

# **THE PETROLEUM INDUSTRY IN ZAMBIA:**

**A study on market structure and competition**



United Nations

# Table of Contents

1	EXECUTIVE SUMMARY .....	1
2	INTRODUCTION .....	9
3	OBJECTIVES OF THE REPORT .....	10
4	ECONOMIC AND SOCIAL CONTEXT AND STRUCTURE OF THE PETROLEUM SECTOR .....	11
4.1	MACROECONOMIC AND SOCIAL CONTEXT.....	11
4.1.1	GLOBAL ENERGY PERSPECTIVE.....	11
4.1.2	IMPORTANCE OF THE PETROLEUM SECTOR .....	12
4.1.3	THE CASE OF ZAMBIA .....	13
4.2	PETROLEUM SECTOR.....	15
4.2.1	UPSTREAM (Exploration and Production).....	17
4.2.2	MIDSTREAM (Transportation and Storage) .....	19
4.2.2.1	PROCUREMENT AND WHOLESALING OF REFINED PRODUCTS .....	19
4.2.2.2	PIPELINE TRANSPORTATION .....	24
4.2.2.3	BULK STORAGE .....	25
4.2.3	DOWNSTREAM (Refining and Marketing).....	27
4.2.3.1	REFINERY .....	27
4.2.3.2	ROAD AND RAIL TANK TRANSPORTATION .....	30
4.2.3.3	DISTRIBUTION.....	31
4.2.3.4	SIZE OF THE ZAMBIAN PETROLEUM MARKET .....	34
4.2.3.5	MARKET SEGMENTATION.....	34
4.2.3.6	BITUMEN .....	35
4.2.3.7	LPG.....	35
4.2.3.8	EXPORTS .....	36
4.2.3.9	RETAIL.....	40
4.2.3.10	PRICING BEHAVIOUR OF OMCs .....	43
4.2.3.11	BLENDING, PACKAGING AND TRADING IN LUBRICANTS .....	48
4.3	INTERNATIONAL AND REGIONAL PERSPECTIVES.....	49
4.3.1	INTERNATIONAL PERSPECTIVES .....	49
4.3.1.1	ENERGY DEVELOPMENTS .....	49
4.3.1.2	INTERNATIONAL PETROLEUM DEVELOPMENTS.....	49

4.3.2	REGIONAL PERSPECTIVES.....	51
4.3.2.1	ECONOMIC OVERVIEW.....	51
4.3.2.2	ENERGY OVERVIEW.....	52
4.3.2.3	PETROLEUM.....	53
5	INSTITUTIONAL AND LEGAL FRAMEWORK.....	54
5.1	INSTITUTIONAL FRAMEWORK.....	54
5.2	LEGAL AND REGULATORY FRAMEWORK.....	55
5.3	REGIONAL CONTEXT.....	59
6	MAIN SUPPORT POLICIES.....	61
	PETROLEUM SECTOR NATIONAL POLICY.....	61
7	ANALYSIS PER SUB SECTOR.....	63
7.1	PRELIMINARY ISSUES.....	63
7.1.1	PRIVATISATION.....	64
7.1.2	OPEN ACCESS,.....	64
7.2	PROCUREMENT.....	65
7.3	PIPELINE TRANSPORTATION.....	66
7.4	REFINING.....	71
7.5	BULK STORAGE.....	71
7.6	ROAD AND RAIL TRANSPORTATION.....	71
7.7	DISTRIBUTION.....	72
7.8	RETAIL.....	78
7.9	BLENDING, PACKAGING AND TRADING IN LUBRICANTS.....	80
8	CONCLUSIONS.....	80
8.1	CONDITIONS PREVAILING IN THE MARKET.....	80
8.2	ROLE OF THE STATE AND PUBLIC POLICIES IN THE SECTOR.....	82
8.3	TRANSPARENCY IN THE SECTOR.....	82
8.4	EFFICIENCY OF THE SECTOR.....	82
8.5	CONDITIONS AND PRACTICES THAT LIMIT COMPETITION IN THE SECTOR.....	83
9	RECOMMENDATIONS.....	84
9.1	MEASURES TO IMPROVE THE CONDITIONS IN THE MARKET.....	84

9.1.1	MEASURES TO STRENGTHEN THE INSTITUTIONAL FRAMEWORK .....	84
9.1.2	MEASURES TO IMPROVE TRANSPARENCY IN THE SECTOR .....	84
9.1.3	MEASURES TO IMPROVE THE EFFICIENCY OF THE SECTOR .....	84
9.2	MEASURES TO IMPROVE COMPETITION IN THE SECTOR .....	85
9.3	MEASURES RELATED TO THE ALLEGED ANTI-COMPETITIVE PRACTICES .....	85
9.4	MEASURES RELATED TO THE ALLEGED UNFAIR TRADING PRACTICES .....	86
9.5	GENERAL MEASURES .....	86

## Bibliography

### Annexes

1	PROVED OIL RESERVES AT END 2009.....	APPENDIX I
2	OIL PRODUCTION BY REGION..... OIL RESERVE TO PRODUCTION (R/P)	APPENDIX II
3	RATIO.....	APPENDIX III
4	OIL CONSUMPTION BY REGION.....	APPENDIX IV
5	CRUDE OIL PRICES 1861 – 2009..... LOCATION OF AFRICAN	APPENDIX V
6	REFINERIES..... COMESA TREATY, ARTICLES 50, 51,52,53,54, &	APPENDIX VI
7	55..... NATIONAL ENERGY POLICY, CHAPTERS 5.4, 5.10,	APPENDIX VII
8	5.11.....	APPENDIX VIII
9	NDOLA PUMP PRICES SURVEY (27/08/2010).....	APPENDIX IX
10	KITWE PUMP PRICES SURVEY (28/08/2010).....	APPENDIX X
11	LUSAKA PUMP PRICES SURVEY (30/08/2010 - 14/09/2010)..... HERFINDAHL HIRSCHMAN INDEX	APPENDIX XI
12	(HHI).....	APPENDIX XII
13	LIST OF INTERVIEWEES.....	APPENDIX XIII

## LIST OF FIGURES

FIGURE 1, GDP CONTRIBUTION BY SECTOR.....	13
FIGURE 2, ENERGY CONSUMPTION BY ENERGY TYPE - 2007 .....	13
FIGURE 3 , 2009, NATIONAL FUEL & LUBRICANT CONSUMPTION BY SECTOR.....	15
FIGURE 4 , ZAMBIAN PETROLEUM VALUE CHAIN.....	17
FIGURE 5 , TPL PUMPING FEE .....	25
FIGURE 6 NDOLA FUEL TERMINAL STORAGE CAPACITY .....	26
FIGURE 7 , INDENI ANNUAL THROUGHPUT .....	29
FIGURE 8 , INDENI ANNUAL OUTPUT.....	29
FIGURE 9 , PETROLEUM MARKET SHARE BY ENTITY, 1970 & 2003. ....	32
FIGURE 10 LPG MARKET SHARE BY ENTITY.....	36
FIGURE 11 , 2009 MARKET SHARE BY ENTITY (ERB). ....	<b>ERREUR ! SIGNET NON DEFINI.</b>
FIGURE 12 OMC MARKET SHARE BY NUMBER OF SERVICE STATION .....	41
FIGURE 13 , REGIONAL TAXES AS AT OCTOBER 2008.....	46
FIGURE 14 , SELECTED AFICAN COUNTRIES DIESEL PUMP PRICE,.....	47
FIGURE 15 SADC MEMBER STATES. ....	51
FIGURE 16 SOUTHERN AFRICAN ENERGY PRODUCTION AND CONSUMPTION .....	52
FIGURE 17 SOUTHERN AFRICA PETROLEUM PRODUCTION BY COUNTRY .....	53
FIGURE 18, MARKET STRUCTURE OPTIONS.....	63
FIGURE 19 POSSIBLE SUPPLY ROUTES TO ZAMBIA.....	69
FIGURE 20 2009 KEROSENE CONSUMPTION BY ENTITY .....	76

## LIST OF TABLES

TABLE 1 , ENERGY USAGE FOR COOKING.....	14
TABLE 2, PETROLEUM WHOLESALE PRICE BUILD UP.....	23
TABLE 3 2007 PETROLEUM EXPORTS BY PRODUCT & COUNTRY OF DESTINATION .....	37
TABLE 4 PUMP PRICE, PRICE BUILD UP.....	42
TABLE 5, COMESA & SADC STATISTICS .....	51
TABLE 6 ZCC BUDGET VS ACTUAL INCOME .....	56

## List of acronyms used in the report

CCPC	Competition and Consumer Protection Commission
COCO	Company Owned and Company Operated
CODO	Company Owned and Dealer Operated
COMESA	Common Market for Eastern and Southern Africa
CPP	Cost Plus Pricing
CSO	Central Statistical Office
DODO	Dealer Owned and Dealer Operated
DRC	Democratic Republic of Congo
EAC	East Africa Community
ECZ	Environmental Council of Zambia
ERB	Energy Regulation Board
FNDP	Fifth National Development Plan
FTA	Free Trade Area
GDP	Gross Domestic Product
GRZ	Government of the Republic of Zambia
IPP	Import Parity Pricing
IPRL	Indeni Petroleum Refinery Limited
KOJ	Kurasini Oil Jetty
LPG	Liquefied Petroleum Gas
LSD	Low Sulphur Diesel
MCTI	Ministry of Commerce, Trade and Industry
MEWD	Ministry of Energy and Water Development
MOFNP	Ministry of Finance and National Planning
MT	Metric Tonnes
NEP	National Energy Policy
NFT	Ndola Fuel Terminal
NOSCO	Ndola Oil Storage Company
NTB	Non Tariff Barriers
NTM	Non Tariff Measures
OECD	Organisation for Economic Co-operation and Development
OMC	Oil Marketing Company
OPEC	Organisation of Petroleum Exporting Countries
PCP	Price Cap Pricing
PwC	PricewaterhouseCoopers
REC	Regional Economic Communities
SADC	Southern African Development Community
SBM	Single Buoy Mooring
SI	Statutory Instrument
SOE	State Owned Enterprise
THA	Tanzania Harbours Authority
TOM	Total Outré Mer
TPL	TAZAMA Pipeline Limited

## **List of acronyms used in the report**

TST	Trans Sahara Trading Limited
UDI	Unilateral Declaration of Independence
UNCTAD	United Nations Conference on Trade and Development
UPP	Uniform Petroleum Pricing
US\$	United States Dollar
ZABS	Zambia Bureau of Standards
ZCC	Zambia Competition Commission
ZIMCO	Zambia Industrial and Mining Corporation
ZMK	Zambian Kwacha
ZNEL	Zambia National Energy Limited
ZNOC	Zambia National Oil Company
ZPPA	Zambia Public Procurement Authority
ZRA	Zambia Revenue Authority

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# **1 EXECUTIVE SUMMARY**

## **MACROECONOMIC AND SOCIAL CONTEXT**

### **Global Energy Perspective**

Energy is implicated deeply in all three pillars of sustainable development that include the economy, social welfare and the environment. However, modern fuels (e.g petroleum products) are not universally available. An estimated two billion people in the world do not yet have access to modern fuels. Around one quarter of all energy consumed in developing countries is derived from the burning of wood, charcoal, crop residues and animal dung.

The relentless rise in demand for energy makes the challenge of environmental sustainability both more difficult and more urgent. The transition to modern fuels is both a consequence of and a necessary condition for more sustainable development.

### **Importance of the Petroleum Sector**

For a large number of countries in the world, petroleum is a key industry to determine economic, social and political outcomes. In petroleum products exporting countries, the sector accounts for high percentages of Gross Domestic Product (GDP), Government revenues and foreign exchange earnings. In importing countries, it typically accounts for a large share of foreign exchange expenditures. Furthermore, taxes on oil consumption contribute importantly to fiscal revenues. When the sector constitutes a significant share of the domestic economy, be it in production or consumption, there inevitably exist strong incentives to impose comprehensive state involvement or even direct state control, in order to secure both political and financial advantages. Petroleum is frequently portrayed as strategic and, too important to be left to the market.

### **The Case of Zambia**

#### ***National Energy Perspective***

Zambia has a population of 13.273 million, of which 62 per cent live in rural areas. Zambia's GDP in 2009 was US\$12.926 million.

Apart from petroleum, which is wholly imported, Zambia is endowed with plenty of indigenous energy resources such as woodlands for wood fuel, hydropower, coal and renewable energy.

