

Figure 1.1: Prices of Petroleum Products in Kenya Dec 2005 to June 2014 (Petroleum Insight, Petroleum Institute of East Africa, 2015)



The fuel retail price trend indicates a marked increase in fuel prices through the years. It was difficult to obtain data relating to the period before 2004 due to the unavailability of records and minimal digitization in that era. However it is assumed that the prices were slightly lower than the 2004 prices. The drop in prices mid- 2015 is attributed to lower international prices. Through the transitions, the Government was able to overcome earlier challenges such as substandard retail outlets, product adulteration, product scarcity and tax evasion but the end retail price still remained high. The Kerosene price despite it being below that of all the other products adopted the same trend, growing incrementally per year. Overall, the prices of all the fuel products has grown incrementally through the transitions to the current regulation and various studies have been conducted that sought to explain the same. Before regulation in 2006, the increasing high prices were attributed to consumer exploitation by margin driven Oil marketing companies and as such it was expected that regulation would suppress their margins and help reduce the consumer prices. Wanjogu (2013) analyzed the impact of fuel price Regulation on the profitability of Oil Marketing Companies in Kenya and attributed the sharp increase in consumer prices before regulation to oil firms taking advantage of international price changes to exploit the public. She further confirmed that the reduced profitability of the oil marketing companies did not translate to reduced consumer prices at the onset of regulation. 1.4 Research objectives

The main objective of the study was to investigate the effect of government fuel regulation practices on consumer protection (quantity, quality and price of the fuel products) in Kenya.

Specific objectives

In the light of the main objectives mentioned above, the following specific objectives were derived;

i. To evaluate if Government objective of consumer protection (price, quality and quantity) is now resolved under the new regulation
ii. To establish other contributing factors that would affect Consumer protection beside regulation.
iii. To make appropriate recommendations on managing fuel retail prices in Kenya.

1.5 Research questions

In the light of the specific objectives mentioned above, this study sought to address the following questions:

i. Has the Government objective of consumer protection (price, quality and quantity) been resolved under the new regulation?
ii. What other contributing factors affect consumer protection beside regulation?
iii. What are the possible recommendations and ways of managing fuel retail prices in Kenya?

1.6 Scope of the study

This study focused on fuel regulations and consumer protection in Kenya. The study solely focused on Gulf Energy Limited, who represented the oil marketers by ensuring an in depth analysis of Regulation and consumer protection. The study covered residents within Nairobi County who own cars and are assumed to fuel at Gulf Energy at one point in time. This allowed for generalization of findings to the entire population in Nairobi. According to a report Energy Regulatory Commission (2014), by 2012 there were about 2,022,955 vehicles registered in Kenya out of which Bloomberg Business (2014) estimates 700,000 of them are in Nairobi which translates to about 30%. Nairobi County was selected because it is hosts the capital city of Kenya, it is Kenya's commercial and industrial hub, densely populated with a total population of 3,138,295 by 2009, it has a high rate of urbanization and it has a huge number of people going on holiday from time to time. In addition, Nairobi County is a cosmopolitan area which is home to

all communities in Kenya hence may represent the feelings and character of the Country Kenya at large (KNBS, 2014; County, Census 2009; Bloomberg Business, 2014).

1.7 Significance of the study

The study will contribute immensely to previous research conducted on the high fuel consumer prices in Kenya. It will seek to explain the Government action before and after liberalization in answer to the challenges experienced through these transitions and try to establish if the Government objectives have now been addressed under the current regulation. It will help create an understanding of the ERC pricing model to all stakeholders and show its efficacy by analyzing the price trends before and after Regulation. The results are bound to influence policy decisions if the research outcome indicates a gap that if addressed would help the ERC adopt an optimal pricing model to help ensure fair consumer pricing and provide the much need insight to enable the Policy makers undertake all necessary action to better manage consumer prices including KPRL upgrade and set up of modern Petroleum infrastructure. The study will inform potential investors of the ongoing concern of high consumer prices which is critical in evaluating future performance and profitability of the Petroleum sector and also enlighten on the opportunities and risks presented by the sector.

1.8 Limitations of the study

Firstly, it was challenging to obtain quantitative data on quality, quantity, enforcing or ensuring compliance and consumer satisfaction except for costs and price for the period under study this then prompted the use of only qualitative data. Hence, regression analysis was done only on costs as independent variable and prices as dependent variable.

Second, this research was conducted on a small number of respondents from Gulf Energy Limited who gave back their feedback. To generalize the results on the large population size, more respondents should have been involved. Secondly, although this study gives an in depth analysis of issues surrounding fuel regulation and consumer protection, it is likely that it only relates particularly to the organization or case at hand.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature concerning fuel regulation. This entails a theoretical view of price regulation including regulation models, empirical literature on price regulation and a summary of the same.

2.2 Theoretical frame work

This study is founded on public interest theory, economic theory of regulation and price regulation models. Posner (1974) defines Economic regulation as Government intervention in the market. It refers to explicit legislative and administrative control over rates, taxes and subsidies and all other facets of economic activity. This section reviews price regulation theories and models. This includes the General economic theory, the public interest theory and a summary of the various models of price regulation.

The theories are discussed below.

2.2.1 Public interest theory

According to Posner (1974) this regulation seeks the protection and benefit of the public at large. It is a system of ideas which propose Government intervention where markets become inefficient or inequitable in terms of price /value vs. its marginal cost. This theory initiated from the writings of Pigou (1938) and explains how regulations can be motivated. Market failures resulting from negative externalities, monopolies or information asymmetries and can be corrected by Government interventions to help ensure societal efficiency and welfare. Regulation of firms or other economic actors can further enhance public interest as it would help ensure optimal allocation of scarce resources. However this theory was criticized, as it turned out to be ineffective. Moreover, proposed theoretical arguments rendered solutions to market failures e.g. to implement regulations for marketing firms that would help ensure those that would pose environmental risks do not get started (Kimeu, 2013).

2.2.2 Economic theories of regulation

Chicago theory holds that regulation is in response to demands by interest groups to maximize their incomes. It thus protects the interest of these groups and not the public at large (Posner, 1974). There are three types of economic regulations. A structural regulation is concerned with

issues pertaining to the market structure e.g. supply requirements and restrictions on entry or exit. Conduct regulation on the other hand regulates behaviour of producers and consumers in a market and defines things like product labelling, minimum quality requirements, price controls and rules guiding advertising. It is mainly practised in markets with imperfect or excessive competition and natural monopolies to help stabilize market processes. Social regulation is concerned with occupational health and safety, environmental issues, labour and consumer protection (Kimeu, 2013).

2.2.3 Price Regulation Models

Regulation entails establishing rules and procedures which must be adhered to and embraces action designed to affect how companies and individuals operate e.g. taxation, licensing, franchising, contractual requirements and subsidization. The objective of price regulation is to ensure fair pricing that protects the consumers even in times of scarcity while ensuring a minimal income for the marketers (Kimeu, 2013). International crude oil and fuel products are uniformly priced across all regions. However, there is some minimal price variation attributed to transportation costs and fuel quality but the most significant variation is attributed to diverse Government pricing policies which result in differences in price ceilings, price levels and uniform or locational pricing models (Kojima, 2013).

Table 2. 1: International crude oil and fuel products and Government pricing policies

MECHANISM	ADVANTAGES	POTENTIAL PROBLEMS
Price ceilings	Greater controls	If price ceilings are too high, there is little Incentive to improve efficiency. If they are too low, fuel business may cease to be financially viable.
Price levels	Easy for consumers to check compliance	There is no scope for price competition. If price levels are set too high, there is little incentive to improve efficiency, and if set too low, fuel business may cease to be financially viable.
Control at retail	More transparent because of greater correlation with	More assumptions are needed to calculate prices than controlling retail prices. Compliance is more difficult to monitor

	benchmark international prices, easier to monitor compliance because there are fewer points of sale	because the number of points to be checked is the largest at retail
Control at wholesale or elsewhere upstream of retail	Sense of national unity: one country, one price. Easy for consumers to check Compliance.	If competition is inadequate, margins could grow and retail prices could be markedly higher than otherwise. If upstream prices are set too low, oil Companies may try to recover losses by increasing retail prices to compensate.
Uniform prices	Costs are better reflected	Freight equalization introduces additional scope for inefficiency as well as corruption. The size of cross-subsidization could become very large, to the point of making the cost of compliance unacceptably high
Pricing by location		Consumers in remote areas may compare themselves to those in major cities and feel a sense of injustice. If costs of serving remote areas are too high, some remote areas may not be Served.

Source: (Kojima, 2013)

Price caps help ensure give firms the incentive to be competitive which helps ensure fair consumer pricing. Firms are forced to set targets with action plans that are accessed and considered in the firm's profitability (Kimeu, 2013). It is essential for a Government to understand the various regulation mechanisms and adopt to one that best suit its market conditions and ensures consumer protection. Success of a regulation mechanism is marked by stable supply of quality product that satisfies EHS (Environmental Health and Safety) requirements and fair consumer prices. Government failure could be marked by fuel adulteration, emergence of black markets, smuggling, misappropriation of subsidy funds, high

consumer prices and inefficient infrastructure systems that result to economy wide damage. In Kenya, the current regulation is based on price ceilings but still seeks to regulate at the wholesale and retail level and hence its success will be based on its ability to still foster competition and hence maintain low consumer prices while maintaining an attractive industry for potential investors. At the Retail level, the Government has made it easy for consumers to check for compliance by publicly announcing the prices on the 14th of every month. After prices are communicated they remain in force for a period of one month, giving enough room for transparency and compliance audits. While the Kenyan Government has succeeded on this front, the public outcry after every public announcement by the ERC still raised concerns on whether the current regulation has succeeded to protect the consumers with regard to product pricing.

As observed by Henderson (2009) in a critic of price regulation, it negates the profit principle by undermining the philosophy of the free market and causing investment distortions whereby the regulatory body is more significant than the market, thereby shifting the traditional economic powers from consumers to the Government. He argued that eventually when the controls fail, prices that do not tally with the current inflation rises rapidly and also inhibit recovery after disasters and hence ends up hurting the consumers. Moreover, costs of queuing, black markets and tax evasion force Governments to introduce rationing and that triggers a risk to corruption. The author cites that sometimes, regulation raises prices more than no controls by creating shortages with compromised quality at the expense of the consumer especially in markets that would otherwise be competitive and as such should be avoided at all costs.

2.3 Fuel Regulations and Consumer Protection

2.3.1 Consumer Protection

The Energy Act 2006 consolidated all laws relating to energy and provided for the establishment of the Energy Regulatory Commission (ERC) as a single sector regulatory agency with responsibility for economic and technical regulation of electric power, renewable energy and petroleum sub-sectors. These reforms were preceded by the enactment of the Restrictive Trade Practices, Monopolies and Price Control Act of 1989 which aimed at promoting competition and reducing direct control of prices in the entire economy and more recently the Competition Act 2009, which seeks to promote and safeguard competition in the economy; protect consumers from unfair and misleading market conduct; to provide for the establishment, powers and functions of the competition tribunal and connected purposes (Republic of Kenya, 2006; 2007).

As observed by Armstrong et al. (2006), several factors affect the optimal choice between regulation and unregulated competition. Some of the key regulatory principles in the oil sector as brought forward by Munga et al. (2011) for protecting consumers are as follows: *Licensing* where the license defines the parameters within which the licensees are empowered to operate and lays down rules on the provision of goods and services to customers; the data that the regulator requires at specified intervals; and evidence that financial transactions between the licensed and non-licensed operations of the company conform to the outlined rules of carrying out business. The license is also the link with other necessary legislation; relevant interest by other agencies and the necessary technical and safety requirements by which the energy industry functions. Second is *price control & service quality where m*onopoly providers have no external commercial incentive to become more efficient. Thus left to themselves, they go for monopoly pricing, normally high, with declining quality of services because the customer is captive and has no choices. Price controls on regulated monopolies are an attempt to combat monopoly pricing and to try to stimulate the monopoly to act as if it were in open competition with others. This can be through revenue, profit or cost caps. The most effective method of price control is to cap the revenue generated since it is easily verifiable unlike profit and costs. Improvement in customer care in a monopoly is an offshoot of price control, in that the quality control of services to customers can be quantified in terms of the satisfaction that customers experience when they are compensated for a failure by the monopoly to undertake an action as set out in the rules and regulations.

Third is *enforcement where r*egulation is the imposing of conditions on monopolies that without sanctions, would be considered 'unnatural' and intrusive to a monopoly way of life. All the price controls, license conditions and codes of practice would be ignored if there were no obvious, robust and simple sanction that the regulator could impose. Every license requirements has enforcement or compliance rules which stipulate sanctions that are clear, obvious in intent and swift in application. Evidence of a breach of the basic duties by a licensee of the compliance invokes enforcement of such sanctions or penalties. Lastly is *quality* where theoretically, quality should be such that the cost of the last unit of quality improvement equals the aggregated marginal willingness to pay for the additional quality (Hirschhausen et al, 2004). State-owned utilities are likely to over-invest if they face no hard budget constraints. On the other hand, un-regulated monopolies will supply too much (or too little) depending on whether the marginal willingness to pay for quality by the marginal consumer is higher (lower) than the average

willingness to pay in the group of consumers. Regulatory processes affect maintenance and expenditures and capital allocations. In the electricity sub-sector, quality measurements arising from regulatory processes are interpreted as reductions of power outages.

2.3.2 Ensuring or enforcing compliance

Non-compliance is done through monitoring and reporting, licensing of petroleum business, complying with environmental, pricing, quality, quantity, health and safety standards. Monitoring and control is one of the primary functions of the ERC. The Energy Act 2006 consolidated all laws relating to energy and provided for the establishment of the Energy Regulatory Commission (ERC) as a single sector regulatory agency with responsibility for economic and technical regulation of electric power, renewable energy and petroleum sub-sectors. These reforms were preceded by the enactment of the Restrictive Trade Practices, Monopolies and Price Control Act of 1989 which aimed at promoting competition and reducing direct control of prices in the entire economy. More recently, the Competition Act 2009 was established which seeks to promote and safeguard competition in the economy and protect consumers from unfair and misleading market conduct (Onyango et al., 2011).