Given the low income levels of energy consumers and the abundance of wood resources, it is foreseen that wood fuel (firewood and charcoal) will continue to dominate Zambia's energy consumption, especially in rural and peri-urban areas.

In 2007, wood fuel accounted for 83 per cent of total national energy consumption. Households accounted for about 88 per cent of wood fuel consumption. Cooking and heating are the major household uses of wood fuel. The use of petroleum products in households is still very low. Only between 0.4 to 0.8 per cent of households use petroleum products for cooking.

As can be seen from the statistics<sup>1</sup> on energy use in Zambia, the situation in the country is no different from the one at the global level.

As it was observed by a study conducted by the World Bank and the World LP Gas Association at a global level, it can also be said about Zambia that *“The relentless rise in demand for energy services makes the challenge of environmental sustainability both more difficult and more urgent. The transition to modern fuels is both a consequence of and a necessary condition for more sustainable development”*.<sup>2</sup>

### ***Importance of the Petroleum Sector in Zambia***

The importation of petroleum dominates all other expenditure and forms a major part of Zambia’s import bill. Petroleum is a key driver of industrial activity. Due to increased economic activities in the country, national consumption is on the upswing, increasing by 36 per cent in the last three years.

### **Petroleum Sector Value Chain**

The Petroleum industry encompasses a range of different activities and processes which jointly contribute to the transformation of underlying petroleum resources into useable end-products valued by industrial and private customers. These different activities are inherently linked with each other (conceptually, contractually and/or physically), and these linkages might occur within or across individual firms, and within or across national boundaries.

Individual companies can cover one or more activities along the value chain, implying a degree of vertical integration and/or can seek to expand within a given activity, implying horizontal consolidation (business scale).

The value chain starts with activities generally called Exploration and Production (E&P), or referred to as. **“upstream”**. Infrastructure such as transport (pipelines, access to roads, rail and ports etc.) and storage facilities are critical at various stages in the value chain, including the links between production and processing facilities, and between processing and final customer. These parts of the value chain are usually referred to as **“midstream”**. Refining and Marketing (R&M) is referred to as **“downstream”**.

The petroleum value chain in Zambia can be further split into eight (8) main sub segments: namely, procurement, pipeline transportation, bulk storage(collectively referred to as midstream), refining, road and rail transportation, distribution, retail and blending, packaging and trading in lubricants (collectively referred to as downstream).

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<sup>1</sup> National Census of Population and Housing, 2000, CSO

<sup>2</sup> The role of LP Gas in Meeting the Goals of Sustainable Development, World LP Gas Association & World Bank, 2002.

## CONCLUSIONS

### Conditions prevailing in the market

The upstream petroleum industry in Zambia is still in its infancy. It is still at the exploration stage. No production has yet occurred.

The main players in the Zambian petroleum value chain are the following three state owned enterprises (SOE):

- TAZAMA Pipelines Limited, with the pipeline of 1,704 kilometres running from the tank farm at Kigamboni in Dar-es-Salaam to the refinery at Ndola in Zambia. This provides pipeline transportation of feedstock to the refinery and is a natural monopoly. TAZAMA is also managing the feedstock on behalf of the Government in an agency arrangement.
- Indeni Petroleum Refinery Limited, the only refinery, thus monopoly, in the country, and
- Ndola Fuel Terminal, the only bulk storage facility, thus monopoly, in the country.

The first market of the petroleum value chain is the wholesale of refined petroleum products, and consists of one supplier (feedstock importer) and several buyers (Oil Marketing Companies (OMCs)), and thus is a monopoly market. This market is intermediary in nature since OMCs resale the petroleum products to commercial customers and dealers (the second market). Within the first market, one supplier (the feedstock importer) and one major buyer Afrox (Z) Limited and Colas (Z) Limited characterize the LPG and Bitumen segments respectively. Both segments are dual monopoly markets.

The second market has two segments, the OMCs as suppliers and commercial customers and dealers as buyers. The first segment is a final market as commercial customers purchase the petroleum products for their own consumption. The second segment is an intermediary market since dealers resell the petroleum products. OMCs are vertically integrated in the distribution and retail businesses. The second market has several suppliers (OMCs) and is characterized by having joint dominant players as suppliers and many buyers (commercial customers and dealers), an oligopoly market.

The third market consists of dealers as suppliers to retail customers. This market is final in nature as retail customers purchase the petroleum products for final consumption. The market is characterized by many suppliers and many buyers, potentially a competitive market.

The distribution of petroleum products is mainly done by road transportation.

The petroleum wholesale price is determined using the Cost-Plus Pricing (CPP) Model, and the pump price is determined using the Price Cap Pricing Mechanism. Both are regulated prices.

On Friday 17 September 2010, the Government of the Republic of Zambia announced the introduction of a Uniform Petroleum Pricing (UPP) Mechanism in the country. On Saturday 18 September 2010, the Energy Regulation Board (ERB), the Government regulatory Board in the energy sector implemented the UPP Mechanism and announced the new countrywide prices that took effect at midnight the same day.

The Energy Regulation Board was established by the Energy Regulation Act, No. 16 of 1995. This Act was amended by the Energy Regulation (Amendment) Act No. 23 of 2003.

The Competition and Fair Trading Act, Cap 417 of the Laws of Zambia No. 18 of 1994 established the Zambia Competition Commission (ZCC), which institution stated its operations in 1997. The Competition and Consumer Protection Act, No. 24 of 2010, repealed this Act and renamed the Commission to Competition and Consumer Protection Commission (CCPC). The National Energy Policy (NEP) is the main energy policy document in the energy sector, guiding changes and developments in the sector. The policy document contains measures for each energy sub-sector, outlines strategies for implementation and identifies the legal framework required to implement the policy.

### **Role of the State and public policies in the sector**

The Ministry of Energy and Water Development (MEWD) is Zambia's principal Government body responsible for energy policy formulation and administration. The Ministry has developed the National Energy Policy (NEP) which guides changes and developments in the energy sector.

Government policies influence the level of competition in the sector by determining the market structure, government involvement in the sector and the level of liberalisation. In 2001 government announced the liberalisation of the pump price. This year the government has introduced Uniform Petroleum Pricing (UPP) Mechanism. This in effect reverses the liberalisation of the pump price and thus reduces the scope for competition at the pump.

### **Transparency in the sector**

The main transparency concern in the sector has been the method of feedstock procurement. The awarding of the last two contracts has been done in a transparent manner and with due diligence, in accordance with the provisions of the Public Procurement Act, No. 12 of 2008. This has helped to address concerns people had on the authenticity of the cost of feedstock which is the main factor for the determination of the petroleum wholesale price.

The energy sector has a sector regulator the ERB. The existence of the ERB has tremendously enhanced the transparency in the sector. However, instances of regulatory failure, where the ERB is seen not to enforce the laid down procedures and standards, is undermining the sectors transparency.

### **Efficiency of the sector**

The petroleum sector is at the moment running inefficiently. Factors adversely affecting the sector's efficiency include the following;

- State ownership inefficiencies. State ownership inefficiencies have resulted into;
  - operating inefficiency emanating from allocative inefficiency, e.g. repairs and maintenance being underfunded, due to the company's inability to charge cost reflective tariffs as a result of government's desire to keep the cost of fuel low, resulting in poor performance of the company,

- high labour costs, because the SOEs are seen as a means of providing employment,
- poor quality of service,
- efforts to improve efficiency blunted by a desire for a quiet life due to government protection,
- dynamic inefficiency resulting in the inability for the company to respond to changing market requirements , e.g. Indeni's failure to recapitalize so as to produce cleaner fuels,
- The choice of the route that the pipeline took was driven by regional politics at the time of its construction rather than economic considerations. There are alternative routes which would have turned out to be cheaper.
- The refinery is running inefficiently and passing on its inefficiencies downstream,
- The country's failure to expand its export market and benefit from economies of scale and reduction in the industries average costs that would result from an expanded market.
- Prohibitive import duty (at 25 per cent) imposed on imported petroleum products by government to discourage the importation of cheaper imports.

### **Conditions and Practices that limit competition in the sector**

Conditions and practices that limit competition in the sector include:

- Governments involvement in the procurement of petroleum feedstock,
- Protectionist approach by the variation of import duty by government as means of discouraging imports,
- The market structure where competition is difficult to realise;
- The distribution segment of the value chain dominated by BP Zambia Plc and Total Zambia Limited,
- OMCs being vertically integration between the distribution and retail businesses,
- The failure by the sector regulator, ERB, to enforce the provisions of the Energy Regulation Act, especially with regards to investments by OMCs, with the lubricants business distorting competition.

## **RECOMMENDATIONS**

### **MEASURES TO IMPROVE THE CONDITIONS IN THE MARKET**

#### **Measures to strengthen the institutional framework**

The Competition and Consumer Protection Commission should be adequately funded by Government, by a fee to be paid by companies at the time of registration and/or at the time of submitting their annual return.

#### **Measures to improve transparency in the sector**

- The procurement of petroleum feedstock should be done in a transparent manner through a competitive bidding process.
- The sector regulator should build stakeholder confidence in the sector by firmly and fairly enforcing the provisions of the law.

#### **Measures to improve the efficiency of the sector**

- The Government should commercialise the operations of the three state-owned enterprises in the petroleum value chain. These are TAZAMA Pipelines Limited, Indeni Petroleum Refinery Limited and the Ndola Fuel Terminal. The most desirable mode would be to concession these assets. In this way, the private sector gets involved while ownership still remains with government.
- The Government should consider developing an alternative route for transporting petroleum products, preferably finished products. One possible route that could be as cheap or even cheaper than the TAZAMA route is importation of refined products by pipeline from Beira through Harare.
- The Indeni Petroleum Refinery Limited must be urgently recapitalised for rehabilitation. As a barest minimum it should be upgraded to allow it meet the regional specification for unleaded petrol and low sulphur diesel and reduce losses to acceptable levels.
- The Government should discontinue protectionist schemes. In the worst case scenario, subject to findings of a detailed study justifying this course of action, the Government could also consider closing the processing section of the refinery while preserving the storage and handling facilities.
- The tax regime governing exports should be reviewed with the view to facilitate exports. Indeni and TAZAMA and the country as a whole will benefit from a bigger market that will mean higher throughputs through these companies and greater economies of scale. This will also make the two companies more attractive as investment opportunities.

### **MEASURES TO IMPROVE COMPETITION IN THE SECTOR**

- With regards to the procurement of petroleum feedstock:
  - The private sector, OMCs, should form a consortium whose responsibility will be the procurement of petroleum feedstock,
  - Address the concerns raised by the OMCs in 2001 on operational state of infrastructure. The concessioning of the Government assets namely TAZAMA

Pipelines Limited, Indeni Petroleum Refinery Limited and the Ndola Fuel Terminal, could address these concerns.

- the ERB should issue appropriate licences and monitor the operations of the consortium, including issues to do with pricing.
- The Government should apply the same import duty on all petroleum products. Rather than protecting SOEs, the Government should commercialise them and allow them to compete.
- Open access regimes should be enforced on all monopolies in the petroleum value chain. These are TAZAMA Pipelines Limited, Indeni Petroleum Refinery Limited and Ndola Fuel Terminal. This should be a regulated open access regime where the infrastructure operator cannot own the products.

## **MEASURES RELATED TO THE ALLEGED ANTI-COMPETITIVE PRACTICES**

Stakeholders interviewed raised some pertinent issues. Most of them, however, need to be investigated so as to establish their validity, the extent of the problem and determine the appropriate course of action for their resolution. Issues raised include the following;

- Some transporters are not investing much in their tankers (as they do not meet the set standards) and are therefore able to accept low rates being offered by OMCs. This is making it difficult for transporters who are investing in their tankers to negotiate for higher rates and it is distorting competition.
- The licence condition requiring for OMCs to keep 15 days stock is a barrier to entry and the ZMK65 /litre provision in the pricing structure is not adequate to meet the cost of purchasing the stock and the finance costs associated with holding these stocks.
- The lack of supervision of Bitumen (brief case) traders from South Africa and illegal lubricants traders by the sector regulator is distorting competition.
- It is becoming more prevalent among OMCs who close service stations to sell the land on condition that it will not be developed into another service station. The main aim of this action is to stifle competition. Environmental issues also arise because the underground tanks are usually not properly disposed of.
- Some small OMCs complained that TAZAMA Pipelines Limited, the Government agent is refusing to extend credit to them even when they offer to obtain a bank guarantee.
- It was alleged that some OMCs are offering low prices and very good terms to commercial customers where the competition is stiff and the customers have bargaining power and making up for these lost revenues from the retail business where the customer is in no position to negotiate for a better price. This was done through the charging of a financing cost in the pump price build up and yet the retail customer pays cash for the product. The issue is whether or not the OMCs were cross-subsidising between commercial and retail customers.
- The Competition and Consumer Protection Commission should block ex ante, mergers and acquisitions that would result in significant power concentration.
- OMCs' vertical integration between the distribution and retail businesses restricts competition. Facts on the ground point to the fact that the customer stands to gain more under this arrangement, than what they stand to gain from the prospects of

enhanced completion, that would arise under Dealer Owned and Dealer Operated (DODO) service stations.

- Some large OMCs complained that some OMCs dump products at service stations of other OMCs.

## **MEASURES RELATED TO THE ALLEGED UNFAIR TRADING PRACTICES**

- Feedback from the market is that that some industry players are selling butane to unsuspecting customer as though it were LPG.
- OMCs have complained of unfair competition from OMCs that are selling adulterated diesel at low prices. The allegation is that the diesel is being mixed with kerosene.

## **GENERAL MEASURES**

Other issues of importance to the sector include the following:

- It has been suggested that the Government should make the depots that it's repairing in the provinces available to third parties. This will encourage OMCs to invest in rural areas.
- Zambia continues to have one of the highest tax regimes on fuel in the region and consequently one of the highest fuel prices in the region. It's the view of most stakeholders that government should review the tax regime on petroleum products. Amongst other measures government should consider reviewing the ad valorem (percentage of value of goods) basis of taxation. Some countries like South Africa have dealt with this problem by applying absolute (non-percentage) taxes on fuel.
- The ERB should find a lasting solution to illegal fuel vending. Due to the higher fuel price in Zambia compared to those of its neighbours, OMCs with service stations in border towns have complained of rampant illegal fuel vending which has grown to levels that makes the illegal fuel vendors significant players in those markets.
- It was alleged that the mines sell fuel to their transporters at special prices. The question is whether or not the mines should also be dealing in fuel distribution, even if it is to their contracted transporters.
- OMCs require transporters to brand their tankers without guaranteeing business. The usage of these branded tankers is restricted as they cannot be used to transport product for another OMC. This practice is disadvantaging transporters.
- The OMCs, transporters and dealers complained that operating costs are at a level that cannot be sustained by existing margins.
- Fuel marking should be considered as a strategy for detecting fuel adulteration and curbing thefts, dumping and smuggling. This measure should be backed by appropriate legislation. To successfully implement it, a cost benefit study may be necessary and a sustainable funding mechanism must be developed.
- Government should put in place programmes that will promote the use of LPG as an alternative energy source for domestic purposes. This should include specific and targeted fiscal measures as well as public awareness campaigns.



## **2 INTRODUCTION**

As part of a regional sectoral study of the petroleum sector in the Southern Africa Development Community (SADC)/Common Market for East and Southern Africa (COMESA) regions, the United Nations Conference on Trade and Development (UNCTAD), in conjunction with the Competition and Consumer Protection Commission, within the framework of the African Competition Project (AFRICOMP) program, is conducting national sectoral studies in the petroleum sector.

The objective of this study is to evaluate the context, the structure and the functioning of the sector from the competition point of view to identify the conditions of competition in the sector.

The energy sector is one of the key sectors of the Zambian economy, in particular the petroleum industry. Petroleum is the only energy source that is 100 per cent imported in Zambia. Hence, in agreement with the Competition and Consumer Protection Commission, the petroleum sector has been identified as a special sector which requires analysis.

Considering the importance of regional integration in Africa, AFRICOMP is carrying out activities aimed at strengthening regional institutions as well as creating synergies between national competition authorities of the same region. The sectoral studies to be undertaken in several countries will follow the same approach and methodology with a view to identifying, if any, similarities in the challenges faced by the competition authorities in the enforcement of competition laws and building areas for cooperation by linking approaches in different countries.

### **3 OBJECTIVES OF THE REPORT**

It is envisaged that the study will, amongst other things, achieve the following:

1. To study the structure of the upstream market, determine the level of competition and explore options of enhancing it,
2. To study the structure of the midstream market, determine the level of competition and explore options of enhancing it,
3. To determine the effect of the upstream and the mid stream markets on the downstream market,
4. To understand the downstream market structure and determine the level of competition with a view of finding ways of enhancing it,
5. To establish the level of collaboration of the various regulatory authorities and the harmonization of the pieces of legislation that establishes them so as to facilitate entry into the market by prospective entrants and effective enforcement of competition laws,
6. To determine capacity building requirements that may be necessary for the Competition and Consumer Protection Commission staff to enable the commission effectively carry out its mandate,
7. To give the Competition and Consumer Protection Commission a basis on which to effectively contribute to policy formulation with regards to structure and practices in the petroleum sub sector to promote competition,
8. To highlight the regional dimension of the Petroleum Sub Sector, and,
9. To serve as an element for a regional approach of the sector by comparing the results of petroleum sectoral study in other countries in the region.

## **4 ECONOMIC AND SOCIAL CONTEXT AND STRUCTURE OF THE PETROLEUM SECTOR**

### ***4.1 MACROECONOMIC AND SOCIAL CONTEXT***

#### **4.1.1 GLOBAL ENERGY PERSPECTIVE**

Energy is implicated deeply in all three pillars of sustainable development that include the economy, social welfare and the environment. Although there are no near-term resource limits to energy supply, today's global energy system is not compatible with economic, social and environmental sustainability in the long-term. A lack of access to reliable and affordable energy undermines economic development in many parts of the world. The detrimental environmental consequences of energy production and use around the world threaten the stability of eco-systems and the health and wellbeing of current and future generations.

Moreover, modern fuels (e.g petroleum products) are not universally available. An estimated two billion people in the world do not yet have access to modern fuels. Around one quarter of all energy consumed in developing countries is derived from the burning of wood, charcoal, crop residues and animal dung. Finding ways to expand energy services to poor households in developing countries, while simultaneously addressing the environmental effects of energy production and use, is one of the most pressing challenges facing the world.

The relentless rise in demand for energy services makes the challenge of environmental sustainability both more difficult and more urgent.

The transition to modern fuels is both a consequence of and a necessary condition for more sustainable development.

A combined study by the World Bank and the World LP Gas Association in 2002 made the following observations:

- In Africa, traditional fuels still dominate household energy use.
- Africa, which lacks access to clean energy, flares more gas and losses more forests than any other region.
- Africa is a major oil and associated gas producer with the lowest per capita access ration to Liquefied Petroleum Gas (LPG). Most of the LPG produced in African refineries are flared for lack of a market.
- A key factor affecting affordability of modern fuels for poor households is the initial cost, e.g. gas cylinder and the stove for LPG use.
- Demand growth for modern fuels in each country will depend on government policies to:
  - encourage investment in distribution and marketing infrastructure,
  - adopt programs to encourage use of modern fuels as a domestic fuel,
  - work with industry to increase public awareness and access to modern fuels,
  - reduce equipment acquisition costs and modern fuels delivery cost by adapting fiscal policies.

- Taxes should not undermine consumption nor distort the market inadvertently. Given the benefits of modern fuels like LPG over traditional fuels, taxes on LPG should be kept to a minimum so as not to harm its competitiveness and discourage its use.
- Make modern fuels for domestic use affordable and competitive, where justified and feasible, targeted, transparent, practical and temporary subsidies should be administered as a temporary measure to support switch from traditional fuels.
  - awareness about comparative fuel costs and attributes should be promoted.
- The level of economic development is the primary determinant of demand for commercial fuels.
- The world will continue to depend on fossil fuels for the bulk of its energy needs for at least the next two to three decades. While their use can support economic and social development, fossil fuels are not environmentally benign. They will however, play an important role in the transition to a truly sustainable global energy system until such time as affordable and environmentally acceptable renewable energy technologies become available.<sup>3</sup>

#### **4.1.2 IMPORTANCE OF THE PETROLEUM SECTOR**

For a large number of countries in the world, petroleum is a key industry to determine economic, social and political outcomes. In petroleum products exporting countries, the sector accounts for high percentages of Gross Domestic Product (GDP), government revenues and foreign exchange earnings. In importing countries, it typically accounts for a large share of foreign exchange expenditures. Furthermore, taxes on oil consumption contribute importantly to fiscal revenues. When the sector constitutes a significant share of the domestic economy, be it in production or consumption, there inevitably exist strong incentives to impose comprehensive state involvement or even direct state control, in order to secure both political and financial advantages. Petroleum is frequently portrayed as “strategic” and as Sheikh Ahmed Yamani, Saudi Oil Minister from 1962-1986, puts it, “*too important to be left to the market*”.

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<sup>3</sup> The Role of LPG in Meeting the Goals of Sustainable Development, World LP Gas Association & World Bank, 2002.

### 4.1.3 THE CASE OF ZAMBIA

#### *National Energy Perspective*

Zambia has a population of 13.273 million<sup>4</sup>, of which 62 per cent<sup>5</sup> live in rural areas. Zambia's GDP in 2009 was US\$12.926 million.<sup>6</sup>

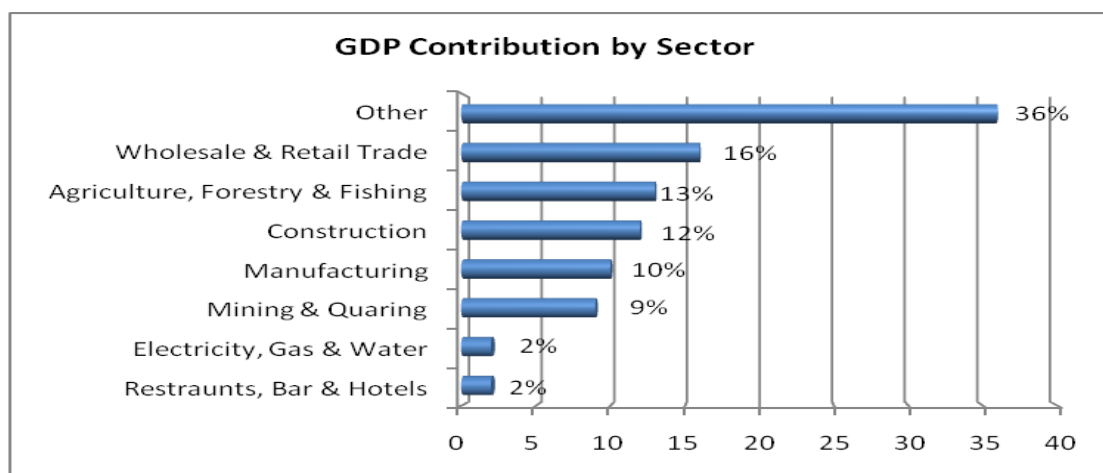


Figure 1, GDP Contribution by Sector<sup>7</sup>

Apart from petroleum, which is wholly imported, Zambia is endowed with plenty of indigenous energy resources such as woodlands for wood fuel, hydropower, coal and renewable energy. The Total National Energy Demand by Source is given below.

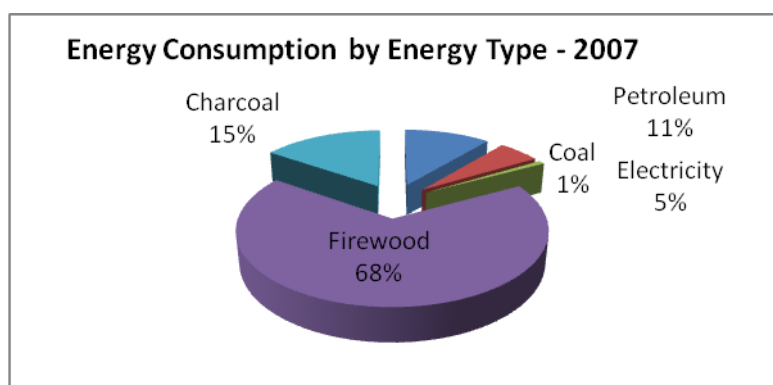


Figure 2, Energy Consumption by Energy Type - 2007<sup>8</sup>

<sup>4</sup> Central Statistical Office Projected Mid Year Population 2010.

<sup>5</sup> National Census of Population and Housing, 2000, CSO

<sup>6</sup> Zambia Economic Report, 2009, MOFNP.