Kenya like all the other countries that have regulated their fuel prices has faced numerous challenges and gone through a number of transitions. Its single refinery doesn't operate at optimal capacity and needs to be rehabilitated. In 2012, the refinery only met 30% of the domestic demand. Following closure by KPRL, crude imports decreased from 997,000 tonnes in 2012 to 567,000 tonnes in 2013 while imports of finished petroleum products increased from 2,803.4 tonnes in 2012 to 2,985.9 tonnes in 2013. This was necessary to meet the country demand (ERC, 2013, 2014).

The product pipelines are not in good condition and product shortages are frequent and frequent power outages occasionally shut down the plant. Effective Jan 2004, the Government centralized purchases by introducing the open tender system coordinated by the Government. This was with aimed at taking advantage of import economies of scale during importation of certain products and all crude oil. The Petroleum Institute of East Africa (PIEA) posts data on fuel marking and results of tracing tests to enable the Government take advantage of economies of scale through bulk purchase "open tender system" (Kojima, 2013).

The source of the consumer product at the retail level is from the refining process at KPRL while some is also from direct imports of refined product a process that is coordinated by the ministry of Energy through the Open Tender System (OTS). 70 % of the imports are coordinated under

the OTS leaving the balance of 30% at the discretion of licensed importers. Prior to the OTS system, the Ministry of Energy used the historical market share of the licensed importers to allocate the base load. All imports are stored at Kipevu oil Storage facility under KPC (Kreyah, 2011). For 33 years, before its liberalization the Kenya Oil industry was under the Price Control Act that was repealed by the Restrictive Trade Practices Act (RTPA) enacted on 1st February 1989 with the aim of relying less on Government direct control to foster a competitive market (Government of Kenya, 1989). It prohibited controlling monopolies, restrictive trade practices and concentrations of economic powers that drive prices (Kreyah, 2011). This was later repealed by the Competition Act. At present, Regulation is effected under the Energy Act of 2006 that empower the ERC to control exportation, importation, storage, transportation and refining of petroleum. Its primary duty also entails setting of retail consumer prices on the 15th of every month running till 14th of the subsequent month.

2.3.3 Regulating Costs

Government controls are not always designed to suit the consumers' interest as in some cases they introduce barriers to entry and reduce competition and negatively affect the consumer prices. In an ideal market where there is balanced power between wholesalers and retailers, prices are set at incremental prices which marks efficiency because the value of gasoline will exceed the cost of supply. Introduction of market power translates to high consumer prices that are way above the incremental costs resulting to under consumption and eventual lost gains from trade (Borenstein & Bushnell, 2005). Governments must thus be careful of the extent of their intervention as effort to reduce the negative effects could also eliminate the consumer benefits.

Several scholars have researched on price regulation, its success and failures in different markets and the contributing factors that lead to price instability. Kojima (2009) states that petroleum products are the main drivers of all world economies but are inefficient due to their price instability and frequent fluctuations. Kojima et al. (2010) confirmed that high consumer prices have both macroeconomic and microeconomic consequences. At the macroeconomic level, high prices affect a Government's budget and balance of payment, its Gross Domestic Product and contingent liabilities while at the microeconomic level, high consumer prices negatively affect household incomes as they have to pay more for petroleum products consumed directly and also for related commodities e.g. food, transport etc.

Other contributing issues that influence consumers are fundamental factors such as world oil prices, interest charges and exchange rates; non-fundamental factors especially costs

(speculation, pipeline transportation and refinery inefficiencies, corruption, economic and political shocks cause the instability of petroleum product prices and fixed factors (in the short run) such as taxes, demand/high rate of consumption at pump outlets, oil losses and profit margins may contribute to the fluctuation of price, quality and quantity of petroleum products (Institute of Economic Affairs, 2015). In addition, the cost of crude oil, refining costs and profits, distribution and marketing costs and profits and taxes affect fuel prices. Thus, retail pump prices reflect these costs, as well as the profits (and sometimes losses) of refiners, marketers, distributors, and retail station owners.

Some of the taxes and levies for petroleum products are Excise duty, Road maintenance levy, Petroleum Development levy, Petroleum regulation levy, Kipevu oil storage facility charges and Excise duty remission. At present Super attracts the highest excise duty of Kenya shillings 29.34 per litre, Diesel 17.68 and kerosene 0.45. The road maintenance levy was 5 shillings per litre for both premium and Diesel but this was removed and currently is paid through taxes. Upon receipt by the oil marketers, the product is resold through retail networks either owned or managed by branded and non-branded marketers (independents). The market also has middlemen (resellers) who buy the product at Wholesale prices for the sole purpose of re-sale either to commercial users or individual end users. The pricing model used by ERC is determined in terms of fair pricing with minimal price fluctuations. Quantitative data on fuel consumer prices in the period between 1994 and 2014 will be analyzed. Sharp price fluctuations would be an indicator of errors either with the ERC pricing model or the cost variables or one or more extremely high cost contributors from the Industry players.

2.3.4 Consumer Satisfaction

According to Kojima (2009), countries that review oil prices in an adhoc manner often do not pass price increases to consumers as their main objective is to protect the poor and limit inflation through various forms of subsidies and tax reduction. Both oil importers and importers are severely affected by oil price volatility due to fluctuation of their budget revenue and expenditure coupled with high consumer prices. Traditional tools such as domestic stabilization funds and compensatory finance from lenders has proved to be ineffective because some protect the Government and not its consumers such as adoption of tax levels and privatizing oil trading. More current tools such as swaps, options, futures and commodity price linked loans are limited but offer some security for economies and their populations (UNCTAD, 2005).

Wanjogu (2013) analyzed the impact of fuel price Regulation on the Profitability of Oil Marketing Companies in Kenya and attributed the sharp increase in consumer prices before regulation to oil firms taking advantage of international price changes to exploit the public which was a contributing factor to the Government regulation of 2006. The study analyzed Industry data, profitability ratios and audited financial statements of the Oil Marketers to establish their performance before and after regulation and confirmed that regulation had a negative impact on the Profitability of the Oil Marketing Companies. From this study one is bound to expect that the negative profitability by the oil marketers after regulation would translate to favourable consumer prices.

2.4 Empirical Review

Blair et al. (2012) define Petroleum and its related products as acquiring attributes of a global currency "petro dollar" used to benchmark prices of other goods in different sectors and across borders. When world oil prices increase, importation prices go up and consequently fuel consumer prices go up affecting the prices of all related sector commodities. It then a critical objective for Governments to maintain a balance on consumer prices especially on primary products like petroleum in order to maintain healthy economies with sustainable standards of living for its citizens. Regnier (2007), emphasized that the 1973 oil crisis increased oil price volatility and that of its related commodities globally while Munyua & Ragui (2013) observes that in the mid-1980's in Kenya Oil price volatility surpassed most other raw materials volatility and this carries on to date.

The main challenge to formulating policies in the gasoline industry is that these controls can produce both positive and negative effects. Positive effects include increased operational efficiency between refiners and retail outlets which is beneficial to consumers while negative effects include reduced competition due to policies that empower refiners resulting to monopolies that negatively affect consumers (Borenstein & Bushnell, 2005).

Kojima, Matthews & Sexsmith (2010), cites that multiple factors affect fuel availability, its costs and eventual consumer prices. Scarcity attributed to increased diesel demand for power generation and depleted Government budgets due to subsidies, which results to reduced and delayed orders, shipping delays and high insurance costs all attribute to rise in black market prices and high consumer prices. Further , (Kojima, 2013b)cites that failure for Governments to

pass fuel price increases fully can result to direct fiscal costs (through subsidies and tax deductions), indirect costs (when the National Corporations accumulate debt) and negatively affect competition making investment unattractive.

Onyango, (2013) emphasized that International oil price drops were rarely passed on to consumers due to oligopolistic tendencies displayed by marketers e.g. When the load port price of Murban crude oil dropped from a record high of US$ 137.35 per barrel in July 2008 to US$ 42.10 per barrel (69.9% drop) in December 2008, the pump prices of super dropped from Kes. 110.00 Per litre to Kes. 78 per litre or by 29.1% over the same period. This inconsistent cost sharing leaves the consumer hurting even in cases of favorable global prices. Moreover, Oil prices in the global market place are sensitive to media scares caused by traders resulting to price shocks that can completely destabilize and stagnate economies of struggling countries due to their effect on related commodities (Blair, Maniam, & Leavell, 2012).

Munyua and Rangui (2013) sought to identify the drivers of instability in prices of Petroleum products in Kenya and confirmed that the fluctuations affect the prices of other essential commodities and services. The study stressed that the price regulations effected to stabilize consumer prices failed as petrol prices increased by 18% and diesel by 24% in in the period December 2010 to June 2012 (18 months) under study. The study identified three independent aggregated variables aside from regulation that contribute to the price instability. These were fundamental factors (world oil prices, interest charges, and exchange rates), non-fundamental factors (speculation, pipeline transportation, refinery inefficiencies, corruption, economic fluctuation, economic and political shocks) and fixed factors (taxes, oil losses and profit margins).The study concluded that for stability in consumer prices to be achieved sustainably and to ensure attainment of Vision 2030 objective of reduction in energy costs, the critical factor of petroleum products pricing must be dealt with.

Fattouh (2011) supports this view and cites not much research has been done on the drivers of oil prices in the short run. On this basis, all factors that contribute to the final fuel prices must be explored and possible reductions made that would have a positive impact on the final consumer price at the pump. This demands that a country's Government and its respective regulatory bodies fully understand and couple the country's requirements with the right regulation structure (with consideration to its individual market and price contributors) that will be most beneficial to all the players including the final consumer. The following section discusses various

Government regulations and will seek to highlight their efficiency in maintaining low consumer prices.

2.4.1 The global markets

Nova Scotia started regulating wholesale, maximum and minimum retail prices on 1st July 2006 through the Nova Scotia and Municipal Relations (SNSMR). Prices are based on spot prices on the New York Mercantile Exchange also known as the New York Harbor (NYH) market which is the place where fuel is delivered once it's sold in the market. No single marketer has significant or lasting influence on the market and hence it's deemed competitive. Wholesalers and resellers deduct their costs from the gross margins. As at 6th January 2012, the regulation directed the gross margin by allowing a maximum of 6.6 cents per litre and a minimum of 4.8 cents per litre upon which a harmonized tax is added to derive the final maximum and minimum consumer prices. The law of "one price" is effective with price variation attributed only to differences in transport costs. However new prices may be announced in the unlikely case of significant variation in the NYH market (Hill, 2012).

According to Hill (2012), regulation started with bi- weekly price changes, then weekly. This model had limited impact and as a result the Government transferred this responsibility to the Nova Scotia Utility and Review Board on 30th September 2009, a move which created an intangible benefit to consumers as the prices were seemed to be derived from an process void of political influence and hence believed to be "just and reasonable" (Peltier, Skidmore, & Milne, 2013).

In the U.S, gasoline prices were regulated as part of the Nixon Administration's two-year adoption of economy-wide wage and price controls. The Federal Government prohibited refiners and marketers from charging prices that exceeded their average prices on May 15, 1973. The Federal Trade Commission's Bureau of Economics concluded that the federal price controls led to the adoption of increased cost of production that resulted to sporadic shortages. These resulted to inefficiencies marked by queues at Gasoline stations, limited station hours, Sunday station closures and restrictions on number of gallons purchased per trip. The secondary effects of such inefficiencies were hoarding and increased hazard of car fires as customers begun storing additional gasoline in containers in their trunks (Jerry, 2003).

In Hawaii, Act 77 ties maximum retail prices to wholesale prices on the west coast. Shortages would be less when other sources of imported gasoline are cheaper than the west coast and the

price cap would be less binding. However in the case where low west coast prices coincide with refinery outage in Hawaii, the price cap would discourage imports precisely resulting to shortages.

2.4.2 African markets

In South Africa, prices are adjusted once a month and factored in all relevant taxes. The Government carters for World oil price fluctuations and differences in monthly consumer fuel prices through a state levy that absorbs any under or over recoveries by oil firms. Following shutdown of four refineries and a technical hitch in the port of Durban that affected fuel exports in the period December 2011 and January 2012, fuel shortage ensued but instead of the Government focusing on expanding refining capacity or infrastructure, it opted to strengthen its maritime security in the Indian Ocean in a bid to reduce its insurance costs, fuel prices and increased transport costs in a bid to maintain stable consumer prices (Kojima, 2013).

The Nigerian oil Industry was initially marked by intense Government involvement before 30th September 2003 with high fuel subsidies. This was characterized by supply payments to independent marketers. This coupled with four inefficient refineries resulted to increased black markets and smuggling to neighboring countries that resulted to product scarcity and high consumer prices within the country. The labor force that feared loss of jobs resisted price increases and deregulation (Ogunnaike & Worlu, 2010). After de- regulation on 30th September, 2003, the Government went from full to partial subsidies and adopted a uniform pricing policy which was infrequently adjusted upon removal of the fuel subsidy on 1st January 2012, prices increased causing a public uproar that resulted to deregulation of kerosene prices in June 2009 and establishment of Petroleum Products Pricing Regulatory Agency (PPPRA) that manages the Petroleum Support Fund (PSF) aimed at stabilizing the consumer prices. Territorial pricing and transportation costs were regulated by The Petroleum Equalization Fund Management Board.

Subsidy Reinvestment and Empowerment (SURE) program was established to create a national safety net, quicken economic transformation and mitigate effects of removal of subsidies. Moreover the regulated gasoline had a higher consumption than the deregulated diesel due to increased smuggling of subsidized kerosene and gasoline. Kerosene prices were high in the black markets due to increased diesel adulteration and smuggling into neighboring countries. Extreme cases saw the subsidized product presented as import product in a bid to earn double subsidy (Kojima, 2013). Arinze (2011) supports this view citing that the oil price instability in Nigeria

was attributed to cost of refining, transporting, storing, distributing and inefficiencies in the process e.g. ill refinery maintenance and rehabilitation problems, smuggling and low capacity utilization. The Government undertakes refining and selling to the marketers and also subsidizes prices at the Retail level.

2.4.3 Kenya market

The institutional structure of the Kenya Petroleum Industry comprises the Ministry of Energy (that provides the guiding policies), ERC, KPC, KPRL and a number of Multinational Independent Oil Marketing Companies that include the National Oil Corporation of Kenya (Kreyah, 2011). The GOK (2003) in its vision 2030 highlights that Kenya's energy costs are higher than its competitors and hence the need to generate more energy at lower costs while increasing its consumption efficiency.