<sup>7</sup> Zambia Economic Report 2009, MOFNP.

<sup>8</sup> Ministry of Energy and Water Development (MEWD)

Given the low income levels of energy consumers and the abundance of wood resources, it is foreseen that wood fuel (firewood and charcoal) will continue to dominate Zambia’s energy consumption, especially in rural and peri-urban areas.<sup>9</sup>

As can be seen from the table above, in 2007, wood fuel accounted for 83 per cent of total national energy consumption. Households accounted for about 88 per cent<sup>10</sup> of wood fuel consumption. Cooking and heating are the major household uses of wood fuel. The use of petroleum products in households is still very low. As indicated in the table 1 below, only between 0.4 to 0.8 per cent of households use petroleum products for cooking.

**Table 1 , Energy Usage for Cooking<sup>11</sup>.**

FUEL USED FOR COOKING	PERCENT HOUSEHOLDS	
	Rural	Urban
Electricity	1.5	37.1
Kerosene & Gas	0.8	0.4
Wood fuel & Coal	97.2	62.2
Other	0.5	0.3
<b>Total</b>	<b>100</b>	<b>100</b>

Although there is no immediate wood fuel crisis in most parts of Zambia, wood fuel can no longer be considered as a renewable resource because consumption rates are exceeding yield rates mainly as a result of inefficient production and increasing use due to the increasing population. This is particular so in areas supplying wood fuel to urban centres. Woodlands meet both energy and non-energy needs. If current trends of woodland depletion continue an "energy crisis" that will affect the majority of the people is likely to occur in the near future. This is in addition to desertification, which is already threatening some parts of the country.<sup>12</sup>

As can be seen from the statistics on energy use in Zambia, the situation in the country is no different from the one at the global level. As it was observed by the study conducted by the World Bank and the World LP Gas Association at a global level, it can also be said about Zambia that *“the relentless rise in demand for energy services makes the challenge of environmental sustainability both more difficult and more urgent. The transition to modern fuels is both a consequence of and a necessary condition for more sustainable development”*.

LPG offers the most desirable solution to domestic energy needs. Of all the modern fuels available today, LP Gas, which consists mostly of propane and butane, is particularly well suited to domestic cooking and heating uses because of its clean and burning attributes and practical advantages over traditional fuels and kerosene. In particular, it is more convenient, safer and cleaner. It is also highly portable and has a higher calorific value by volume and mass.<sup>13</sup>

<sup>9</sup> National Energy Policy, MEWD, 2008.

<sup>10</sup> National Energy Policy, MEWD, 2008.

<sup>11</sup> Census of Population and Housing, CSO, 2000,

<sup>12</sup> National Energy Policy, MEWD, 2008.

<sup>13</sup> The Role of LPG in Meeting the Goals of Sustainable Development, World LP Gas Association & World Bank,

### *Importance of the Petroleum Sector in Zambia*

The importation of petroleum dominates all other expenditure and forms a major part of Zambia's import bill.<sup>14</sup>

Petroleum is a key driver of industrial activity. Due to increased economic activities in the country, national consumption is on the upswing, increasing by 36 per cent in the last three years.

Below are the 2009 Fuel and Lubricant consumptions by sector.

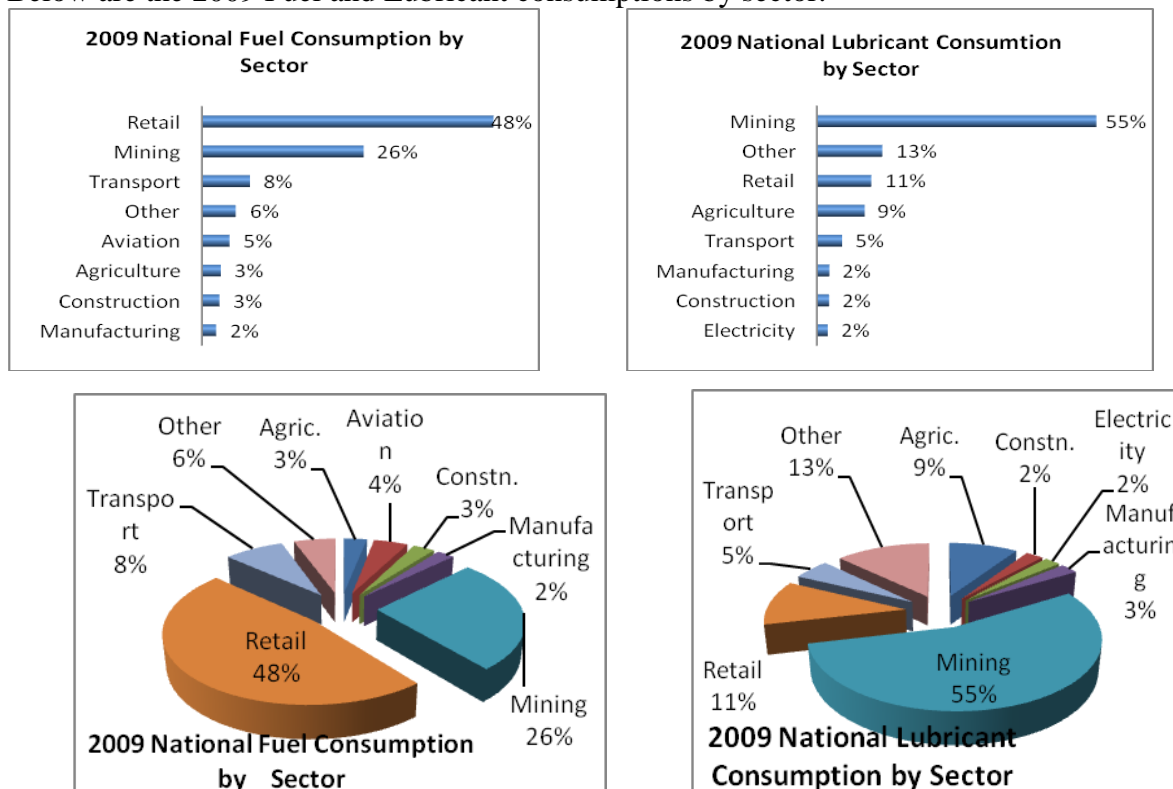


Figure 3 , 2009, National Fuel & Lubricant Consumption by Sector<sup>15</sup>

## **4.2 PETROLEUM SECTOR**

The Petroleum industry encompasses a range of different activities and processes which jointly contribute to the transformation of underlying petroleum resources into useable end-products valued by industrial and private customers. These different activities are inherently linked with each other (conceptually, contractually and/or physically), and these linkages might occur within or across individual firms, and within or across national boundaries.

Individual companies can cover one or more activities along the value chain, implying a degree of vertical integration and/or can seek to expand within a given activity, implying horizontal consolidation (business scale).

Vertical integration (which is the creation of linkages between firms in different sectors, resulting in the elimination (total or partial) of arms length, purely market-based relationships

<sup>14</sup> Energy Services Delivery in Zambia, 2004, CORE International.

<sup>15</sup> Energy Regulation Board

between these sectors) is a prominent feature of the petroleum industry. Key motivations for such integration are to secure sources of supply, to secure off-take markets, to create entry barriers, to circumvent taxes, to eliminate the profit margins of intermediaries or to practice price discrimination.

Regarding horizontal integration, (which lies primarily within one of the specific sectors of the energy industry or alternatively within a broader sector of activity which nevertheless exhibits similar functional and operational prerequisites) the benefits from economies of scale in most activities of the value chain are widely acknowledged.

The value chain starts with the identification of suitable areas to conduct exploration for oil and/or gas. After initial exploration, petroleum fields are appraised, developed and produced. These activities are generally called Exploration and Production (E&P), or referred to, as **“upstream”**. Infrastructure such as transport (pipelines, access to roads, rail and ports etc.) and storage facilities are critical at various stages in the value chain, including the links between production and processing facilities, and between processing and final customer.

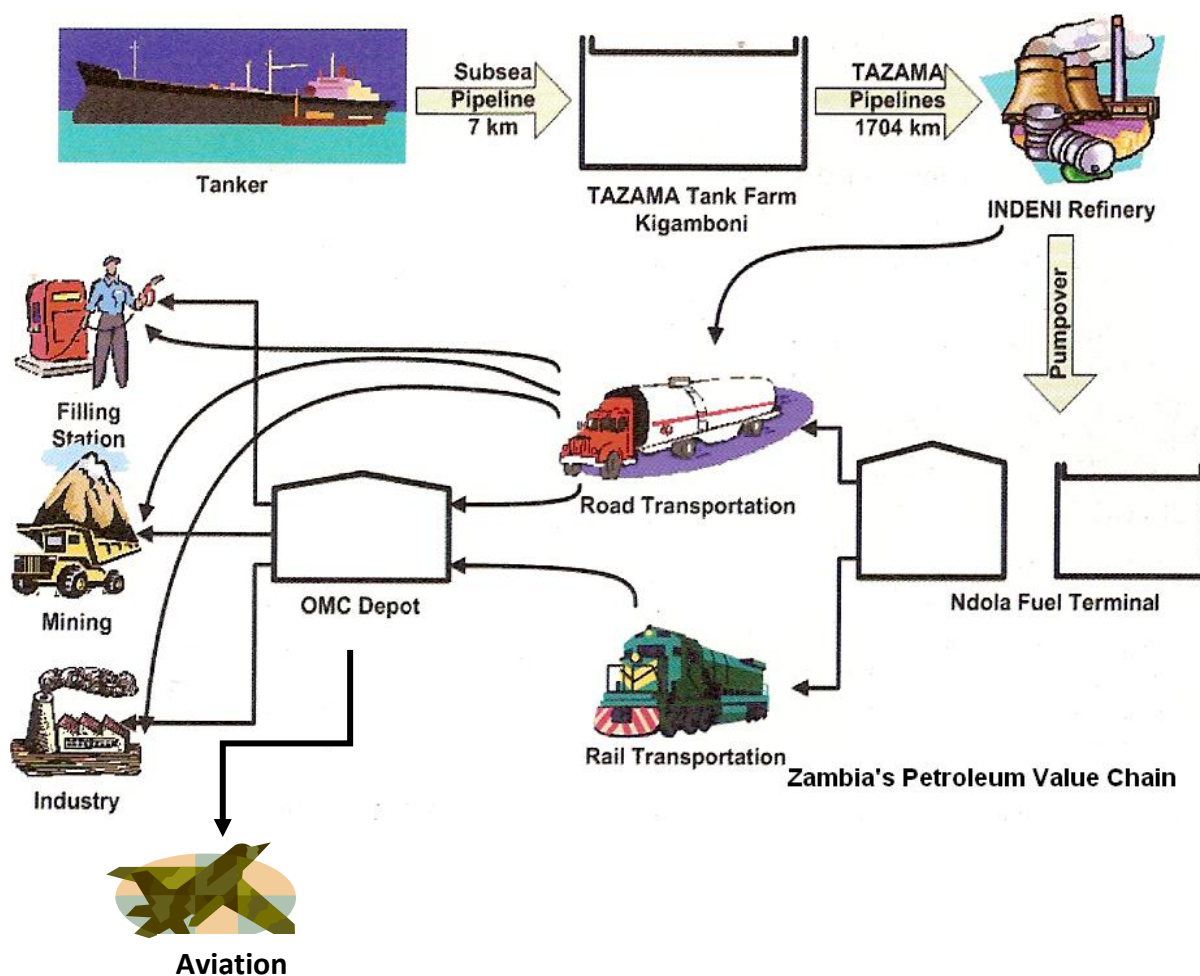
These parts of the value chain are usually referred to as **“midstream”**. Oil refining and gas processing are required to turn the extracted hydrocarbons into usable products. The processed products are then distributed onwards to wholesale, retail or direct industrial clients (Refining and Marketing (R&M)) is referred to as **“downstream”**. It is also acceptable to collectively refer to both the midstream and downstream as downstream. For purposes of this report the value chain shall be split into the “upstream” Exploration and Production (E & P), “midstream” Transportation and Storage (T & S) and downstream Refining and Marketing (R & M).

The petroleum value chain in Zambia can be further split into eight (8) main sub segments namely procurement, pipeline transportation, bulk storage (collectively referred to as midstream), refining, road and rail transportation, distribution, retail and blending, packaging and trading in lubricants (collectively referred to as downstream).

A pictorial presentation of the Zambian petroleum value chain is given below.



**Figure 4. Zambian Petroleum Value Chain**



#### **4.2.1 UPSTREAM (Exploration and Production)**

In Zambia the upstream is still in its infancy. Exploration works have started but no production has ever been carried out.

Surveys carried out by the Survey Department of the Ministry of Mines and Minerals Development in 2006 gave positive indications of the presence of oil and gas reserves in the North Western province.

In November 2006 the President of the Republic of Zambia appointed a Petroleum Committee to facilitate oil and gas exploration work in sixteen (16) blocks that had been demarcated in North Western province.<sup>16</sup> Other sites have since been found.

The Government has so far awarded eleven oil blocks to successful bidders to commence oil exploration works.<sup>17</sup> Positive results from these exploration efforts could change the structure of the upstream completely and significantly affect the downstream.

<sup>16</sup> Energy Sector Report, 2006, ERB,

An interest in Zambia's hydrocarbon potential started after the presentation of the paper on oil exploration at the United Nations Conference held in The Hague in the Netherlands, highlighting the buried rifts as well as marine units in the western basin called the Barotse Basin. This paper by Money (1981) attracted much interest and resulted in the World Bank sending a team of experts to review the preliminary data and make recommendations. This led to the signing of an Agreement establishing the Petroleum Exploration Promotion Project in the Ministry of Mines and Minerals Development with a loan from the Bank amounting to US\$6.6 million. Edcon, a Denver based consultant was engaged to supervise the reprocessing and interpretation of 90,000 line-kilometres of aeromagnetic data previously acquired for the Geological Survey by Geometrics of California, USA.<sup>18</sup>

The Petroleum (Exploration and Production) Act, No. 10 of 2008, provides for government participation in the petroleum sub sector. Section 5 under Part II (Rights to Conduct Petroleum Operations) of the Act states that *"The state may carry out petroleum operations either on its own or in joint venture with a holder of a petroleum exploration licence or a petroleum development and production licence issued under this Act"*.<sup>19</sup>

*Under the Act, "Petroleum operations means the operations related to the exploration, development, extraction and production of petroleum"*.<sup>20</sup>

Section 100 of Part XVI (General Provisions) states that:

- (1) There shall be a National Petroleum Company which shall be a public company registered under the Companies Act.
- (2) The Minister shall, by statutory instrument –
  - a) Provide for the objects of the company;
  - b) Determine the share holding structure of the company, including the percentage of shares to be reserved for Zambians;
  - c) Provide for the management of the Company; and
  - d) Provide for such other matters connected with or incidental to the registration of the company in accordance with the Companies Act.<sup>21</sup>

This is a clear statement of intent by government of its desire to participating in the upstream segment of the petroleum value chain.

The nature and extent of the Government involvement in the petroleum sector and the resultant effect on competition in the sector are not yet clear, as the objectives of the National Oil Company have not yet been set.

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<sup>17</sup> This was announced by His Excellency Mr. Ruphia Bwezani Banda, President of the Republic of Zambia on Friday 17<sup>th</sup> September, 2010, during his speech for the official opening of the fifth session of the Tenth National Assembly.

<sup>18</sup> Ministry of Energy & Water Development, Zambia website: [www.mewd.org](http://www.mewd.org)

<sup>19</sup> The Petroleum (Exploration and Production) Act, No. 10 of 2008,

<sup>20</sup> The Petroleum (Exploration and Production) Act, No. 10 of 2008,

<sup>21</sup> The Petroleum (Exploration and Production) Act, 2008.

## **4.2.2 MIDSTREAM (Transportation and Storage)**

### **4.2.2.1 PROCUREMENT AND WHOLESALING OF REFINED PRODUCTS**

#### **Procurement**

Zambia has no known proven reserves of petroleum crude. Petroleum is the only energy source in Zambia that is wholly imported. Importation of petroleum products into Zambia is done in two modes, namely the refinery mode (feedstock importation through the pipeline for refining at Indeni Petroleum Refinery Limited) and finished products mode (importation of finished petroleum products through road and rail).

At Zambia's independence in 1964 until 1965, multinational Oil Marketing Companies (OMCs) imported finished petroleum products into the country. These products were supplied mainly by rail using the southern corridor through Livingstone.

In 1965, Ian Smith of the then Rhodesia made a Unilateral Declaration of Independence (UDI). The UDI resulted in the imposition of sanctions on that country and consequently, the closure of Zambia's southern border which disrupted the supply of petroleum products into the country. To redress the situation Zambia had to airlift and transport by road petroleum products from East Africa. This scenario was, however, not sustainable in the long run. To ensure security of supply of petroleum products, the Government in conjunction with the Tanzanian Government constructed the TAZAMA Pipeline Limited (TPL) to pump finished petroleum products from Dar-es-salaam in Tanzania to Ndola in Zambia.

The importation of finished petroleum products was done by a state owned enterprise, the Zambia National Energy Limited (ZNEL).

With the commissioning of Indeni Petroleum Refinery Limited (IPRL) and the conversion of the TAZAMA Pipeline from a finished petroleum products transporter to a transporter of feedstock, ZNEL switched to the importation of feedstock.

ZNEL was succeeded by ZIMOIL and later Zambia National Oil Company (ZNOC). Procurement of petroleum products (finished or feedstock) by the state owned enterprises was well coordinated through advance planning of market requirements.

On 19 May 1999, a fire at IPRL precipitated a national crisis for the provision of petroleum products to the Zambian market. At this time, ZNOC was the sole importer of petroleum feedstock. ZNOC therefore undertook the responsibility of importing finished petroleum products.

At this time, ZNOC was already facing serious financial challenges. The closure of IPRL worsened ZNOC's financial woes, as the company had substantial stocks of feedstock which it could not process and sell to generate cash.

In view of the unfavourable financial situation in which ZNOC found itself, the Government issued Statutory Instrument (SI) No. 119 of 1999: The Customs Excise (Suspension) (Amendment) Regulation to reduce import duty on petroleum products from 25 per cent to 5 per cent and allowed all OMCs with valid import licences from the ERB to participate in the importation of finished petroleum products.

IPRL resumed operations in December 2000. On May 18, 2001 the GRZ issued Statutory Instrument (SI) No. 54 of 2001: The Customs Excise (Suspension) (Amendment) Regulation to reinstating import duty on petroleum products of 25 per cent. ZNOC resumed the importation of petroleum feedstock until its liquidation in April 2002.

In 1999 the Ministry of Energy and Water Development (MEWD) developed a Framework for Private Sector Participation in Procurement of Petroleum Feedstock. Based on the recommendations of this framework, in June 2001, the Government invited OMCs to form a consortium to import Petroleum Feedstock. The OMCs engaged a consultant to study the petroleum chain and recommend modalities on how OMCs could get involved in the procurement of petroleum feedstock. The OMCs submitted a copy of the report to Government and raised issues which they thought Government needed to address before they could get involved in the procurement of petroleum feedstock. The issues raised were mainly to do with the functional state of the supply infrastructure. These issues are still under consideration.

In the absence of a long term solution, the Government was forced to take interim measures to ensure security of supply. These measures included the awarding of the right to import petroleum feedstock to IPRL and then Trans Sahara Trading Limited (TST). However, in 2003 TST's licence was suspended and later revoked by the ERB due to the company's violation of licence conditions. In the same year, the Government then awarded IPRL the right to import petroleum feedstock. As IPRL did not have the financial capacity to import petroleum feedstock on its own, the procurement was financed by its B-shareholder Total Outre Mer (TOM).

In 2007 IPRL's B-shareholder Total Outre Mer (TOM) pulled out of the refinery and could therefore not continue to finance the importation of petroleum feedstock.

In July 2007, the GRZ took over from Total the responsibility of supplying feedstock. While long term feedstock supply arrangements were being made, Government issued a 360,000 metric tonnes interim feedstock selective tender to six companies. However, the bids were found to be non-responsive and the Government then decided to single source Gallic Oil to supply 150,000 metric tonnes of feedstock. Finance Bank Zambia Ltd was appointed to finance the first 60,000 MT cargo that began to be processed by IPRL from early October 2007. As a result of these delays in the procurement arrangements, the country experienced some product shortages on the market.

Later Gallic Oil transferred its contractual obligations to Lukoil Trading and Supply Company (Litasco) who supplied the next consignment of 60,000 MT of feedstock. The cargo which arrived in November 2007 was directly financed by the Government. By

December 2007 when the last consignment of 90,000 MT of feedstock was being delivered, the erratic feedstock supply fears had eased.

In October 2007, the Government issued a long term feedstock tender. In December 2007, negotiations with the Independent Petroleum Group (IPG) of Kuwait (the preferred bidder) were concluded for the supply of 1,440,000 MT of feedstock for a period of 2 years.

In October 2007, the Government appointed TAZAMA Pipelines Limited (TPL) as its agent to manage the procurement of feedstock on its behalf. The Agency agreement between the Government and TPL was finally signed in December 2007. However, TPL had already begun operating as Government's agent when the first cargo arrived in October 2007. As such, TPL assumed the added responsibility of wholesale marketing petroleum products to the rest of the petroleum market whilst continuing with its core business of pipeline transportation.<sup>22</sup>

Currently, Glencore Energy of United Kingdom is supplying feedstock to Zambia, having been awarded a two year contract. During the year, 2008, Government entered into negotiations with various financiers for the financing of the procurement of feedstock. At the end of December 2008, a US\$350 million financing facility was concluded with PTA Bank/Finance Bank for a period of one year. Whilst the negotiations were ongoing, PTA Bank provided interim financing.<sup>23</sup>

It is the view of the Zambia Public Procurement Authority (ZPPA) that, having reviewed all the necessary documents relating to the procurement process used in the selection of the best evaluated bidder for the supply of petroleum feedstock, the award of contracts to supply petroleum feedstock was done in a transparent manner and with due diligence, in accordance with the provisions the Public Procurement Act, No. 12 of 2008.

During shutdowns of the refinery, either planned or unplanned, various models have been applied with varying results. Models applied during refinery shutdowns include the following:

- a. Importation of petroleum products by a selected OMC, as did BP in 2006.
- b. Importation of petroleum products by all OMCs with valid Importation licences. This model has been applied on several occasions.
- c. Importation of petroleum products by the GRZ and all OMCs with valid Importation licences, as was the case last year.
- d. Importation of petroleum products by the GRZ through an appointed agent, namely TPL, as is currently the case.

It should be noted here that there is no legal or regulatory provision that deters OMCs from importing finished petroleum products at any time. The models referred to above are with respect to Governments varying of Import Duty between 25 per cent to 5 per cent. The

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<sup>22</sup> Energy Sector Report, ERB, 2007,

<sup>23</sup> Energy Sector Report, ERB, 2008

Government usually reduces import duty for those entities that it has appointed to import petroleum products. The rest are free to import at an import duty rate of 25 per cent. This makes the product imported at the full duty rate uncompetitive compared to the products that are imported at the reduced rate or the products refined at IPRL with feedstock attracting import duty at only 5 per cent.

### **Wholesaling of Refined Products**

The importer of petroleum products holds title of the products up to the point of sale of refined petroleum products to OMCs. The wholesale price is regulated and is set by the Energy Regulation Board (ERB).

Prior to the establishment of the ERB, the pricing of petroleum products was done by the ZIMOIL Division of Zambia Industrial and Mining Corporation (ZIMCO) and later Zambia National Oil Company (ZNOC). With the liberalisation of the economy in the 1990s and the establishment of ERB in 1997, the sector regulator assumed this function.

In the beginning, the wholesale price for finished products was determined using the Cost Plus Pricing (CPP) mechanism. This methodology was discontinued in June 2004 because of problems in authenticating the prices of some of the components of the feedstock, condensate in particular. In addition the model did not provide an incentive for the refinery to improve its efficiency and reduce losses; neither did it give incentives for more prudent procurement of feedstock.

To replace the CPP mechanism the ERB introduces the Import Parity Pricing (IPP) Model. The IPP works on the premise of how much it would cost to import finished petroleum products into Zambia. However, the IPP determined price was discounted to take into account the existing infrastructure in the Zambian petroleum supply chain, namely the INDENI Refinery in Ndola and the TAZAMA pipeline which is used for transporting petroleum feedstock from the port of Dar-es-Salaam in Tanzania to the Refinery in Ndola, Zambia. The premise for this discount was that the consumers had to benefit from the massive investment that was made by Government in the existing infrastructure.