The period 1970- 1980 was marked by Oil instability which Gertz (2009) attributed to the balance of payment crisis of the 1970-1971 and the Oil crisis in 1973/74 and 1979/80 that forced the Kenyan Government to spend much of its foreign exchange earnings in securing the scarce resource. As a result and to help ensure some degree of stability, the Government increased tariffs, intensified import substitution and exercised severe import licensing. The high prices were passed on to the consumers and the market stagnated owing to mixed reactions from consumers which disrupted the normal supply and demand forces that make economies work. In many developing countries, structural reforms are a critical element of macroeconomic liberalization policies resulting to definition of the Government's role and de-regularization in some markets. As a result monopolies are being broken up, there is less state intervention as marked by the removal of price controls, trade restrictions and special treatments of National oil companies. This results to more competitive participation by the private sector (Ogunnaike & Worlu, 2010).

Following a sign up of a structural adjustment loan with the World Bank, the Government saw success in Trade liberalization in all sectors between 1995 and 2005. The reform program entailed replacement of import substitution policies with export promotion programs for all sectors with relaxed controls and reduced tariffs. In the petroleum sector, liberalization resulted to increased imports of refined product compared to crude which opened up the market to competition and entry of local players. The guiding legislation remained the Petroleum Act 1972. Even after liberalization, the market structure of the Kenyan Oil Industry remained oligopolistic

with 85.3 per cent of market share control under the major oil companies that is Total Kenya, shell/BP, Kenol Kobil, Mobil and Caltex (The GOK, 2005).

The Kenyan economy relies heavily on its petroleum industry. Diesel is used for power generation, transportation and Agriculture while kerosene is mainly used for household cooking and lighting. Being an Oil importing country its' consumer prices are affected by changes in world oil prices but according to Kojima (2013), the Global price collapse in 2008 resulted to rising fuel import prices that were passed on to the domestic markets across the globe resulting to a public outcry that pushed most Governments to employ strategies to ensure fair consumer pricing. Government strategies to maintain some degree of control on consumer prices and scarcity concerns include enforcement of Government pricing policies and establishment of National Petroleum companies to replace multinational integrated companies. This is in a bid to ensure the Government maintains some degree of control on the consumer prices while addressing scarcity concerns.

Prior to liberalization of the sector in 1994, the oil industry in Kenya was marked by high Government involvement with only seven marketing and distribution companies responsible for importing their own oil while NOCK was expected to supply 30% of the crude requirement into the county. The Government in liaison with the seven marketing companies would set the pump prices for the entire country (Munyua & Ragui, 2013). NOCK established in April 1981 to oversee all aspects of the Kenya Petroleum Industry including downstream and upstream activities but there were still concerns of overcharging by a number of oil Companies. (Munyua & Ragui, 2013) cite that the Kenya Government deregulated its oil industry in 1994 to attract private capital and enhancing industry operational effectiveness.

At the time there was no appropriate regulatory environment in place (the existing legislation at the time was the Petroleum Act Cap 116 of 1948 with latest revision of 1972) and the sector still faced challenges which include proliferation of substandard petroleum dispensing and storage sites which pose environment health and safety risks; diversion of petroleum products destined for export into the local market by unscrupulous business people to evade tax and a dominance of the market by a few companies among others (Onyango et al., 2011). Despite these improvements, the petroleum market portrayed oligopolistic tendencies as oil marketing companies would rarely pass on cost reductions to consumers when international oil prices are on a decline. For instance, when the load port price of Murban crude oil dropped from a record high of US$ 137.35 per barrel in July 2008 to US$ 42.10 per barrel (69.9% drop) in December

2008, the pump prices of super petrol dropped from Ksh. 110.00 Per litre to Ksh. 78 per litre (29.1%) over the same period (ERC Annual Report, 2008).

The Government noted these challenges in its energy policy contained in Session Paper No. 4 of 2004 on Energy and recommended review of the Petroleum Act Cap 116 and other energy sector statutes and the introduction of a new energy sector legislation to cover petroleum, electricity and renewable energy. It also recommended the formation of a single energy sector regulator to regulate electricity, downstream petroleum, renewable energy and other forms of energy (Onyango et al., 2011). In December 2010, the Government started setting monthly Maximum retail prices per location. The price calculation is based on average volumes and costs in the previous three months. Initially diesel and kerosene taxes were reduced but by May 2011, all taxes on all products were removed (Kojima, 2013).

Munyua & Ragui (2013) shows that in a bid to ensure price stability the Government of Kenya re-introduced the fuel price controls but the public outcry month after month after price reviews raised the question whether the regulation succeeded in stabilizing prices. The question thus arises on ERC's current pricing policy in answer to the consumer challenges currently being experienced under the regulated system. This research aims at clarifying the strength of the country's Energy Policy as implemented in the Petroleum sector by the ERC and seeks to propose solutions to address identified gaps.

Section 5 (a) (ii) of the Act dictates the functions of the ERC which include regulation of import, pricing, refining, transportation, export, storage and sales of Petroleum and its products. Under this section, the ERC licenses petroleum importers and exporters, controls refining, transport, storage, sale and issues construction permits for all Petroleum related facilities in a bid to curb increase of substandard sites. The fuel operators on their part are expected to ensure the product meets the applicable Kenya standards and comply with the Environmental, Health Safety requirements. The ERC regulates consumer, reseller and Oil companies' margins per litre (Energy Regulatory Commission, 2014).

F & l Asia Limited (2014) noted that the attractive import margins attracted an influx of speculators leading the ERC to tighten their controls regarding import licensing to help manage the same in March 2014. The marketers were expected to sell a minimum of 15m3 refined product per month, own at least 5 retail outlets or a storage depot to qualify for the import license. They also had to secure a signed off OTS contract for bulk import and a Transport and

storage agreement with KPC and maintain 1000m3 of Diesel in the line. Successful applicants had to commit to KPRL requirement for prompt uplift and use of the pipeline for transportation from Mombasa. As a result the number of registered oil marketers dropped from 67 to 57 between December 2013 and February 2014.

Other contributing factors to the high prices are demurrage which is penalties for delayed discharge of vessels at the Port of Mombasa and dollar fluctuations. Achieng et al. (2013) observes that although the government has been involved in streamlining the supply chain system in the petroleum industry, it is marred by inefficiencies ranging from unpredictable price volatility in the global markets, exchange rate fluctuations to infrastructural constraints. Factors in the macro-environment such as the political, economic, social, technological, environmental and legal affect the oil price volatility in the Global markets that in turn affect the importation costs. Kenya being an oil importing country is affected by oil price volatility in the global markets and this poses a lot of economic uncertainty and price instability.

Njeri & Karanja (2014) did a study on the influence of regulatory practices on fuel prices in Kenya: a case of Vivo Energy Kenya Ltd. The study concluded that for any regulatory practices on fuel prices to succeed key factors both internal and external to the organization must be put in place. The key internal factors include organizational structure with the appropriate expertise and management team with the right skills, experience to succeed; the change management must be in place to communicate the strategy to all stakeholders. External factors include government regulations, cost of capital, and nature of ownership. Munyua & Ragui (2013) carried out a study which sought to identify the drivers of instability in prices of Petroleum products in Kenya. The study showed that the price regulations effected to stabilize consumer prices have failed since petrol prices have kept on increasing due to factors such as world oil prices, interest charges, refinery inefficiencies, corruption, exchange rates and others. The study concluded that for stability in consumer prices to be achieved sustainably and to ensure attainment of Vision 2030 objective of reduction in energy costs, the critical factor of petroleum products pricing must be dealt with.

2.5 Summary

As much as Fuel regulation has achieved success in Countries like Nova Scotia, there is no defined way of measuring the success of a Regulatory framework. Different perspectives that define success of Regulatory frameworks exist and are adopted/ modified to suite global trends and objectives of different Governments. Petroleum being a major energy source in Kenya serving as

a pillar for other sectors such as Transport, Agriculture, Commercial and Industry, it has far reaching consequences in the whole economy especially on prices of other goods and services.

Before liberalization, the consumer prices were high due to scarcity attributed to limited import of crude oil with high refining costs that was passed down to the consumer, through cartels and monopolies. In response the Government liberalized the market in 1994 and successfully phased out scarcity by allowing for more importation of refined product. This however introduced a new challenge as the Government was not equipped to license, monitor and control the sudden influx of many small players with substandard retail outlets who resulted to adulterating product in a bid to compete with the giants. The consumer continued to suffer high prices as the discounted product was actually of low quality. Moreover, the Government's objective to protect the consumer's interest seems to have lost its credibility as when pump prices go down, the fares for public transport and related commodities remain high, leaving the consumer still hurting. This transited to the current regulation of retail prices under the Energy Act 2006.

2.6 Knowledge Gap

Fuel consumer prices have a far reaching effect on a country's economy as well as the living standards of its population and as such is a focus point for many Governments who have adopted different policies in a bid to ensure stability of the same, a process that is not without its own challenges as seen in the case of Nova Scotia, the USA, South Africa and Nigeria. In these countries, the policies have been and are continuously being reviewed by the Regulatory Institutions established to undertake the regulation process on behalf of the Government in a bid to enhance integrity of the entire process, build transparency and ensure fair consumer prices.

Nova Scotia, a country that has efficiently managed a price level regulation has its success in its ability to strive for efficiency by fostering competition. The system allows for effective monitoring and timely adjustment to market conditions while winning consumer trust. The South African Government has also been very successful at maintaining fair monthly consumer pricing through a state levy that carter for global market price fluctuations and consumer price variations by absorbing the over and under recoveries by oil firms. The Nigerian Government transited from full involvement with high fuel subsidies to de-regulation with partial subsidies and at present the Government undertakes refining and selling to the

Marketers with subsidization at the retail level. Every level of the transition was marked with numerous challenges that an individual Government would be trying to solve in order to stabilize prices and ensure consumer protection.

Kenya seems to have taken a similar transition having moved from a regulated to a de-regulated market and now back to a regulated system with noted challenges being the baseline of its transition decisions. To this end, fuel regulation has been effective in some Governments and not others. Hence, it's essential that the policy makers understand the contributing factors that define every regulation mechanism and also bear in mind the consumer's interest in order to adopt what best suits the needs of all its stakeholders. Past studies in Kenya such as Onyango et al. (2011), Ogunnaike & Worlu (2010) and Munyua & Ragui (2013) have looked at fuel regulations in general especially whether the introduction of ERC has achieved the objective of regulating prices.

This study seeks to address the existing gap by analyzing consumer protection from three angles i.e. price, quantity and quality vis a vis the fuel regulation mechanisms laid down by ERC namely ensuring or enforcing compliance, regulating costs and consumer satisfaction. More importantly, the study seeks to address the gap of why countries such as Nova Scotia and South Africa have efficiently managed price level regulation by ensuring fair prices through fostering competition and not Kenya even with its many oil marketers. Questions always abound as to why there are monthly fuel price changes in Kenya on a monthly basis even with the ERC formation.

Locally, few studies have been done to determine the effect of fuel regulation on consumer prices with no studies on fuel quality and quantity. Thus to this end, the results of the studies undertaken in Kenya have been inconclusive as to why the consumer prices continue to increase un-abated even with the numerous regulations. In addition, most of the studies done locally have focused on regulations in general and effect on prices negating the fact consumer protection goes beyond prices to include quality and quantity. It is on this basis that the current study seeks to analyze the effect of regulation on consumer protection in Kenya.

2.7 Conceptual frame work

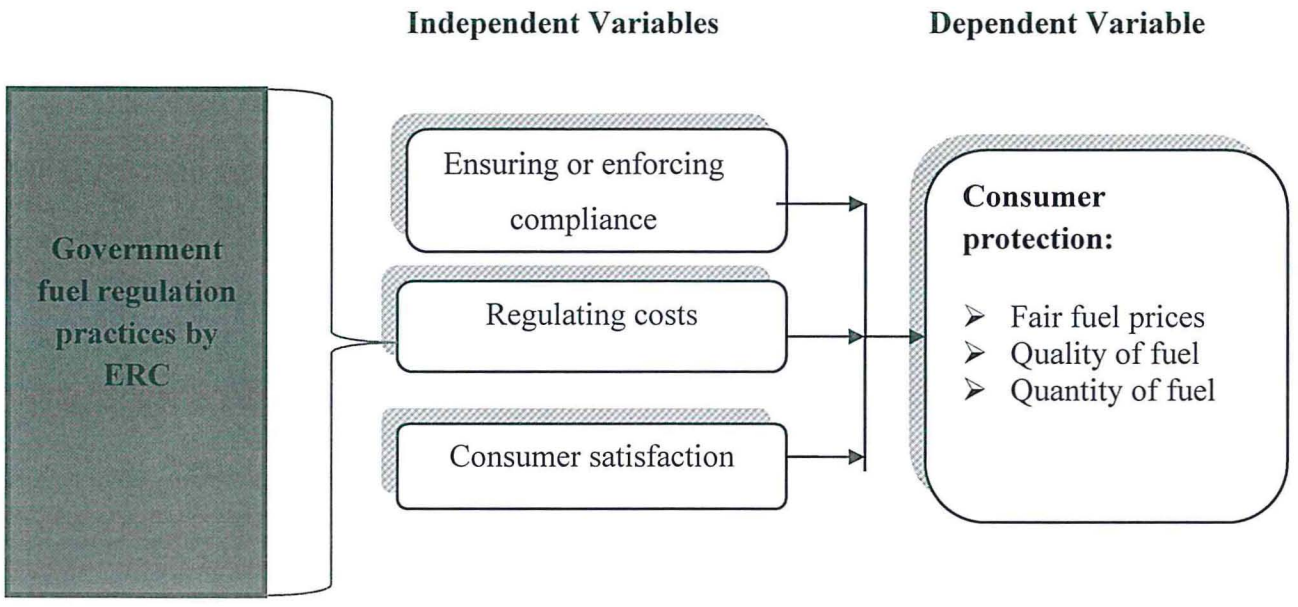


Figure 2.1: Conceptual Framework

2.7.1 Operationalization and Measurement of Variables

The conceptual framework of this study consists of one dependent variable i.e. consumer protection measured by fuel prices, quality and quantity and three independent variables. The conceptual model illustrates the role of the ERC in consolidating the cost variables from the Macro and Micro environments to derive the final consumer price in line with its mandate from the Kenya Government. Enforcing compliance on the same in a bid to ensure the consumer is satisfied and protected. Based on this conceptual framework, a number of measurable variables are derived that will help analyze the effect of fuel regulation on consumer protection in Kenya. These are described below:

Consumer satisfaction: There must be increased transparency and awareness of the effective retail prices on the 15th of every month and consumers must be able to acknowledge the Government's effort in ensuring fair and stable prices. For an effective regulatory system consumer satisfaction should at 100%. The Government coordinates the OTS through the Ministry of Energy and tenders are awarded to the oil marketer with the lowest price in a bid to achieve the lowest consumer price. Once the fuel arrives at the port of Mombasa, it's stored at Kipevu Oil storage facility at a fee. If the fuel is imported as refined product, the relevant taxes and margins are applied to determine the eventual consumer price but crude, undergoes refining at KPRL. The unit cost is a factor of the volume of product derived from the refining process, storage costs ex Kipevu Oil storage facility and the transport costs to the various depots through KPC. KRA in liaison with ERC oversee inclusion of all relevant taxes to the

final consumer price. ERC then includes the wholesale and retail margins to determine the final consumer price as per the pricing model defined in the Energy Act of 2006. The prices are communicated to the various stakeholders by the 14th of every month for application on the 15th of every month. The ERC also oversees monitoring and control to ensure all the industry players adhere to the commission directives.