The Import Parity Pricing (IPP) mechanism aims at promoting maximum efficiency in the fuel supply chain while at the same time ensuring that the domestic fuel prices reflect cost trends of petroleum products on the international market. This enables consumers to pay fair prices for fuel, while allowing the refinery to generate sufficient income to operate viably. The IPP model reflects cost trends of petroleum products on the international market. These were converted from US Dollar into Kwacha using the average interbank commercial selling rates published monthly by the Bank of Zambia. The prices were reviewed on a monthly basis, based on the average international oil prices and the average interbank selling rate for the preceding month. Therefore, on a monthly basis the ERB monitored the international product prices and the exchange rate of the Kwacha to the US dollar.

Since inception the IPP had been reviewed three times, July 2005 and January 2006, while the third review was conducted in 2007 with the intention of engendering public confidence in the process and ensuring that the views and concerns of the various stakeholders were

taken into account. To this effect a public hearing was held in May 2007. Some issues of stakeholder concern were that the monthly fuel price adjustments were too frequent and had an adverse impact on cash flow planning; the use of the rail/ road mode in the IPP formula was unjustifiable given that the petroleum feedstock was transported through the pipeline; and the tax structure of petroleum products was too high. After considering all these factors, including the structural changes in the roles of the players in the petroleum industry, the ERB decided to change the pricing model to the cost-plus pricing methodology. Consequently, in December 2007, the ERB discontinued the IPP methodology for determining wholesale fuel prices.

In January 2008, the ERB reintroduced the Cost-Plus Pricing (CPP) Model. The CPP Model takes into account all costs associated with the purchase of the feedstock as shown in the table below:

**Table 2, Petroleum Wholesale Price Build Up<sup>24</sup>**

1	Cost of petroleum feedstock * (Cost-Insurance-Freight at Dar-es-salaam)	
2	Ocean loss	0.3%
3	Wharfage	1.25%
4	Handling fees	US\$0.20/mt
5	TIPER fees	US\$0.75/mt
6	Finance Charges	2.95%
7	Collateral Manager	US\$1/mt
8	TAZAMA Storage fee	US\$2/mt
9	Pumping fee	US\$39/mt
10	TAZAMA loss	0.85%
11	Crude Oil Import Duty	5%
12	Agency fee	US\$15/mt
13	Processing fee	US\$61.10/mt
14	Refinery loss	10%
15	Terminal loss on finished petroleum products	(0.30% & 0.50%)

\*This cost varies and is dependent on the price of crude oil on the international market.

The total cost is converted into Kwacha using a projected US dollar to Kwacha exchange rate. The rate is assumed to be the rate that will be in effect at the time that the buyer will need to purchase US dollars for making payments to suppliers and service providers during the life of the petroleum feedstock cargo.

The CPP Model therefore ensures that all costs incurred in the procurement of feedstock are recovered through sales of petroleum products.

<sup>24</sup> Energy Regulation Board website at [www.erb.org](http://www.erb.org)

Further, because price changes are on a cargo by cargo basis and at about two months intervals, this method of costing introduces price stability as opposed to the monthly reviews under the IPP.

#### **4.2.2.2 PIPELINE TRANSPORTATION**

The GRZ in conjunction with the Tanzanian government commenced the construction of the TAZAMA Pipeline in 1965. The pipeline was completed and commissioned in 1968.

The pipeline is jointly owned by the GRZ and the Government of Tanzania with a shareholding of 66 per cent and 33 per cent respectively.

The two governments negotiated between them a pipeline convention which amongst other things stipulated the pipeline's rights and privileges including matters such as taxes, way-leave acquisition and ownership and shareholding.

Petroleum products are imported mainly from the Gulf region and transported to Dar-es-Salaam by ship. The petroleum products are offloaded from the ship into the TAZAMA tank farm at Kigamboni in Dar-es-Salaam using offloading facilities at the Dar-es-Salaam harbour. These facilities are the Single Buoy Mooring (SBM) or the Kurasini Oil Jetty (KOJ). The SBM is connected to the tank farm through a 7km long and 36inch wide line which runs on the sea bed for most of its length. The SBM can handle cargoes up to 120,000 MT whilst the KOJ can only handle cargoes up to 40, 000 MT. Both the SBM and the KOJ are owned by the Tanzania Harbours Authority (THA). These facilities were built to service IPRL in Zambia and TIPER Refinery in Tanzania. Due to the closure of the TIPER Refinery, the two facilities now only service IPRL.

TAZAMA has a Tank Farm at Kigamboni in Dar-es-Salaam which consists of six tanks with a combined storage capacity of 228,000 MT. The pipeline is a 1, 704 kilometre facility, with seven pump stations along its length, running from the tank farm at Kigamboni in Dar-es-Salaam to the refinery at Ndola in Zambia. The pipeline has an installed capacity of 1.1 million tonnes of crude per year and can pump up to 160 m<sup>3</sup>/hour. However, due to the poor state of the pipeline, its current operational capacity has been estimated at an annual pumppover of about 800,000 MT. The pipeline terminates at the new tank farm in Ndola. This is a 40, 000 MT storage facility.<sup>25</sup>

The pipeline was originally designed to transport refined products namely petrol, diesel and kerosene from Kigamboni in Dar-es-Salaam to the storage terminal in Ndola (now known as Ndola Fuel Terminal (NFT)) which was at that time operated by the then Ndola Oil Storage Company (NOSCO). With the commissioning of IPRL in 1973, the pipeline was converted from a transporter of finished petroleum products to a transporter of petroleum feedstock.

#### **Pumping Fee**

The pumping fee paid to TAZAMA was kept uneconomically low. The pumping fee was maintain at US\$ 22 per tonne from 1968 until 1997 when it was revised to US\$ 23.5 per

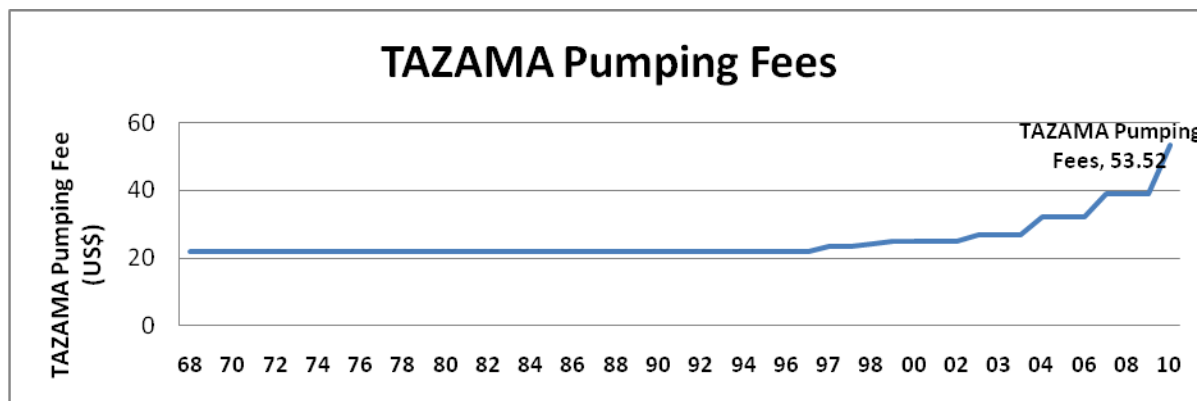
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<sup>25</sup> TPL



tonne. Since then the sector regulator has revised the pumping fee upwards on several occasions. The pumping fee currently stands at US\$ 53.52 per tonne. Movements in the pumping fees are given in the graph below.

**Figure 5 , TPL Pumping Fee<sup>26</sup>**



The pipeline is by far the cheapest and most convenient mode of transporting petroleum products.

#### **4.2.2.3 BULK STORAGE**

The Ndola Fuel Terminal (NFT) is the main bulk storage facility in the country.

The NFT is a bulk storage facility used to store distillates and spirits processed from the refinery for onward sale to the OMCs. The facility was operated firstly as the Ndola Oil Storage Company when it was commissioned in 1967. This then became the ZIMOIL Division of ZIMCO (ZIMCO was one of the holding company for SOEs in Zambia) in the mid 1980s before being formally taken over by Zambia National Oil Company (ZNOC) upon its formation in 1989.<sup>27</sup>

Following the liquidation of the ZNOC in 2002, the NFT was placed under the custody of PricewaterhouseCoopers Ltd (PwC), as the duly appointed liquidators of ZNOC. IPRL was responsible for the management and operation of the NFT at the time. However, in January 2007 Government appointed TAZAMA Pipelines Limited as the new managers taking over this function from IPRL.

In 2008, Government held a series of negotiations with the liquidator to conclude the liquidation process. Given the strategic importance of this asset to the Government, a significant part of these negotiations centred on the handover of the NFT to the Government as the preferred creditor. This would go to offsetting part of the liability owed to the Government by ZNOC (in liquidation). Significant progress has been made towards concluding this matter. In October 2008, a Memorandum of Understanding was signed between the Government and the liquidator clearly outlining the various steps to be taken before the asset could be handed back to the Government. The process was expected to be

<sup>26</sup> TPL

<sup>27</sup> Energy Sector Report, 2006, ERB,

finalized in 2009 after which the Government will undertake the necessary rehabilitation works. This process, to date, is not finalized.

**Figure 6.**<sup>28</sup> **Ndola Fuel Terminal Storage Capacity in m<sup>3</sup>**

**NDOLA FUEL TERMINAL STORAGE CAPACITY**

<b>PRODUCT / VOLUME</b>	<b>PREMIUM</b>	<b>KEROSENE</b>	<b>JET A-1</b>	<b>LSG</b>	<b>GASOIL</b>	<b>BITUMEN</b>	<b>TOTAL</b>
GROSS VOLUME	28,800	4,800	8,400	2,400	28,800	160	73,360
NET VOLUME	27,260	4,520	8,040	2,300	27,510	130	69,760
BOTTOMS	1,540	280	360	100	1,290	30	3,600

Other government petroleum storage facilities have a total capacity of 7.01 million litres.<sup>29</sup>

The Government has rehabilitated some of its disused storage facilities in the provinces and is still rehabilitating some more. These storage facilities will be used for the storage of strategic fuel reserves.

The Ndola Fuel Terminal has loading facilities for road tank vehicles and rail tank wagons. OMCs pick up their products from NFT.

The cost of managing NFT is covered by a Throughput Fee that is determined by the ERB. This ensures that the full costs of operating the terminal are met and reasonable recapitalisation is provided for.

The ERB has introduced a licence for Terminal Storage of Petroleum Products. So far one company has obtained this licence. This company has a total storage capacity of 8.4 million litres. Other facilities for the storage of petroleum products are owned by the OMCs. Total depot storage capacity owned by OMCs stands at 33, 805 million litres.

In 1993 some OMCs broached the idea to rationalise Lusaka depots. In their proposals they cited the following advantages for the joint depot operations:

- Full asset utilisation / optimisation,
- Operating costs sharing and cost reduction,
- Enhanced safety standards,
- Improved operational efficiency, and,
- Enhanced training opportunities for all involved.

<sup>28</sup> Indeni Petroleum Refinery Limited

<sup>29</sup> ERB

To make this idea operational, all participating OMCs would have had to draw up a Memorandum of Understanding (MOU) to govern their joint operations. The MOU would be subjected to review by both the Energy Regulation Board (ERB) and the Competition and Consumer Protection Commission.

Some OMCs talked to recently felt that, this was the way to go and that they would continue to pursue the option of depot rationalisation.

It was envisaged that this would result in cost reduction by participating OMCs and ultimately price reductions for the consumers.