H_1: Hence, it is expected that consumer satisfaction will have a positive effect on consumer protection

Regulating costs: The regulating costs for petroleum products as per Energy Act 2006 as detailed in the Kenya Gazette Supplement No. 88 of 2010 consist of weighted average costs in shillings per litre for refining and storage; transportation costs to depots as a percentage of pipeline tariff and road bridging costs; delivery costs from depot dispensing sites; then costs of allowable losses in the pipeline; allowable depot losses and finally allowable margins. The costing process is measured by ensuring the contributing cost variables from the external environment are kept low in a bid to ensure that the resulting consumer price is low. Cost variables derived from Macro and Micro-environmental factors that help ensure flexibility to adapt to global and local market conditions are explored by analyzing quantitative data on costs history. This include costs from the various industry players key in the importation, storage, refining, transportation and resale of the final end product to consumers e.g. the weighted average costs ex. KPRL & KOSF, transport costs and Government taxes.

H_2: Hence, it is expected that high contributing costs will have a negative effect on consumer protection and vice versa

***Ensuring or enforcing compliance*:** Monitoring and control being one of the primary functions of the ERC, will be measured by Monitoring and reporting non-compliance, licensing of petroleum business and complying with environmental, pricing, quality, quantity, health and safety standards.

H_3: Hence, it is expected that ensuring or enforcing compliance (curbing non-compliance of fuel regulations) will have a positive effect on consumer protection

Table 2.2 summarizes how the variables will be measured or operationalized.

Table 2.2: Measurement of various variables

Variable	Operational definition	How it is measured
Dependent Variable		
Consumer Protection	➢ Fuel prices ➢ Quality of fuel ➢ Quantity of fuel	Quantitative Qualitative Qualitative
Independent Variables		
Consumer satisfaction	Measured through constructs namely: • Handling customer complaints • Protecting the interests of shareholders, consumers and investors • Price stability	A likert scale of 1-4 where 4= Strongly agree, 3= Somewhat agree, 2= Agree and 1= do not know respectively.
Regulating costs	Measured through three costs related to : • Storage, transportation, import, KPRL & KPC charges, taxes, refining, selling and margins charged by oil marketers.	A likert scale of 1-4 where 4= Strongly agree, 3= Somewhat agree, 2= Agree and 1= do not know respectively.
Ensuring or enforcing compliance	Measured through: • Monitoring and reporting non-compliance • Licensing of petroleum business • Complying with environmental, pricing, quality, quantity, health and safety standards	A likert scale of 1-4 where 4= Strongly agree, 3= Somewhat agree, 2= Agree and 1= do not know respectively.

The conceptual framework outlines the role of the ERC in consolidating the cost variables from the Macro and Micro environments to derive the final consumer price in line with its mandate from the Kenya Government. It also outlines the Government initiative of protecting consumers through its execution, monitoring and Control process. It will assist to solve the study problem by evaluating the cost variables relating to taxes, storage, refining and transport to help establish areas where costs can be reduced or completely removed in a bid to ensure low and stable consumer prices. It provides a good foundation to initiate the data collection process in response to the research problem.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology. Section 3.2 discusses the research design. Section 3.3 presents the population and sample. Section 3.4 presents the data and data collection instruments. Section 3.5 presents the data analysis.

3.2 The Research Design

The research design used was a descriptive design supported by both qualitative and quantitative data. Descriptive design was deemed appropriate for this study since it answers the why, how, what and when of a phenomenon (Cooper and Schindler, 2003; Saunders et al., 2012; Yin, 2009). In addition, it also enables a clear presentation of the variables under investigation. Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. With descriptive statistics one is simply describing what is or what the data shows and descriptive statistics are used to present both quantitative and qualitative descriptions in a manageable form. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data (Neuman, 2006). Because this research was qualitative and quantitative in nature, it used descriptive design.

3.3 Population and Sample

The field survey constituted two populations; employees from Gulf Energy Limited and Consumers at the Retail level as shown in table 3.1. Random staff from the various departments at Gulf Limited constituted the sample that was used to help estimate statistically the characteristics of the population. Stratified random sampling was used as it helped give a representative sample. A total of 105 questionnaires were administered to employees. Gulf Energy Limited has a total of 143 staff country wide with 75 being in the head office and the rest are spread across depots in Mombasa, Kisumu, Nakuru and Kisumu. The survey focused on all the staff in the head office and the four depots. Gulf Energy Limited ranks fourth countrywide with a market share of 6.1%. The company is expanding fast with a total of 26 geographically dispersed retail outlets (See Appendix IV). It is on this basis that Gulf Energy Limited is selected to represent the oil marketer's population.

The Gulf Energy retail outlets are strategically located and hence offered the much needed opportunity to collect consumer data. Consumers at the Retail level in Nairobi formed part of the population and were asked to fill out the questionnaires while fuelling at Gulf Energy outlets. The questionnaires were administered at random to drive-in customers at the retail outlets on a select day of the week when the sales are highest so as to reach as many respondents as possible with minimal risk of talking to repeat customers. According to a report by the Energy Regulatory Commission (2014), by 2012 there were about 2,022,955 vehicles registered in Kenya out of which Bloomberg Business (2014) estimates 700,000 of them are in Nairobi which translates to about 30%. Hence, it is assumed that the owners of 700,000 motor vehicles in Nairobi are the respondents who at one point in time fuel at Gulf Energy petrol stations.

In order to capture all population parameters within Nairobi County, the study zoned Nairobi County into four distinct regions namely Nairobi West, Nairobi East, Nairobi North and Westland's. In addition, the distribution of the target population of 700,000 motor vehicle owners was based on population census 2009 of 3,138,295 people living in Nairobi (County, Census 2009). At the time of the study, Nairobi West has a population of 684,765; Nairobi East has a population of 1,144,416, Nairobi North 1,062,086 and lastly Westland's 247,102 (County, Census 2009). This is presented in table 3.1

Table 3.1: Percentage distribution of people in Nairobi

Region	**Population**	**Percentage**
Nairobi West	684,765	22%
Nairobi East	1,144,416	36%
Nairobi North	1,062,086	34%
Westland's	247,102	8%
Total	**3,138,295**	**100%**

Source: (County, Census 2009)

A sample size was randomly selected from the Gulf Employees population using random sampling technique. Based on Yamane (1967, p. 258) formula, a sample of 105 respondents that represented the population was selected. Thus, for this research a total sample size of 105 employees was considered adequate. Since 105 was the total sample size of employees required, this was picked as a proportion of 143 possible respondents using stratified random sampling as follows;

Table 3.2: Sampling size

Category	Population frequency	%age	Actual respondents
Head office	75	52	55
Nairobi and environs depots	57	40	42
Other Depots across the country	11	8	8
Total	**143**	**100**	**105**

Using the same Yamane (1967, p. 258) formula, the sample size for consumers as the other set of possible respondents was 400 as shown in table 3.3.

Table 3.3: Customer sample

Area	Population	Percentage	Sample size based on distribution of people in Nairobi
Nairobi West	684,765	22%	88
Nairobi East	1,144,416	36%	144
Nairobi North	1,062,086	34%	136
Westlands	247,102	8%	32
Total	**3,138,295**	**100**	**400**

The table shows the sample used in data collection based on the total population of Nairobi County.

3.4 Data and Data collection instruments

Both primary and secondary data was collected in this study. Primary data was collected from the Gulf Energy employees in all the departments. Primary data was collected through the use of open ended and close ended questionnaires in order to ensure a rich set of data is obtained. The questions were measured on a five point likert scale on which the respondents indicated the extent to which they agreed with the statements regarding fuel regulations and consumer protection. The study applied self-administration method in administering the questionnaires in order to ensure a high response rate.

A semi-structured questionaire was used to collect both qualitative and quantitative data regarding consumer awareness of the regulation process, communicated prices, customer satisfaction and any recommendations that enhanced the same. The questionnaires were issued out at random to drive in customers at the retail outlets and the results analysed to establish the degree of customer statisfaction. Secondary data for the period 2005-2014 on fuel prices was obtained from PIEA (Petroleum Institute of East Africa), while costs were obtained from Gulf Energy Limited. Qualitative data on quality, Quantity and compliance was collected through open ended questions and used to support the quantitative data.

3.5 Data Analysis

Data analysis was carried out as follows. The cross sectional data on fuel prices from PIEA, fuel costs from Gulf Energy Limited in the period from 2005 till 2014 was collected first, analyzed and the trends summarized from charts and graphs. Primary data from the respondents is then analyzed.

Quantitative and qualitative data was analyzed using Statistical Package for Social Sciences (SPSS) to determine frequencies, percentages and relationships among variables. Quantitative data was analyzed for trends, variations and relationships by categorizing it in charts and line graphs.

3.5.1 Multiple regression analysis

Whereas the study was to carry out multiple linear regressions, Simple linear regression analysis was done where consumer protection (price) was regressed against one independent variable (costs) for a period from 2004 to 2014 in order to come up with inferential statistics, correlations and other tests of significance. The reason for using a Simple linear regression is that it was challenging to get quantitative data on Quality, Quantity, Ensuring or Enforcing compliance and Consumer satisfaction.

In specific terms, regression analysis of this study was carried out with costs and prices regressed to obtain the main effect of the study and the result from this analysis was used to estimate the predictive power of these variables to meet the three objectives of this study. The general form of the simple linear regression is presented in equation 3.1.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.1$$

Where;

Y= Consumer protection

X_1= Consumer satisfaction

X_2= Regulating costs

X_3= Ensuring or enforcing compliance

ε = Error term

β_0 is the intercept or constant, $\beta_1 - \beta_3$ are coefficients

The ε = error/term or variable represents all the factors or variables that affects the dependent variable but were not included in the model either because they were difficult to measure or not known.

Linear Regression was based on 'Ordinary Least Squares' (OLS), which ensures the model is fit such that the differences of sum-of-squares in terms of observed and predicted values will be minimized (Anderson et al., 2010). As suggested in Coakes & Ong (2011) and Pallant (2007), basic assumptions underlying application of OLS analysis were evaluated because the violation of these assumptions may affect the integrity of the regression result. The above model was useful in showing the desired relationship among the variables showing consumer protection does not exist on its own. The researcher believed that the OLS regression largely depends on these assumptions hence, the assumptions by Gauss-Markov that dependent and independent variables are closely related, independent variables are not endogenous and the estimators of e and βi are not biased such that errors cancel out were employed. Gauss-Markov Assumptions, indicate full ideal conditions of OLS.

In addition, the assumptions under Best Linear Unbiased Estimate (BLUE) which are: model is complete, linear relationship and additive; variables are measured on a ratio or interval scale without error; regression error term is normally distributed and has an expected value of zero and sample is unbiased were not violated (Coakes & Ong, 2011).

3.5.2 Tests of Significance

T-tests were used to test the significance of the relationship between the independent variable (costs) and the dependent variable (price). For this study, Single tailed test of significance was

selected with an alpha level p=.05. The t score must fall far from the mean at the 5% level in order to achieve statistical significance.

A key statistic is R^2 which is a measure of goodness of fit showed the percentage variance in the dependent variable i.e. consumer protection (price) that can be explained by the independent variable (costs). Also, the F-Statistic (ANOVA table) was used to show how the independent variable significantly or insignificantly explains the variance in the dependent variable. The significance level at .190 for one variable i.e. costs is more than 0.05, thus indicating that the predictor variable insignificantly explains the variation in the dependent variable consumer protection. This shows that costs on its own may not significantly explain variance in consumer protection.

In addition, correlation analysis was done in order to check the strength of the relationship between independent variables and dependent variable. The Pearson product-moment correlation coefficient *r* (or Pearson correlation coefficient, for short) is a measure of the strength of a linear association between two variables and is denoted by *r*. Pearson correlation coefficient, *r*, can take a range of values from +1 to -1 with 0 showing no association, value more than 0 shows a positive association while a value less than one indicates a negative association (Laerd Statistics, 2013).

3.6 Validity and Reliability

Research quality was observed by ensuring that the techniques and reports used were reliable to produce consistent reports when used by other researchers. Cross sectional data analysis and the semi- structured questionnaires were used to enhance internal validity triangulation. The research upheld the Ethical rights of the respondents when seeking access, collecting data and reporting as indicated in the formal requests to employees. It was also emphasized that responding to the questionnaire was voluntary and confidentiality was observed. The respondents were given a chance to withdraw or decline to take part in any aspect of the research including rights; not to answer any question or set of questions; not to provide any data requested and possibly to withdraw data they have provided.

In addition, a pilot study was done and this helped to test the survey instrument, it helped to validate the questions, remove errors of omission and commission, rectify mistakes and check the general structure of the questionnaire. This was done before proceeding to collect the actual data for analysis. Hence to ensure that the questionnaire collects the intended information, the

questionnaires were pre-tested on 10 respondents outside Nairobi Central Business District (NCBD). Carrying out a pilot study outside the study area or sample helped to avoid affecting the study sample.

3.7 Ethical Considerations

The research findings demonstrated objectivity and external validity by ensuring that they can be generalized to other regulatory bodies as well as the other sub- sectors regulated by ERC being electricity and renewable energy. To help ensure objectivity of the research results any bias in data collection or interpretation were highlighted. The research upheld the Ethical rights of the respondents when seeking access, collecting data and reporting. As the study began, permission was sought from Gulf Energy Limited through a written letter. For the individual respondents of both samples, consent was sought and their rights explained before issuing the questionnaires that clarified that their response is voluntary and that confidentiality of the information shall be observed. The respondents had an option to withdraw or decline to take part in some aspect of the research including rights; not to answer any question or set of questions; not to provide any data requested; and possibly to withdraw data they have provided. A sample introduction letter is shown in Appendix I.

CHAPTER FOUR: ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents findings from the data analysis in line with the objectives of the study which are: to establish if Government objective of consumer protection (price, quality and quantity) is now resolved under the new regulation, to establish other contributing factors that would affect consumer protection besides regulation and to make appropriate recommendations on managing fuel retail prices in Kenya.

Thus, this section presents analyses and interprets data collected from the respondents during the field work. The analysis is divided into three sections namely: section 4.2 Data profiling, section 4.3 presents the findings; section 4.4 presents overall levels satisfaction with consumer protection.

4.2 Data profiling

4.2.1 Response Rate

The study targeted 143 employees from the Employee population and sampled out 105 of them who were issued questionnaires to fill out. 51 respondents were received from the Head office from a possible 55 respondents, 22 respondents from Nairobi and surrounding environs out of a possible 42, and 100% response from other depots across the country, summing up to 81 out of a possible 105, a 77% response rate. In addition, the study targeted 400 customers as possible respondents from four (4) locations in Nairobi County, Kenya. Out of the distributed 400 questionnaires, 188 questionnaires were not filled out and thus disregarded while 212 were fully filled and returned translating to a response rate of 53%. Although the researcher would have intended to get 100% response, a response rate of 53% for consumers and 77% for employees was considered sufficient and representative. It was not possible to get back all the responses.

4.2.2 Demographics

The Gulf employees were asked to state their position in the company and how many years of experience they have in the Oil industry in a bid to ensure that the respondents were knowledgeable in the subject area of regulation and consumer prices.

51 of the respondents (63%) were in the lower level management, followed by 19 in middle level management (23%) and 11 in top level management (14%) which confirmed that the sample was representative of all employees at Gulf Energy Limited. In addition majority of the respondents 73% had an industry experience of 5-10 years followed by more than ten years at 17% then less than 5 years at 10%. The results imply that on average the respondents had enough industry experience to understand fuel regulation and consumer protection.

4.3 Descriptive statistics

Descriptive data is used to give a general overview of the data. The respondents were asked to rate, on a five-point scale, the extent to which they agreed with statements related to the relationship between Fuel regulation factors (Consumer satisfaction, Regulating costs and Ensuring or Enforcing compliance) and Consumer protection. The ratings ranged from 1 (strongly disagree) to 5 (strongly agree). Responses to various statements under each fuel regulation factor were aggregated and a composite index (mean score) computed for each variable. The results are presented in table 4.1 along with standard deviations.

Table 4. 1: Descriptive statistics for main variables

Main Variables	Minimum	Maximum	Mean	S.Dev
Consumer satisfaction	2	5	3.440	.476
Regulating costs	3	5	4.210	.647
Ensuring or Enforcing compliance	2	4	3.230	.694

Table 4.1 shows that Regulating costs was rated highest on average with a mean of 4.210 with responses deviating from this mean by a standard margin of 0.647. This is followed closely by Consumer satisfaction with the mean of 3.440, with standard deviation of 0.476, followed by

Ensuring or Enforcing compliance with the mean of 3.230 and a standard deviation of .694 in that order. This ordering could be interpreted to mean that Regulating costs constituted the most significant fuel regulation variable that affects consumer protection. Conversely, Ensuring or Enforcing compliance was the lowest factor affecting consumer protection although it was still well above the average (mid-point), implying it was also an important factor affecting Consumer Protection.

4.4 The effect of Fuel regulation on Consumer protection in Kenya

Section A: Analysis of Questions addressed to employees

The following section explores fuel regulation and how it affects consumer protection (price, quality and quantity). The objectives guiding the study are analyzed in regard to consumer protection in ensuring that the petroleum products offered to the end users meet the quality, price and quantity requirements. The results were measured on a scale of 1 to 5; where 1 is strongly disagree 2. Disagree 3. No opinion/ uncertain 4. Agree and 5-Strongly agree.

4.4.1 Government objective of consumer protection (price, quality and quantity) and compliance

The respondents (employees) were requested to indicate the level of acceptance with the statements on Government support to ERC and consumer protection. Results are shown in table 4.2

Table 4. 2: Government support to ERC and consumer protection

Statement	1	2	3	4	5	Mean
In your opinion, does the Government give the ERC full support to enable it to effectively execute its regulation mandate?	0	53 (65%)	17 (21%)	11 (14%)	0	2.43
In your opinion, the Government should institute other measures to ensure fair consumer prices?	0	3(3.7%)	0	66 (81.5%)	12 (14.8%)	4.79
In your opinion, is the current regulation sustainable?	0	11 (13.7)	48 (59.3%)	22 (27%)	0	3.51
Is the Government likely to revert back	0	48	11	22	0	3.51

to a deregulated system?		(59.3%)	(13.7%)	(27%)		

Table 4.2 shows the results about whether or not the Government offers enough support to ERC in order to ensure consumers are protected. Most of the respondents 81.5% agreed that the Government should institute other measures to ensure fair consumer prices. Cumulatively those who agreed and strongly agreed were 96.3%. This was supported with a mean of 4.79. In addition, 65% of the respondents disagreed with the statement that the Government gives the ERC full support to enable it to effectively execute its regulation mandate, with 21% having no opinion and 14% agreeing. This shows that the Government needs to support ERC's course of protecting consumers more. This was supported by a mean score of 2.43 showing that indeed most of them disagreed on a scale of 1-5. When asked whether the current regulation is sustainable or not, most of the respondents 59.3% were uncertain with 27% agreeing while 13.7% disagreed. This means that to some extent, the current regulation is sustainable with a mean of 3.51. Lastly, when asked if the Government is likely to revert back to a deregulated system, most respondents 59.3% disagreed with 27% agreeing that yes a deregulated system will resurface. This shows that the likelihood of reverting back to a deregulated system is minimal.

Thus, from the above results although the ERC has made huge strides in consumer protection, it appears that the regulations are not enough and Government should institute other measures to ensure fair consumer prices. More importantly, the Government should give more support to ERC to enable it to effectively execute its regulation mandate.

ERC is tasked to monitor compliance of fuel regulations and non-compliance is done through monitoring and reporting, licensing of petroleum business, complying with environmental, pricing, quality, quantity, health and safety standards. Monitoring and control is one of the primary functions of the ERC.

Hence, the respondents (employees) were asked to respond to questions on compliance. First, they were asked if ERC conduct audits to check on malpractices by oil marketers such as adulterated products, delayed price changes and quantity of dispensed products. The results indicated that out of the 81 respondents; majority 87% said yes that ERC conduct audits to check on malpractices by oil marketers, 6% were not sure and 7% said no. This confirms that ERC conduct audits to check on malpractices by oil marketers such as adulterated products, delayed price changes and quantity of dispensed products in order to protect consumers. When asked about the frequency of these audits majority 63% said once in a month then those who said twice a month at 20% followed by 7% quarterly with 10% uncertain. It appears then that ERC audits are conducted monthly to check on malpractices and compliance with regulations.

Furthermore, the respondents (employees) were required to clarify if the compliance audits are adequate to protect the consumers from malpractices. Out of 81 respondents 75.3% said no that the audits conducted by ERC are not adequate while 18.5% saying yes the audits were adequate and 6.2% were unsure. The results confirm that consumers are not fully protected from malpractices related to fuel prices, quality and quantity. 77% of the respondents were not sure about the SGS kit effectiveness in checking fuel products that are adulterated indicating a lack of awareness of the kit or its efficacy. Out of the 81 respondents, 58% said the audit findings by ERC officials were not transparent, 25% somewhat transparent and 17% transparent.

The respondents were asked on a scale of 1-3 how adequate are the fines imposed on oil marketers found to have violated ERC regulations on price, quality and quantity. Results are shown in figure 4.1

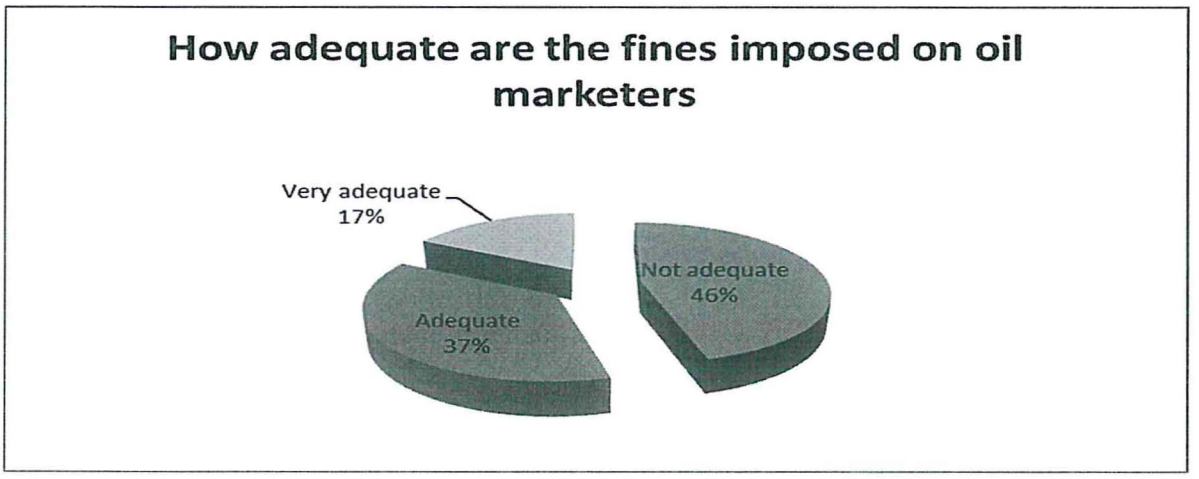


Figure 4. 1: How adequate are the fines imposed on oil marketers

As depicted in figure 4.1, out of the 81 respondents 46% said that the fines imposed on oil marketers were not adequate followed by those who said the fines were adequate at 37% then very adequate at 17%. This shows that the fines imposed on Oil marketers who engage in malpractices are commensurate with the crimes committed since the total responses for adequate and very adequate were 54% against 46% who said not adequate.

They were also asked to state other mechanisms ERC can put in place in order to strengthen consumer protection and some of the answers were as follows: strengthening audits and make retail station audits frequent; ensure all oil marketers are licensed especially in the rural areas and those who fail to comply with regulations shut down; engage consumers more often; increase fines for non-compliance; reduce costs of storage, taxes and transportation; have in place easy to teach ERC customer service centers where consumers can learn and channel their complaints; reduce trade barriers to promote competition; train and educate both Oil marketers and consumers on fuel regulations and also request for views on how best to improve consumer protection.

4.4.2 To establish other contributing factors that would affect Consumer protection beside regulation

The respondents were requested on a scale of 1 to 5; where 1 is strongly disagree 2. Disagree 3. No opinion/ uncertain 4. Agree and 5-Strongly agree to indicate their level of acceptance with the statements on fuel regulations in terms of Quality, Quantity and Price. Results are shown in table 4.3 where 15 items were extracted from the questionnaire to represent factors affecting consumer protection besides overall regulations.

Table 4.3: Other contributing factors that would affect Consumer protection beside regulation

Statement	Mean	Std Deviation
Tax reduction will reduce fuel prices	4.9700	.94643
Cost elements must be reduced to ensure fair fuel prices	4.7765	.76755
Subsidies ensure stable and fair fuel prices	4.7059	.46250
Low unit cost of crude oil will reduce fuel prices	4.6471	.84861
It is easy to comply with and implement the ERC fuel price regulations	4.5000	.74874
Reduced transport cost reduces fuel prices	4.4353	1.12973
Reduced weighted average cost of storage will reduce fuel prices	4.2941	1.19416
Licensing has enhanced consumer protection	4.2941	1.19416
Huge volumes of crude will reduce fuel prices	3.8529	1.23417
Current regulation enhances competition favoring consumers	3.7353	.44781
Government has in place adequate controls to curb fuel dumping and tax evasion	3.7059	.46250
Cases of non-compliance under the current regulation is low	3.6471	.84861
Huge volumes of refined petroleum via OTS will reduce fuel prices	3.5176	.94595
All possible pricing solutions have been explored by the Government to protect Consumers	2.7941	.41043
Current regulations have cushioned consumers from price volatility	2.5100	.74874
Overall	**4.02812**	

The descriptive statistics 81 observations are presented in table 4.3. The mean of the 15 items ranged from 2.5100 to a high of 4.9700 on a scale of 1-5. The Mean rating scale indicates agreement levels as follows: 1 to 1.49 – Strongly disagree, 1.5 to 2.49 – Disagree, 2.5 to 3.49 –

No opinion/ uncertain, 3.5 to 4.49 –Agree and 4.5 to 4.59 – Strongly agree. Thus as per table 4.3, the study found out that Tax reduction will reduce fuel prices (mean: 4.9700) as an important contributing factor that would affect consumer protection more or to a large extent beside regulation followed by cost elements must be reduced to ensure fair fuel prices (mean: 4.7765) then subsidies ensure stable and fair fuel prices (mean: 4.7059). On the lower side, current regulations have cushioned consumers from price volatility had the lowest (mean: 2.5100) followed by all possible pricing solutions have been explored by the Government to protect Consumers (mean: 2.7941) then huge volumes of refined petroleum via OTS will reduce fuel prices (mean: 3.5176).

On the overall, it appears that taxes, costs and subsidies are the most important contributing factors that would affect consumer protection beside regulation. The results also show that current regulations have not cushioned consumers from price volatility which also imply that all possible pricing solutions have not been explored by the Government to protect consumers in terms of price, quality and quantity. The overall mean was 4.0257 showing that all the factors taken together affect consumer protection beside regulation.