### **4.2.3 DOWNSTREAM (Refining and Marketing)**

#### **4.2.3.1 REFINERY**

The Indeni Petroleum Refinery Limited (IPRL) was commissioned in 1973. The IPRL was jointly owned by the GRZ and ENI, an Italian company and a member of the AGIP Petroli group of companies, with a shareholding of 50 per cent each. The agreement between the two shareholders provided that ENI takes up the management of the refinery. In the late 1990s, ENI decided to exit a number of African countries including Zambia. In December 2001, Total Outre Mer (TOM) bought off ENI shares and also assumed the management of the refinery. In 2007, Total Outre Mer (TOM) pulled out of the refinery. Currently, the GRZ holds 100 per cent of the company's shares. Energy Minister Kenneth Konga says Cabinet will soon meet to determine the sale of shares in IPRL. He said that it is not the Government's intention to nationalise assets. The Minister further said that IPRL shares will be made available to the public soon.<sup>30</sup>

The refinery has an installed capacity of 1.1million tonnes of feedstock per year. This exactly matches the installed capacity of the pipeline. However, due to the poor state of the refinery, its current operational capacity is now estimated at an annual throughput of 800,000 MT. The Indeni Petroleum Refinery Limited (IPRL) was configured as a simple hydro skimming refinery. Under this configuration the refinery is unable to process pure crude oil to yield the desired product mix of refined products to meet market demand. The current configuration would yield too much residue (black) products (Fuel Oils &Bitumen) and too little white products (petrol, diesel & kerosene), if it processed pure crude oil. IPRL processes spiked crude.<sup>31</sup> The actual percentage composition of each constituent part depends on the desired output of finished petroleum products needed to meet the national demand. Due to the changes in the country's consumption patterns, the pure crude oil component has dropped from about 75 per cent in the 1970s to almost 0 per cent in 2010.

Crude oil is the cheapest of all the constituent parts of the spiked crude. A cargo of pure crude oil would therefore be significantly cheaper than a spiked crude cargo of similar quantity. The processing of the more expensive spiked crude therefore means that the end

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<sup>30</sup> Zambia National Broadcasting Corporation (ZNBC) website, [www.znbc.co.zm](http://www.znbc.co.zm), 23/11/2010,

<sup>31</sup> Spiked crude is pure crude oil spiked (blended) with finished products and typically consist of crude oil, gasoil, kerosene/Jet A1, naphtha and condensate.

product will also be more expensive than it would have been had the refinery been able to process the cheaper pure crude.

IPRL was designed to operate at a processing loss level of 7 per cent. This high level of "acceptable losses" is due to the simple configuration of the refinery. In recent years operational losses have risen to about 10 per cent. It's noteworthy to mention that some complex refineries are known to operate at loss levels as low as 0.2 per cent.

The current configuration of the refinery also gives rise to product quality issues. The refinery is unable to economically produce unleaded petrol with the regionally accepted octane number rating of at least 93. The refinery is producing lead replacement petrol (LRP) with an octane number rating of up to 91. The refinery is also unable to produce low sulphur diesel (LSD). The refinery is able to produce diesel with sulphur content of between 0.35 per cent to 0.5 per cent while most countries in the region are using diesel with sulphur content of 0.02 per cent and below.

Some commercial consumers are already demanding for LSD. This is because some of the new machines are now designed to run on cleaner fuels. Some local service stations are already selling LSD legally imported into the country. Both the imported LSD and the diesel from Indeni Refinery are being sold at the same price. In such a scenario product quality is what will influence the consumers' choice. In the long run, this will adversely affect Indeni Refinery's ability to compete with imported products.

South Africa has recently become a net importer of refined petroleum products due to the fact that demand has outstripped refinery capacity. In view of the regional petroleum products deficit, IPRL remains an important source of refined petroleum products for Zambia as it offers an alternative reliable means of bringing into the country the whole range of petroleum products at once.<sup>32</sup>

There have been regional efforts to harmonise fuel specifications in the SADC region. Member nations have expressed concern over Zambia's commitment to attain the prescribed fuel specifications.

An unplanned shut down of Indeni Petroleum Refinery Limited in 2005, prompted the President to constitute a committee to come up with solutions for the sustainable operations of the refinery. The committee instituted an independent forensic audit which was carried out in 2006. The audit covered technical operations, financial management and legal issues. Following its completion, the cabinet committee made two key recommendations:

- a) Urgent recapitalization of the refinery for rehabilitation,
- b) Revision of the refinery shareholding structure so as to invite a third equity partner.

It was estimated that a total of US\$65m was required for the recapitalisation of the refinery.<sup>33</sup> IPRL risks becoming obsolete in the next few years, unless remedial action is taken to cut down on the production losses and address the product quality issues.

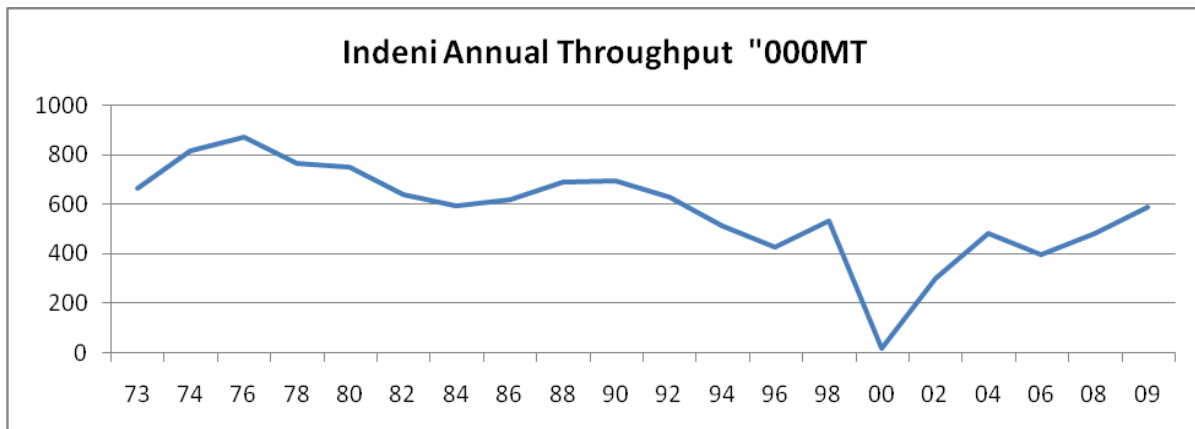
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<sup>32</sup> Institutional Framework and Storage and Transportation of the Zambian Petroleum Supply Chain, MEWD,

<sup>33</sup> Energy Sector Report, 2007, ERB.

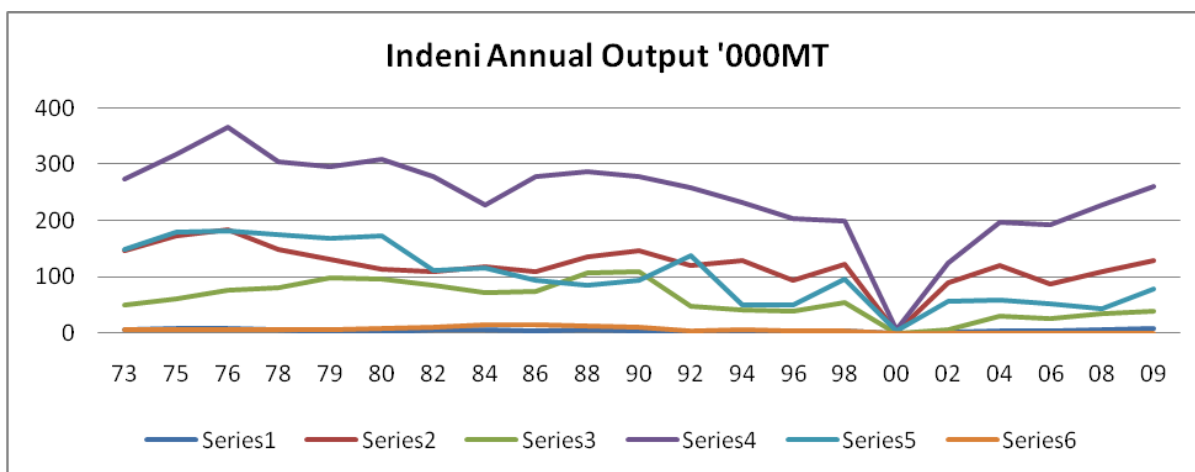
The refinery annual throughput has varied from a high of 870,000MT in 1976 at the height economic activities in the country due to increased mining activities, to a low of 16,848MT in 2000 during the refinery closure arising from the fire in 1999 (see Figure 7).

**Figure 7 , Indeni Annual Throughput<sup>34</sup>**



The refinery’s output is based on the composition of the feedstock which is designed to give a yield pattern that would satisfy the country’s requirement of finished products. The composition of the feedstock has been changing over time. The component of crude in the feedstock has been dropping, due to the dropping demand for fuel oils as furnace oils by the mines who are now using increasing amounts of diesel for their operations. Bitumen production has also been insignificant. LPG production, as low as it seems, exceeds national consumption. Most of it is flared for lack of a market. Indeni Petroleum Refinery Limited’s annual output is given below;

**Figure 8 , INDENI Annual Output<sup>35</sup>**



<sup>34</sup> INDENI Petroleum Refinery Company Limited

<sup>35</sup> INDENI Petroleum Refinery Company Limited

## **Processing Fees**

As was the case for TAZAMA Pipeline Limited, the processing fees paid to IPRL were kept uneconomically low. The performance contract between IPRL and ZNOC put it at US\$ 25 per tonne. This remained so until 2002 when the ERB revised the fees upwards to US\$ 28 per tonne. The refining fee now stands at US\$ 61.1/MT.

### **4.2.3.2 ROAD AND RAIL TANK TRANSPORTATION**

#### **4.2.3.2.1 ROAD TRANSPORTATION**

Most processed petroleum products are uplifted and transported from the Ndola Fuel Terminal (NFT) to the OMC depots by Road Tankers. Some of the OMCs own tanker fleets. However, very few OMC have enough tankers to meet all their transportation needs. Most of the OMCs, especially the bigger ones, depend on private transporters to complement their own tanker fleet. This mode of transport also plays an important role when importing products into the country.

The formula for determining the pump price provides for a transporter margin. The transporter margin is regulated and is set by the ERB. These were revised in May 2010. The ERB has determined transporter margins for each of the 54 zones in the country. In Zambia, 109 companies are licensed to transport petroleum products.<sup>36</sup>

#### **4.2.3.2.2 RAIL TANK TRANSPORTATION**

Rail Tank Transportation is mainly used for the transportation of imported finished products into the country. There are three railways in Zambia, namely Tanzania-Zambia Railway (TAZARA), Railway System of Zambia (RSZ) and Chipata/Mchingi Railway.

TAZARA is a railway jointly owned by the governments of Zambia and Tanzania. The railway line stretches from Dar-es-salaam in Tanzania to Kapiri-Mposhi in Zambia. It links Zambia to its neighbours in the north. RSZ is one of the privatised companies. It has a network that runs from Kitwe to Livingstone and links Zambia to its neighbours in the south. Both TAZARA and RSZ are facing challenges which include inadequate wagons, and the poor state of the railway lines. This has resulted into a number of derailments. These railways require considerable recapitalisation if they are to be seen to be reliable modes of transporting petroleum products. The Governments of Zambia and Tanzania recently sourced US\$ 40 million to improve the operations of TAZARA<sup>37</sup>.

The Chipata/Mchingi Railway was commissioned on 27 August 2010. It is a 24km railway line which connects Zambia to its neighbours in the east. There is talk of the construction of a railway to connect Zambia from the Copperbelt to Angola in the northwest.

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<sup>36</sup> Source: ERB,

<sup>37</sup> This was announced by His Excellency Mr. Ruphia Bwezani Banda, President of the Republic of Zambia on Friday 17 September, 2010, during his speech for the official opening of the fifth session of the Tenth National Assembly.

Although the rail mode is relatively less expensive than the road mode, the capacity of the rail network to move large volumes of products is limited. There are not enough rail tankers to move the required volumes of products. The turn-around times of locomotives is also relatively longer than that of road tankers. Most of the petroleum products are thus transported by road in times when the refinery mode is non-operational.

#### **4.2.3.3 DISTRIBUTION**

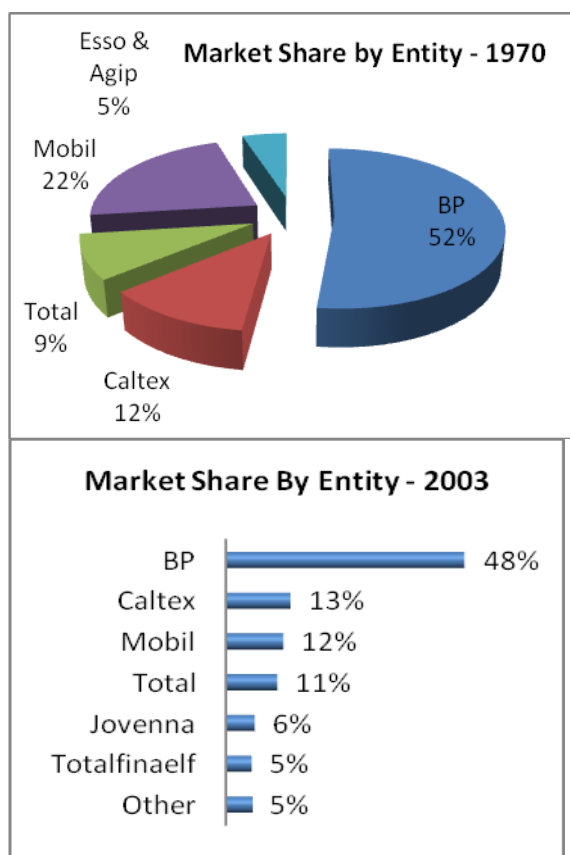
The distribution of refined products is carried out by over thirty-two (32) Oil Marketing Companies. These are now all privately owned. Most of them own several storage depots and service stations and supply in bulk to commercial customers. The Oil Marketing Companies buy Petroleum Products at wholesale prices from the importer of the feed stock. The wholesale price is regulated by the Energy Regulation Board.