Section B: Analysis of Questions addressed to Consumers

This section analyzes the questions addressed to consumers of fuel at Gulf Energy's pump stations in four locations Nairobi West, Nairobi East, Nairobi North and lastly Westland's. The questions were geared towards testing the level of consumer satisfaction with fuel regulations in Kenya.

The consumers were asked to state the number of years they have been driving. The results after categorization revealed that out of the total 212 who responded, 57% had been driving for more than 3 years but less than 5 years followed by less than 3 years at 30% then more than 5 years at 13%. This showed that the respondents had adequate driving experience to understand fuel regulations and consumer protection.

In addition, the respondents were asked to indicate their current level of knowledge about the current fuel regulations in Kenya. Most respondents (76%) have basic knowledge about the current fuel regulations in Kenya followed by 19% who had average knowledge then those

with expert knowledge were a paltry 5%. The results indicate that 95% of the consumers have acceptable knowledge about fuel regulation and consumer protection while the 5% are expected to be stakeholders in the oil industry with sufficient knowledge of the Regulation process.

Moreover, the respondents were asked to indicate in their opinion how many oil marketers comply with the pricing regulations on time. 63% of the respondents believed that a few oil marketers comply with the pricing regulations on time followed by those who said majority at 19.6% then all at 10.4% and finally none at 7%. This implies that most consumers believe most oil marketers may not be complying with the pricing regulations issued by ERC on time.

The respondents were asked on a scale of 1 to 5, where 1. is Strongly Disagree 2. Disagree 3. No opinion/ uncertain 4. Agree and 5-Strongly agree to indicate their level of acceptance with the statements on fuel regulations in terms of Quality, Quantity and Price. Results are shown in table 4.4

Table 4.4: Fuel regulations in terms of Quality, Quantity and Price

Statement	1	2	3	4	5	Mean
If consumer prices were maintained reasonably low, I would be satisfied	0	0	0	57	43	4.87
Under the current regulation, cases of product unavailability have ceased.	0	15	11	67	7	4.78
The current regulation has resulted to increased fuel consumption in households	3	13	5	69	10	4.77
The current regulation ensures proper and timely communication of prevailing prices to consumers	0	0	20	80	0	4.67
The current regulation affects the consumer prices of related commodities	0	0	11	73	16	4.66
The current regulation resulted to lower consumer prices of fuel products	5	6	13	63	13	4.56
The current regulation allows for proper planning and	13	23	11	53	0	4.13

adjustment by the various consumers						
Under the current regulation, there is improved product quality.	4	7	11	58	20	3.87
Under the current regulation , consumers are more drawn to good quality service at the service station than fuel price	0	29	15	23	33	3.57
Do you trust the customer/pump attendants dispense the right quantity for the right price	0	23	70	7	0	3.53
Since I started driving, am happy with the retail prices	33	43	11	13	0	2.71
The price variation from one month price change to another is reasonable	33	43	11	13	0	2.71
The current fuel regulation protects the low income consumer(affordable public transport and kerosene for cooking and lighting)	33	53	11	3	0	2.56
As a consumer , I am convinced the Government has explored all possible pricing solutions that can enhance consumer welfare	43	51	3	3	0	2.55
Government policies favor Marketers	26	63	11	0	0	2.47
The ERC and Gulf Energy limited have provided for customer feedback mechanisms that address customer complaints	0	100	0	0	0	2.13

Table 4.4 relates to fuel regulations in terms of Quality, Quantity and Price with which show statements to consumers as respondents that included things such as trust, improved quality, stability of prices, Government and Oil marketers commitment etc. The results revealed that consumers would like fuel prices maintained reasonably low in order for them to be satisfied at (mean: 4.87) followed by those who believed that under the current regulation, cases of product unavailability have ceased at (mean: 4.78) then those who believed that the current regulation has resulted to increased fuel consumption in households at (mean: 4.77). On the other end, all respondents disagreed that ERC and Gulf Energy limited have provided for customer feedback mechanisms that address customer complaints with 100% disagree responses and a mean of 2.13. Also, Government policies favor marketers had one of the lowest means at 2.47 implying that most respondents disagreed and strongly disagreed with the

statement. In addition, most consumers as respondents disagreed and strongly disagreed cumulatively at 94% that they were convinced the Government has explored all possible pricing solutions that can enhance consumer welfare.

On the overall, most consumers expect fuel prices to be maintained reasonably low in order to be satisfied. Notably, under the current regulation cases of product unavailability have ceased and current regulation has resulted to increased fuel consumption in households. On the contrary, ERC and Gulf Energy should strive to provide for customer feedback mechanisms that address customer complaints and Government should make sure that it has explored all possible pricing solutions that can enhance consumer welfare and ensure the communicated price regulations are complied with 100% by the Oil Marketers.

4.5 Overall levels satisfaction with consumer protection through fuel regulations

The respondents were asked to state their overall level of satisfaction with consumer protection through fuel regulations. Results measured on a scale of 1-5 where 1= Very Dissatisfied, 2= Somewhat Dissatisfied, 3= Neutral, 4= Somewhat Satisfied and 5= Extremely Satisfied are shown in figure 4.2

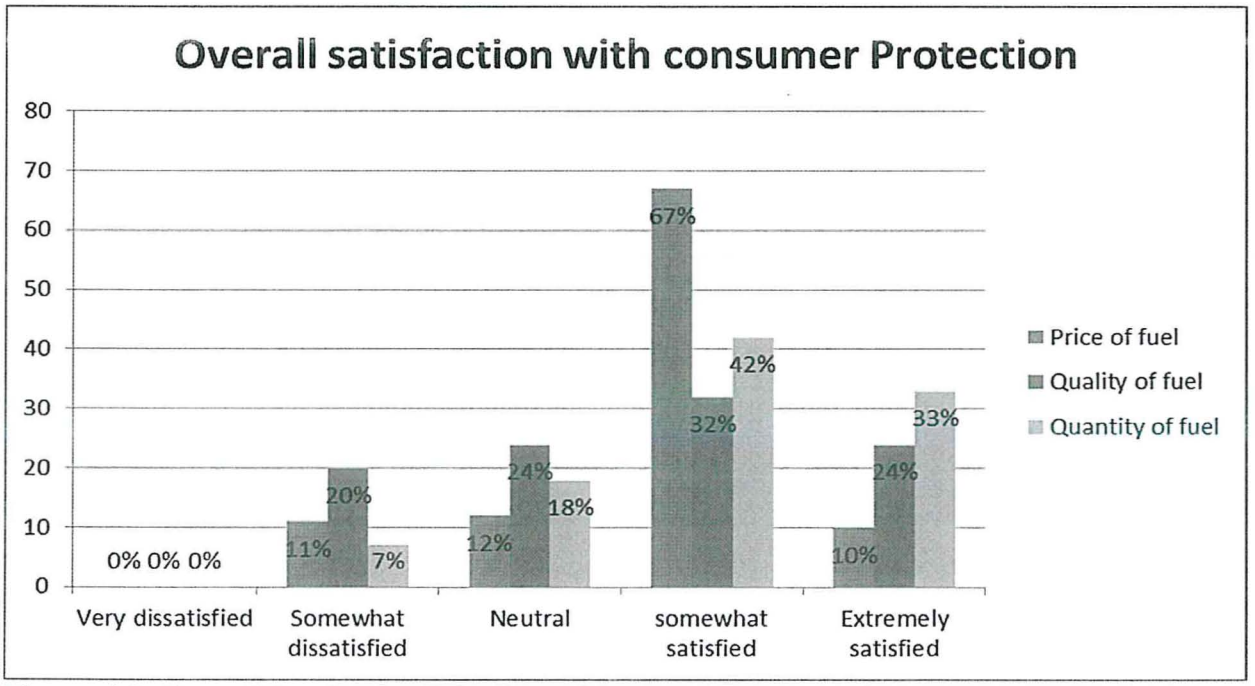


Figure 4.2: Overall levels of satisfaction with consumer protection

As shown in figure 4.2, most respondents 67% were somewhat satisfied with consumer protection in relation to prices of fuel followed by 42% who were somewhat satisfied with quantity of fuel then 32% who were somewhat satisfied with quality of fuel. In addition, 33% of the respondents (customers) were extremely satisfied with quantity of fuel followed by 24% who were extremely satisfied with quality of fuel then 10% who were extremely satisfied with price of fuel. More over 20%, 11% and 7% of the respondents were somewhat dissatisfied with quality, price and quantity of fuel respectively. None of the respondents were very dissatisfied with consumer protection. This shows that most respondents were somewhat satisfied with consumer protection at the time of the study.

4.5.1 Pearson Correlation Coefficient matrix

This study is interested in establishing if there is a relationship between fuel regulation and consumer protection i.e. to see if they are correlated. The previous descriptive analysis showed a linear relationship between fuel regulation and consumer protection. Pearson's correlation was therefore used to categorize the type of correlation (positive or negative) by considering the predictor variables (consumer satisfaction, regulating costs and ensuring or enforcing compliance that were strongly related with the dependent variable (consumer protection). To develop the Pearson's correlation matrix, the standard deviation and means of the variables were calculated and grouped into four dimensions; consumer protection, consumer satisfaction, regulating costs and ensuring or enforcing compliance. The Pearson's correlation coefficient is denoted by r and is by design constrained as follows: $-1 \leq r \leq 1$. The decision rule is such that if $p \leq 0.5$, the test is significant and if $p \geq 0.5$, the test is not significant. Furthermore, positive values denote positive linear correlation; negative values denote negative linear correlation; and a value of 0 denotes no linear correlation. The closer the value is to 1 or –1, the stronger the linear correlation. Table 4.5 shows the Pearson's correlation coefficient matrix for consumer protection, consumer satisfaction, regulating costs and ensuring or enforcing compliance.

Table 4.5: Pearson's Correlation Coefficient Matrix

		Consumer Protection	Consumer satisfaction	Regulating costs	Ensuring or enforcing compliance
Consumer Protection	Pearson Correlation	1			
	Significance				
Consumer satisfaction	Pearson Correlation	.661**	1		
	Significance	.003			
Regulating costs	Pearson Correlation	.834**	-.120	1	
	Significance	.026	.379		
Ensuring or enforcing compliance	Pearson Correlation	.596**	.390**	.025	1
	Significance	.046	.003	.753	

Note:* Correlation is Significant at 0.01

** Correlation is Significant at 0.05

Table 4.5 shows the Pearson's correlation coefficient matrix using primary data. Firstly, the matrix shows that there exists a positive correlation between the three fuel regulation factors and consumer protection. This positive correlation implies that when fuel regulation is increased or changed positively, consumer protection in terms of price, quality and quantity has a tendency to also increase or change positively. However, for each fuel regulation factor, the difference lies in the strength of the correlation with consumer protection. The findings reveal that there is a strong positive relationship between consumer protection and consumer satisfaction at r(79) =.661, p=0.003; regulating costs at r(79)=.834, p=0.26 and finally ensuring or enforcing compliance at r(79)=.596, p=0.46. These results reveal that the most important fuel regulation mechanism that highly affects consumer protection is regulating costs followed by consumer satisfaction and finally ensuring or enforcing compliance. Ensuring or enforcing compliance affects consumer protection (price, quality and quantity) albeit to a low extent.

4.5.2 Test for Multicollinearity

There exists multicollinearity problem when some independent variables are highly related (Pallant, 2007). With regression, as with so many things in life, there comes a point where adding more is not better. In fact, sometimes not only does adding "more" factors to a regression model fail to make things clearer, it actually makes things harder to understand (Martz, 2013). In regression, "multicollinearity" refers to predictors that are correlated with other predictors. Multicollinearity occurs when your model includes multiple factors that are correlated not just to your response variable, but also to each other. In other words, it results when a study has factors that are a bit redundant. Multicollinearity increases the standard errors of the coefficients. Increased standard errors in turn mean that coefficients for some independent variables may be found not to be significantly different from 0. In other words, by overinflating the standard errors, multicollinearity makes some variables statistically insignificant when they should be significant. Without multicollinearity (and thus, with lower standard errors), those coefficients might be significant (Hair et al., 2010; Martz, 2013).

One way to measure or detect multicollinearity is the variance inflation factor (VIF), which assesses how much the variance of an estimated regression coefficient increases if your predictors are correlated. If no factors are correlated, the VIFs will all be 1 with tolerance values within the threshold of .10 (Hair et al., 2010; Martz, 2013). Alternatively, Meyers et al. (2006) suggested that there exists multicollinearity problem when correlation between variables is more than .90. The results of multicollinearity for the variables under study are documented in table 4.9. In all cases, the values of tolerance and VIF for each independent variable were within the threshold of .10 with VIF of slightly more than one suggesting that multicollinearity did not pose any problem in the study although the variables were moderately correlated. The correlation analysis in table 4.8 equally indicates similar result as highest correlation is .753.

Table 4.6: Test for Multicollinearity

	Consumer Protection	
Variables	**Tol.**	**VIF**
Consumer satisfaction	.942	1.027
Regulating costs	.261	1.066

Ensuring or enforcing compliance	.938	1.062

Note: Tol. = tolerance, VIF = variance inflation factor

4.5.3 Summary of descriptive statistics

Descriptive statistics was used to reduce the data to a manageable size and to provide insights into the trend of the data. The descriptive statistics techniques used in the study include range, sum, mean and standard deviations. Results measured on a scale of 1-5 where 1 is strongly disagree 2. Disagree 3. No opinion/ uncertain 4. Agree and 5-Strongly agree are shown in table 4.7.

Table 4.7: Descriptive statistics for main variables

	Minimum	Maximum	Mean	Std. Deviation
Consumer satisfaction				
All possible pricing solutions have been explored by the Govt to protect Consumers	1.00	4.00	3.8148	1.21564
Current regulation enhances competition favouring consumers	1.00	4.00	3.3951	1.21119
Curent regulations have cushioned consumers from price volatility	1.00	4.00	3.0988	1.11361
Regulating costs				
Huge volumes of crude will reduce fuel prices	4.00	5.00	4.8272	.44131
Tax reduction will reduce fuel prices	4.00	5.00	4.6914	.46481
Low unit cost of crude oil will reduce fuel prices	2.00	5.00	4.6420	.77956
Reduced transport cost reduces fuel prices	2.00	5.00	4.2716	.96193
Huge volumes of refined petroleum via OTS will reduce fuel prices	2.00	5.00	4.1235	.99225
Subsidies ensure stable and fair fuel prices	2.00	5.00	4.0741	.77100
Reduced weighted average cost of storage will reduce fuel prices	3.00	4.00	3.6420	.82627
Cost elements must be reduced to ensure fair fuel prices	2.00	4.00	3.4444	1.09545
Ensuring or enforcing compliance				
Govt has in place adequate controls to curb fuel dumping and tax evasion	4.00	5.00	4.7284	.44756
Licensing has enhanced consumer protection	1.00	3.00	2.9259	.87718

It is easy to comply with and implement the ERC fuel price regulations	2.00	3.00	2.7037	.45947
Cases of non-compliance under the current regulation is low	1.00	3.00	2.5679	.89356

The descriptive statistics for the respondents are presented in table 4.7. Huge volumes of crude will reduce fuel prices had the highest mean score of 4.8272 implying that majority of the respondents agreed that indeed increased volumes of crude oil will reduce prices of fuel enhancing consumer protection. This was followed by Government has in place adequate controls to curb fuel dumping and tax evasion at 4.7284 then tax reduction will reduce fuel prices at 4.6914. On the lower side, cases of non-compliance under the current regulation is low had the lowest mean score at 2.5679 showing that a big number of the respondents disagreed with this statement. This was followed by it is easy to comply with and implement the ERC fuel price regulations 2.7037 then licensing has enhanced consumer protection at 2.9259. On the overall, the results show that factors related to cost reduction affect consumer protection more than factors related to consumer satisfaction and ensuring or enforcing compliance. The results are consistent with correlation analysis.

4.5.4 Reliability Test

A reliability test was done using Cronbach's alpha test. The main reason for this test was to measure the internal consistency of the study components, which is, how closely related a set of components are as a group. The Cronbach's alpha values for this research are as indicated in table 4.8.

Table 4.8: Reliability and validity

Consumer Protection	Coefficient Alpha Reliability
Consumer satisfaction	0.638
Regulating costs	0.712
Ensuring or enforcing compliance	0.724

The findings suggest that most of the components have relatively high internal consistency. Cronbach (1951) argued that a reliability coefficient of 0.70 is considered "acceptable" in most social science research situations.

4.6 Relationship between costs and price

Model fit

Table 4.9 shows the results for variations between the dependent and independent variables. R^2 is the coefficient of determination (goodness of fit) and shows how consumer protection is influenced by consumer satisfaction, regulating costs and ensuring or enforcing compliance

Table 4.9: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.388[a]	.151	.073	33.58794

a. Predictors: (Constant), Average costs

As shown in table 4.9 with R^2 of .151 for the model with costs as independent variable and consumer protection in terms of price as the dependent variable, this means that the independent variables in the model i.e. regulating costs offer about 15.1% explanation of the variance in the dependent variable consumer protection (price). This implies that variations in independent variables causes 15.1% change in dependent variable consumer protection. But, the conservative explanation offered by adjusted R square was 7.3%.This is a moderate relationship such that price as a predictor identified in this study is a great influencer of consumer protection. The 84.9% remaining implies that there are other factors that affect consumer protection other than regulating costs which could means the two other independent variables (consumer satisfaction and ensuring or enforcing compliance) including others not included in the study. Hence, this implies that regulating costs besides consumer satisfaction and ensuring or enforcing compliance contribute to consumer protection. This numerical evidence is one strong enough to support the notion that there exists a strong relationship between regulating costs and consumer protection.

Analysis of variance

Table 4.10: Analysis of Variance (ANOVA) Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2198.827	1	2198.827	1.949	.190[b]
	Residual	12409.647	11	1128.150		
	Total	14608.474	12			

a. Dependent Variable: Average prices

b. Predictors: (Constant), Average costs

Note: Value of significance less than 5% (Sig) p-value

The ANOVA analysis is intended to investigate the variation in variables; the independent variables explain the observed variance of the outcome of the study and outcome level of consumer protection. The ANOVA statistics indicate that the strength of the regression model with costs as independent variable and consumer protection in terms of price as the dependent variable was insignificant and weak with p-value i.e. .190 more than 5%. Moreover, the coefficient of determination (the percentage variation in the dependent variable being explained by the changes in the costs as an independent variable R^2 equals 0.151, that is, the independent variables with a huge percentage 84.9% unexplained. The ANOVA results indicate that costs insignificantly (F=1.949, p=0.190) explain the variance in consumer protection i.e. fuel regulations can enhance consumer protection more importantly price of fuel.

Thus, on the overall since the significance is more than 0.05, it indicates that costs as a predictor variable on its own does not significantly explain the variation in the dependent variable which is consumer protection in terms of price.

The table of coefficients below measures the relationship between the various variables, that is, fuel regulations versus consumer protection. The table also shows the coefficient Betas for each of the predictor and its values indicate the individual contribution of each predictor to the model.

Table 4.11: Distribution of Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	90.591	18.027		5.025	.000
	Average costs	8.656E-008	.000	.388	1.396	.190

a. Dependent Variable: Average prices
Note Sig. (Testing hypothesis accept p<0.05), p-value

The model shows a statistically insignificant negative relationship between average costs (β =. -8.656E-008, t= -1.396, p>0.05) and consumer protection in terms of price. On the overall, the consistency of regression coefficients on regulating costs suggests that this variable is an important fuel regulation factor in affecting consumer protection although the relationship was negative. The implication is that as costs go up, consumer protection in terms of prices goes down albeit to a low extent since there are other fuel regulation factors namely ensuring or enforcing compliance and consumer satisfaction that also affect consumer protection. Thus, the

relationship between regulating costs and consumer protection was insignificant with $p<0.05$ when secondary data was used.

The following regression model was derived:

$Y = 90.591\text{-}8.656E\text{-}008\ RC + \varepsilon$

Where;

Y= Consumer protection (price)

RC= Regulating costs

ε = Error term

Constant = 90.591, shows that if costs are rated as zero or held constant; consumer protection in terms of price would be a factor of 90.591.

RC= 8.656E-008, shows that one unit increase in costs results in an increase in consumer protection (price) by a factor of 8.656E-008

From the above regression model where costs is the independent variable and consumer protection in terms of price as the dependent variable, regulating costs constant, consumer protection would be 90.591. Thus, it can be seen that costs has a large effect on consumer protection although negatively hence regulating costs is necessary in order to enhance consumer protection. On the overall when primary data was used, the respondents felt that there was a strong influence of consumer satisfaction, ensuring or enforcing compliance and regulating costs on consumer protection.

CHAPTER FIVE: DISCUSSION OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The general objective of the study was to investigate the effect of Government fuel regulation on consumer protection (quantity, quality and price of the fuel products) in Kenya. Thus, based on the objectives, this study provided answers to research questions in chapter one. The answers to the research questions are based on data analysis discussed in chapter 4. The discussions on the findings of this study are organized on the basis of research questions. The study was based on the notion that fuel regulations will go a long way in protecting consumers on three key areas: price, quality and quantity. The study was guided by public interest theory which aaccording to Posner (1974) seeks the protection and benefit of the public at large. It is a system of ideas which propose Government intervention where markets become inefficient or inequitable in terms of price /value vs. its marginal cost (Kimeu, 2013). Price regulation models that entails establishing rules and procedures which must be adhered to and embraces action designed to affect how companies and individuals operate e.g. taxation, licensing, franchising, contractual requirements and subsidization. Economic theories of regulation hold that regulation is in response to demands by interest groups to maximize their incomes. It thus protects the interest of these groups and not the public at large (Posner, 1974; Kimeu, 2013).

5.2 Discussion of the findings

The discussion of findings as per the analysis revolves around the research questions as follows. Ideally, it was expected that the relationship between ensuring or enforcing compliance, regulating costs and consumer satisfaction on one hand and consumer protection on the other would be positive and significant.

5.2.1 If the Government objective of consumer protection (price, quality and quantity) is resolved under the current regulation

The study sought to determine if the Government objective of consumer protection (price, quality and quantity) is resolved under the current regulation. This study focused on the Kenya Petroleum industry, its transitions from a regulated market to a liberalized one and later back to a regulated market under ERC. The results showed that although the ERC has made huge strides in consumer protection, it appears that the regulations are not enough and Government should institute more measures to ensure fair consumer prices. Out of the four selections given on a

scale of 1-5, most respondents 96.3% agreed and strongly agreed that the Government should institute other measures to ensure fair consumer prices. This was supported by 65% who disagreed with the statement that the Government of Kenya has given ERC enough support to fulfill its regulation mandate of fighting malpractices such as adulterated products, delayed price changes and quantity of dispensed products. But 59.3% of respondents disagreed with the statement that the Government is likely to revert back to a deregulated system which shows that the likelihood of reverting back to a deregulated is minimal. The implication is that the Government should give more support in terms of resources and legislation to ERC to enable it to effectively execute its regulation mandate.

In relation to compliance, monitoring and control is one of the primary functions of the ERC without which malpractices will go unabated. Thus, the respondents (employees) were asked to respond to questions on compliance in terms of conducting audits, if compliance audits are adequate to protect the consumers from malpractices, how transparent are the audit findings by ERC officials and how adequate are the fines imposed on oil marketers who do not comply with regulations. The findings showed that indeed ERC conducts audits to check on malpractices with 63% saying it is conducted once in a month. More importantly, most respondents 75.3% said the compliance audits are not enough and also not transparent.

The results agree with Onyango et al. (2011) observations that enforcing compliance protect consumers from unfair and misleading market conduct. In addition, the observations by ERC (2013, 2014) and Kojima (2013) that Kenya like all the other countries that have regulated their fuel prices has faced numerous challenges and gone through a number of transitions concur with the study findings that the current regulations are not enough and Government should institute more measures to ensure fair consumer prices. Thus, due to numerous challenges in the Petroleum industry, Government objective of consumer protection (price, quality and quantity) has not been resolved fully under the current regulation. This requires more policy changes including stakeholder engagement. It is important to understand compliance with regulations can only be effective if all stakeholders are engaged including consumers.

To some extent, observations by Borenstein & Bushnell (2005) and Kojima et al. (2010) that Government controls are not always designed to suit the consumers' interest as in some cases they introduce barriers to entry that reduce competition and negatively affect the consumer prices are in line with the study findings. On one hand we would want the consumers to be

fully protected but on the other hand this might not happen due to forces of demand and supply and other external factors beyond Government control. This is the reason perhaps why Government objective of consumer protection (price, quality and quantity) has not been resolved under the new regulation fully even after ERC act enactment in 2006.

As shown in the study results, taxation and costs are a major hindrance to achieving full consumer protection. For example, the results revealed that respondents are concerned about volumes of crude oil, taxation and transportation costs. For example, the statement "if consumer prices were maintained reasonably low, I would be satisfied" got the highest mean of 4.87. This shows that most respondents agree that price is the main issue especially stability with quality and quantity also a concern albeit to a low extent. This was evidenced by the statement "under current regulation cases of product unavailability have ceased" getting a mean of 4.78 implying strong agreement. The other concern for respondents is provision of feedback mechanisms since the statement "the ERC and Gulf Energy limited have provided for customer feedback mechanisms that address customer complaints" received the lowest mean 2.13 on a scale of 1-5. This shows that the new regulations should also provide mechanisms for channeling and resolving customer complaints.

5.2.2 Other contributing factors affect consumer protection beside regulation

Petroleum products are important in driving the economies of all countries in the world but despite this, petroleum products prices have been going through fluctuations and instability, often affecting the efficiency of the same in propelling growth. The study has revealed that tax and other cost elements are significant contributors to price fluctuations and affect consumer protection to a great extent beside regulation. Tax reduction for example and reduction of fuel prices had a mean: 5.0059 and was the most important contributing factor that would affect consumer protection followed by cost elements with a (mean: 4.7765). On the lower side, when the respondents were asked if current regulations have cushioned consumers from price volatility, a mean score of 2.51 on a scale of 1-5 showed that most of them disagreed followed by all possible pricing solutions have been explored by the Government to protect consumers with a mean of 2.7941.

Other factors of concern to the respondents that could contribute to consumer protection as per the study are: Subsidies ensure stable and fair fuel prices; low unit cost of crude oil; ease of complying with and implementing regulations; stakeholder engagement; reduced transport costs; reduced weighted average cost of storage; huge volumes of crude oil; licensing; fair

competition; creating consumer awareness and huge volumes of refined petroleum via OTS all geared towards curbing price fluctuations and reducing fuel prices. Indeed, Kojima (2009, 2010) notes that petroleum products are the main drivers of all world economies but are inefficient due to their price instability and frequent fluctuations. In addition, Institute of Economic Affairs (2015) concurs with the above study findings about contributing factors although other factors such as interest charges, exchange rates; world oil prices, speculation, pipeline and refinery inefficiencies, corruption, economic and political shocks.

Thus, the study findings have shown that the most important factors are costs, unit cost (transportation, weighted average storage costs of refining and storage) and taxation. These are the main contributor factors to fuel price volatility and if price is reduced and stability restored, consumers will feel protected. This concurs with observations by Borenstein & Bushnell (2005) and Kojima (2009, 2010, 2013) that regulating costs is important in protecting consumers albeit on prices. The warning is that Government should be careful with the extent to which it regulates the oil market so that consumer benefits are not eroded.

5.2.3 Recommendations and ways of managing fuel retail prices in Kenya

The results in this study confirms there is need for the Government involvement in ensuring reduced costs especially taxes as the oil sector in Kenya has continued to be a source of Government income through the transitions to the current regulation. Most respondents 65% disagreed that Government gives the ERC full support to enable it to effectively execute its regulation mandate. This implies that the respondents would like the Government to support ERC fully. Moreover, 81.5% of the respondents agreed that Government should institute other measures to ensure fair consumer prices. Tax reduction will reduce fuel prices had the highest mean of 5.0059 on a scale of 1-5. The Government also needs to consider using subsidies as other pricing mechanisms to stabilize the prices and protect the consumers from volatility in world prices as in the case of South Africa. This is mainly so because the fuel prices continue to affect prices of other related commodities even under the current regulation and the low income consumer remains unprotected. Munyua & Ragui (2013) observes that in the mid-1980's Oil price volatility in Kenya surpassed that of most of the other raw materials and this carries on to date. This implies that consumers in Kenya remain unprotected from price volatility. Kimeu (2013) observes that price caps help give firms the incentive to be competitive which helps ensure fair consumer pricing. Firms are forced to set targets with action plans that are accessed and considered in the firm's profitability. The objective of price regulation is to ensure fair

pricing that protects the consumers even in times of scarcity while ensuring a minimal income for the marketers (Kimeu, 2013).

The Government must give the ERC adequate support especially in ensuring transparency on audit findings, cost reduction and consumer training on a month on month basis. Moreover the audits do not independently give a true status of consumer protection as there are no adequate customer feedback mechanisms that would give a true position on the same. At present few customers attempt to reconcile their complaints on fuel quality, price and quantity with the retailers directly with majority opting to relocate to other outlets leaving their concerns unaddressed and open for other consumers to suffer the same fate. As a cost reduction initiative, the Government should upgrade KPRL, KPC and Kipevu oil storage facility to increase their efficiency and hence lower the weighted average costs; a measure that is bound to reduce the resulting consumer prices.

Moreover, the Ministry of Energy controls key sector players in the supply chain of Kenya and regulatory institutions. As such, ERC and Oil marketing companies should consult further to improve suitability and applicability of ERC formula in order to protect the profitability of the sector. The formula has been criticized as not capturing all elements of supply chain such as financing costs for imports, depot costs and demurrage.

The Government should also increase the investment in research, innovation, new technology and modern energy infrastructure that are reliable to increase capacity and efficiency as well as encourage the adoption of clean energy.

In addition, manage the cost of energy through price regulation or competition to reduce cost of living, improve energy equity among the citizens and attract investors. The Government should also seek to reduce government control and ownership of the energy sector and increase private sector participation for efficiency and reduction of production losses.

Part of the Government support to ERC would also help set up consumer training centers and customer feedback mechanisms that would help communicate awareness on the regulation process, consumer rights and the available easy to use feedback options. Analysis of the consumer feedback confirmed that there are no feedback mechanisms at present. This would form a good platform for the ERC and Gulf Energy Limited to also update the consumers on new inventions geared at enhancing their protection e.g. the recently launched SGS training kit which the study confirmed 77% of the consumers are unaware about its efficacy.

Furthermore, stakeholder engagement is required where all key stakeholders in the Oil industry should contribute to fuel regulations. Leaving all regulatory mechanisms to ERC might not bring about maximum benefits to consumers hence key stakeholders such as Oil marketers, consumers, legislators, international bodies, motorists, Government, media etc. must join hands to ensure consumers are protected from malpractices.

In summary, the current regulation is sustainable but requires a few adjustments to be done to further enhance consumer protection especially with regard to quality, transparency on audit findings, training on the regulation process and provision of feedback mechanisms, cost reduction and price stability.

5.3 Conclusions

Kenya experienced sharp increase in prices of petroleum products between 2007 and 2012 (see figure 1.1 as per Petroleum Insight, Petroleum Institute of East Africa, 2015). It was observed that oil firms were taking advantage of international price changes to exploit the public. Due to the public outcry and the need to protect consumers the government through its agency the Energy Regulatory Commission came up with a way of regulating pump prices by setting the maximum prices that oil marketers are to charge. But as the results have shown, the Government objective of consumer protection (price, quality and quantity) resolved under the new regulation has not been met fully. The study showed that oil marketers should move to reduce operational costs so as to increase their operating profits. The companies should strive to operate efficiently by minimizing their operating expenditures so as to increase their profitability. The companies should use derivatives to cushion themselves against rising international oil prices as this constitutes a large proportion of their direct costs. The performance of ERC before and after introduction of price control was analyzed and results showed that by and large consumers are not fully protected from price volatility. In addition, Government must give ERC enough support, costs must be regulated, taxes reduced and other measures to protect consumers instituted.

More importantly, regulating costs and taxation are the most significant factors that contribute to consumer protection especially on prices with a mean of 5.0059 and 4.7765 respectively. Kojima, Matthews & Sexsmith (2010), cites that multiple factors affect fuel availability, its costs and eventual consumer prices. The study concludes that for any regulatory practices on fuel prices to succeed key considerations must be put in place. These key factors are both internal and external factors to the organization. The key internal factors include organizational structure with

the appropriate expertise and commitment to regulate fuel prices; efficiency, cost reduction, management team with the right skills, experience to succeed, the change management must be in place to communicate the strategy to all stakeholders. External factors include government regulations, world oil stability, cost of capital, and nature of ownership.

5.4 Recommendations

The study sought to investigate the effect of government fuel regulation practices on consumer protection (quantity, quality and price of the fuel products) in Kenya and used a descriptive research design. The study used both primary and secondary sources of data. The performance of ERC before and after introduction of price control was analyzed and results showed that by and large consumers are not fully protected from price volatility. In addition, Government must give ERC enough support, costs must be regulated, taxes reduced and other measures to protect consumers instituted.

The study recommends stakeholders to endeavor to steer the business ahead of the market on technology to reap the benefits on cost savings, customer confidence due to accessibility of services and staff motivation. These can only be achieved by setting up an innovation and market research team to develop regulations on fuel prices.

5.5 Suggestions for future studies

The study investigated the effect of on fuel regulation on consumer protection in Kenya, a case of Gulf energy Kenya limited. The researcher recommends further research should be carried out to find out the key factors hindering transformation of regulatory practices on fuel prices in Kenya. The study recommends that a study to be carried out to determine the relationship between international oil price and the local pump price. This is because the changes in the local prices of petroleum products as set by the ERC are based on the international oil price quotation.

The study further recommends that another study be done on the effects of oil price regulation on the individual share price of oil companies listed on the Nairobi stock exchange to measure the reaction of share prices as a result of oil price regulation in Kenya.

The study recommends that another study be carried out to establish the relationship between price regulation and the product supply in the oil sector.

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APPENDIX I: INTRODUCTORY LETTER

Sample Letter to Gulf Energy Limited

Date 1st April 2016

Human Resources Manager,

Gulf Energy Limited,

P.O Box 61872-00200

Nairobi.

Dear Sir / Madam,

This is to introduce **Ms.Priscilla Nduta** from Strathmore University undertaking a research on "Analyzing the effect of fuel regulation on consumer protection in Kenya: case of Gulf Energy Limited". Your organization being one of the Oil Marketers is an authority in the field of interest.

The research study outcome would be of benefit and we request your assistance in conducting surveys with a representative sample of your key staff and customers at your retail outlets on the subject area. We intend to conduct the research with utmost confidentially but will be glad to share the finding with yourselves in the hope that it will add value to your organization.

There are no rewards for participating nor are there any known risks. Participation is voluntary and the respondents may opt not to participate at any time. Kindly contact her on the number below should you need any further clarification. Your support and valued contribution is highly appreciated.

Sincerely,

.....

Strathmore University

Mobile Number: 0712603250

gulf energy

www.gulfenergy.co.ke

Gulf Energy Limited
Geminia Insurance Plaza,
Kilimanjaro Ave - Upperhill
PO Box 61872 00200 Nairobi, Kenya

Tel +254 20 2725334/5, 2729029/30
Fax +254 20 2725256/9031
info@gulfenergy.co.ke

April 27, 2016

Strathmore University
Strathmore Business School,
Nairobi.

Dear Sir/ Madam,

REF: PRISCILLA MUTERO

This is to certify that the above mentioned is an employee of this company having joined us on 7th June 2010. Priscilla is a Sales Executive within our Retail Department and she is employed on permanent and pensionable terms.

Priscila is a degree holder in Bachelor of computer Science,

We wish to confirm that Priscilla has been authorized to undertake her research with Gulf Energy as her case study.

For further details and/or clarification, do not hesitate to contact the undersigned.

Yours faithfully
For: Gulf Energy Ltd

Antony Kosgei
Human Resources Business Partner

Proudly ISO 9001:2008 certified

ISO 9001
BUREAU VERITAS
Certification

UKAS
MANAGEMENT SYSTEMS
008

Appendix II: QUESTIONNAIRE FOR GULF EMLOYEES

This study involves collection information on customers' perception on services offered by dealers of imported new cars or imported second hand car. This information shall be used to write a thesis which is a requirement for the award of Master of Business Administration offered by Strathmore Business School. You are being asked to participate in this study by answering questions below. Your participation is voluntary and there is no penalty for refusing to take part. The questionnaire will take about 15minutes to complete. The Information obtained will be treated as confidential and will only be used for academic purposes. Thank you in advance for accepting to willingly participate in this research. You may sign below to indicate your consent.

SECTION A: DEMOGRAPHIC INFORMATION OF RESPONDENTS

1. What is your position in the company, how many years of experience do you have in the Oil Industry?

Position	**Years of driving experience**	**Years in the oil industry**
Top Management		
Middle Management		
Lower Management		

2. Do you own a personal car? Yes ( ) No ( )

SECTION B: FUEL REGULATION AND CONSUMER PROTECTION

3. In your opinion, does the Government give the ERC full support to enable it to effectively execute its regulation mandate?

   .....

4. In your opinion, what possible measures can the Government undertake to ensure fair consumer prices?

   .....

5. In your opinion, what possible measures can the Government undertake to ensure stable consumer prices?

   .....

6. In your opinion, is the current regulation sustainable and is the Government likely to

revert back to a deregulated system?

.....

7. On a scale of 1 to 5, where 1 is strongly disagree 2. Disagree 3. No opinion/ uncertain 4. Agree and 5-Strongly agree, indicate your level of acceptance with the statements below;

Statement	**1**	**2**	**3**	**4**	**5**
Regulating Costs					
Government subsidies help ensure fair consumer prices					
To achieve fair consumer pricing and achieve sustainability, the Government must first seek to reduce the cost elements under the current regulation					
If taxes charged on petroleum products are reduced, consumer prices would reduce (Excise duty, Road maintenance levy, Petroleum development levy, Excise duty)					
If the volume of cargo of refined petroleum product imported through OTS is increased, the resulting consumer price will reduce.					
If the volume of petroleum product yielded from crude is increased, the eventual consumer price will reduce.					
If the unit cost of actual landed crude is low, consumer prices will reduce					
If the weighted average cost ex Kenya Petroleum refineries and kipevu oil storage facility is reduced, consumer prices would reduce					
If transport costs from Mombasa to the depots and eventually to the retail outlets is reduced consumer prices would reduce					
If the unit cost of petroleum products obtained from crude refining at KPRL is reduced , consumer prices would reduce					
Ensuring or enforcing compliance					
The Government has put in place adequate controls to curb dumping and tax evasion in the industry.					
It is easy to comply with and implement the ERC fuel price regulations					
Cases of non-compliance under the current regulation is low					
The current regulation has cushioned the Kenya consumer prices from negative effects of price volatility in the Global market.					
Consumer satisfaction					

The current regulation fosters competition among the marketers which favors the end consumer					
The Government has explored all possible pricing solutions that can enhance consumer protection.					
If the volume of petroleum product yielded from crude refining is increased, consumer prices would reduce					

APPENDIX III- GUIDED QUESTIONS FOR CONSUMERS AT THE RETAIL LEVEL

SECTION A: DEMOGRAPHIC INFORMATION

1. What is your gender Male [ ] Female [ ]
2. What is your level of Education?.....

Primary school	[ ]	Secondary school	[ ]	Diploma	[ ]
Bachelors Degree	[ ]	Postgraduate	[ ]	Others	[ ]

SECTION B: FUEL REGULATION AND CONSUMER PROTECTION

3. How many years have you been driving?..... (years)
4. What is your current level of knowledge about the current fuel regulations in Kenya? Tick as appropriate

   a) Basic ( )

   b) Average ( )

   c) Expert ( )

5. In your opinion, how many oil marketers comply with the pricing regulations on time? Tick as appropriate

   a) All ( )

   b) A few ( )

   c) Majority ( )

   d) None ( )

6. On a scale of 1 to 5, where 1. Is strongly disagree 2. Disagree 3. No opinion/ uncertain 4. Agree and 5-Strongly agree, indicate your level of acceptance with the statements given below

Statement	**1**	**2**	**3**	**4**	**5**
Since I started driving, am happy with the retail prices					
I have very good knowledge of the current regulation relating to fuel					

prices					
The current regulation resulted to lower consumer prices of petroleum products					
If consumer prices were maintained reasonably low, I would be satisfied					
The current regulation has resulted to increased fuel consumption in households					
The current regulation ensures proper and timely communication of prevailing prices to consumers					
The current regulation allows for proper planning and adjustment by the various consumers					
The current regulation affects the consumer prices of related commodities					
The current fuel regulation protects the low income consumer(affordable public transport and kerosene for cooking and lighting)					
Government policies favor Marketers					
As a consumer , am convinced the Government has explored all possible pricing solutions that can enhance consumer welfare					
Under the current regulation , consumers are more drawn to good quality service at the service station than fuel price					
The price variation from one month price change to another is reasonable					
Under the current regulation, cases of product unavailability have ceased.					
Under the current regulation, there is improved product quality.					

7. On a scale of 1-4 where 1 - Very Dissatisfied; 2 - Somewhat Dissatisfied; 3 – Neutral; 4 - Somewhat Satisfied and 5 - Extremely Satisfied, how satisfied are you with consumer protection in terms of price, quality and quantity through Government's fuel regulations.

Statement	**1**	**2**	**3**	**4**	**5**
Price of fuel					
Quality of fuel					
Quantity of fuel					

Thanks

Appendix IV: Oil Marketers Average Prices Vs. Gulf Energy Costs

Year	Average prices	Average Costs
2004	52.425	-
2005	63.80803	-
2006	67.05674	185,356,113.03
2007	70.29833	198,409,360.43
2008	80.47417	206,241,308.87
2009	74.27674	215,378,582.05
2010	78.75917	246,706,375.80
2011	101.9663	271,507,545.85
2012	103.9198	287,171,442.73
2013	102.8673	300,224,690.13
2014	101.7331	306,751,313.82

APPENDIX V- GULF RETAIL STATIONS IN NAIROBI

REGION	STATIONS	AVERAGE MONTHLY THRUPUT (M3)
NAIROBI EAST	YATTA	150
	NAMANGA	160
NAIROBI NORTH	THIKA	300
	EASTERN BYPASS	250
	MAKUYU	180
	MURANG'A JUNCTION	230
NAIROBI WEST	JOGOO	180
	OUTERING	80
WESTLAND	TIGONI	50
	RIRONI	450
	THOME	570
	BULBUL	200
	TOTAL	**2800**