In 1968, the GRZ embarked on major economic reforms that resulted in the nationalization of a number of private enterprises. In the petroleum distribution business, there were six international OMCs registered in Zambia at the time. These were BP, Caltex, Esso, Mobil, Shell and Total. BP and Shell, although separate companies, operated jointly in Zambia as Shell-BP. In 1970, Agip, a subsidiary of ENI, also entered the Zambian petroleum distribution industry. In the same year, the Government negotiated with Shell-BP for the Government takeover of the majority (51 per cent) shareholding in Shell-BP in line with the Government's economic reforms. Later, the Government and Agip agreed on 50:50 shareholding in Agip Zambia. Following state acquisition of 51 per cent and 50 per cent shareholding in Shell-BP and Agip respectively, the Government directed that all Government and SOE's oil and fuel purchases be conducted through the two OMCs. This directive had significant impact on the structure of the market share in the petroleum distribution by conferring market dominance to the two players. The effects of this directive are still evident today.

Shell was the first company to exit the Zambian market when the company pulled out of Shell-BP. The remaining company was renamed BP Zambia Limited and later BP Zambia Plc. It is important to note that the market dominance of BP emerged as a result of two factors. These were the pulling out of the joint operating partner (Shell) and Government policy to award Government fuel purchases to the state owned OMC.

As a result of the liberalization of the petroleum retail business in 2001, a number of new OMCs have been entering the Zambian market. The new companies are diverse in size. The first OMCs to enter were Engen, Jovenna and Ody's. In the early 2000s, the Agip group decided to exit a number of African downstream markets including Zambia. The assets of Agip Zambia were acquired by the Total Group.

**Figure 9 , Petroleum Market Share by Entity, 1970 & 2003<sup>38</sup>.**



In 2004, Jovenna exited the industry and its assets were acquired by Kobil. In 2006, Mobil exited fourteen African markets including Zambia. The Total Group acquired Mobil assets in Zambia.

From 1970 to the time of liberalization in 2001, Total’s market share had increased only marginally from 9 per cent to 12 per cent. Following the acquisition of Agip assets in 2001, Total’s market share (Total & Total Fina Elf) increased to over 15 per cent in 2003. With the acquisition of Mobil assets, Total’s market share increased to over 27 per cent. This acquisition did not only significantly increase Total’s market power, but also removed a significant player that accounted for 13 per cent of market share, thereby reducing the scope of competition in the industry.

Even though, the number of OMCs in the Zambian petroleum distribution industry has tremendously increased from the time of the introduction of liberalization, the market share has not been significantly diluted, and is still concentrated among the top three OMCs, namely BP (Z) Plc, Chevron(Caltex) (Z) Ltd and Total (Z) Ltd.

<sup>38</sup> Zambia Daily Mail, 18 March 1970 and ERB,



The first market of the petroleum value chain is the wholesale of refined petroleum products and consists of one supplier (feedstock importer) and several buyers (OMCs), a monopoly market. This market is intermediary in nature since OMCs resale the petroleum products to commercial customers and dealers (the second market). Within the first market, the LPG and Bitumen segments are characterized by one supplier (the feedstock importer) and one major buyer Afrox (Z) Limited and Colas (Z) Limited for LPG and bitumen respectively. Both segments are dual monopoly markets. These segments have unique features and will be discussed separately.

The second market has two segments, the OMCs as suppliers and commercial customers and dealers as buyers. The first segment is a final market as commercial customers purchase the petroleum products for their own consumption. The second segment is an intermediary market since dealers resell the petroleum products. OMCs are vertically integrated in the distribution and retail businesses. The second market is characterized by several suppliers (OMCs) characterized by dominance and many buyers (commercial customers and dealers), an oligopoly market.

The third market consists of dealers as suppliers to retail customers. This market is final in nature as retail customers purchase the petroleum products for final consumption. The market is characterized by many suppliers and many buyers, potentially a competitive market.

Due to the essential nature of petroleum products, they tend to have very low price elasticity. That is, total demand for petroleum products is not very responsive to changes in prices. Consumers such as mining companies, industries, truckers and motorists in general cannot significantly reduce their demand for fuel in the short-run as prices rise. This was demonstrated during the sharp oil price increases in the late 2000s. The price of crude oil, increased from about US\$ 35/bbl to above US\$ 150/bbl but total world consumption for petroleum products did not significantly fall. In the long-run, total world demand for petroleum products has been increasing amidst price increases. However, global economic recession drove energy consumption lower by 1.1 per cent in 2009, the first decline since 1982. Consumption seems to be more responsive to economic performance than price.

Petroleum products in a market like Zambia can generally be classified as homogenous. Petroleum products sold by one vendor cannot be viewed as of better quality than those sold by another. Most petroleum products sold on the market are from one refinery and cannot be differentiated on account of quality. It is therefore unlikely for the suppliers of petroleum products to compete on the basis of product differentiation. Further, the ERB in conjunction with the Zambia Bureau of Standards (ZABS) has set standards to which specific petroleum products must adhere. This also limits product differentiation and makes petroleum products sold on the market homogenous. We have however recently seen service station advertise clean diesel, a quality of diesel that IPRL is unable to produce. If the imports of these cleaner fuels become significant, we are likely to see the introduction of product differentiation.

Another characteristic of petroleum products is its high flammability. This makes the products to be classified as hazardous. Consequently, the handling and vending of petroleum products usually require adherence to stipulated health, safety and environmental regulations. These are laid down by various authorities such as municipalities, factory inspectorates, and regulatory agencies.

#### **4.2.3.4 SIZE OF THE ZAMBIAN PETROLEUM MARKET**

Total consumption of petroleum products has been increasing annually due to increase in economic activity, especially the revival of the mining industry. In 2009, national demand for petroleum products stood at 855,039 metric tonnes. Consumption figures for the 2008, 2007 and 2006 were 797, 993MT, 704, 171MT and 629,671MT respectively. This represents an increase in consumption of 36 per cent in the last three years.

Total demand for petroleum products in Zambia is significantly low compared to neighbouring countries. From the late 1990s to the mid 2000s, national demand for petroleum products has been ranging from 400,000 to 500,000 metric tonnes per annum. This compared to about 1,600,000 metric tonnes for Tanzania, 2,000,000 tonnes for Zimbabwe and more than 15,000,000 tonnes for South Africa during the same period. This makes the Zambian petroleum market relatively small in comparison to other countries in Southern Africa.

The market share of the Zambian petroleum market by OMC is given in figure 11.

#### **4.2.3.5 MARKET SEGMENTATION**

The commercial segment of the second market consists of relatively large volume consumers such as mining companies, industries, trucking and bus companies and utility companies. The consumers in this segment of the market usually issue out tenders for supply of fuel.

OMCs bid for these tenders, and in the process offer favourable terms, relating to price, credit periods, fuel management and other terms in order to win the tenders. This is a form of competition for the market. Once a tender is awarded, the OMC and the consumer enter into a contract of supply. For commercial consumers that do not issue tenders for supply of fuel, OMCs actively seek such customers to enter into contract. In the process, OMCs tend to offer favourable terms that would convince the clients to enter into contracts of supply.

It has been observed that petroleum prices for the commercial segment are usually lower than those obtaining in the retail segment. The competition issue is whether OMCs make up for margins foregone in the commercial business, due to competition in that segment, by charging higher margins in the retail segment. There is also a debate as to whether OMCs should be allowed to charge for cost of finance on retail pump prices when this business is usually cash or cheque-on-delivery.

There are two main competition issues in the second market. The first is to do with whether OMCs practice price discrimination in segmented markets. The second is related to OMCs' vertical integration between the distribution and retail businesses and its impact on competition.

#### **4.2.3.6 BITUMEN**

A major concern was raised concerning the lack of supervision of bitumen (brief case) traders from South Africa by the sector regulator. These traders are not licensed and therefore do not have any obligations to meet in this country. They do not have the need to invest as a registered entity does. They do not make follow up clean ups at road constructions sites, something that a registered company would be obligated to do by the Environmental Council of Zambia (ECZ). Also, no one is checking on the quality of product that they are bringing into the country. The playing field is therefore not level. This has resulted in unfair competition from unlicensed foreign dealers.

Industry players estimate that these foreign traders have captured about 60 per cent of the market. It was also stated that the sector regulator, the ERB is aware of this problem, but has done nothing to address the problem.

Currently, Indeni Petroleum Refinery is not producing bitumen; it is therefore wholly imported from South Africa.

#### **4.2.3.7 LPG**

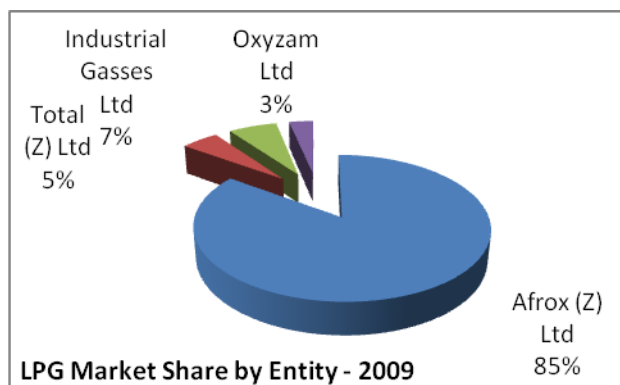
Players in the LPG market include Afrox Zambia Limited, Oxyzam Limited, Industrial Gases Limited and Total Zambia. The GRZ still has 30 per cent shares in Afrox Zambia Limited.

The LPG market in Zambia, as is the case in most parts of Africa is still very small. Industry players say that due to the size of the market, it is not possible to sustain a business only on LPG. They therefore engage in other business lines, some form of horizontal integration. Total consumption of LPG in 2009 was about 2, 377 tonnes against production of 9,249 tonnes. Historically, Indeni Petroleum Refinery has produced more LPG than the market can absorb and has had to flare most of it. The slow growth in the LPG market has been attributed to;

- Electricity being cheaper than LPG,
- The Zambian population is still unaware of LPG as an alternative energy source for domestic use, and
- There is a myth surrounding the safety of the use of LPG which needs to be dispelled to encourage domestic use of the gas.

Government has in the past tried some pilot projects in LPG use for domestic purposes. These projects have however not resulted in continued use of LPG beyond the project life. LPG consumption per entity is given below.

**Figure 10 LPG Market Share by Entity**



LPG consists mostly of propane and butane. Some players have complained that sometimes, the refinery produces only butane. The refinery’s inconsistencies in producing LPG, makes it difficult for the industry players to meet their contractual obligations to their customers. This has forced some of them to import about 50 per cent of their LPG requirements from South Africa.

Butane on its own is not user friendly. Because of Zambia’s altitude, butane does not easily escape from the Cylinders. Only about 20 per cent can easily be extracted from the cylinder. Users resort to heating the cylinders to increase the flow of the gas from the cylinders. A further concern voiced by some LPG resellers is that other sellers are supplying the cheaper butane labelled as the high priced and more efficient LPG. Such practices, or even the widespread belief that they are occurring, undermines consumer confidence and market development.

LPG and/or butane produced at the refinery are being export to Tanzania, Kenya, Zimbabwe and Malawi.

#### **4.2.3.8 EXPORTS**

Some OMCs have been exporting refined products. They have faced some challenges in growing this market. In particular, the Zambia Revenue Authority (ZRA) duty draw back system has made the financing costs and the risks associated with exports prohibitively high. Under this tax system, ZRA requires the exporting OMC to pay customs duty and reclaim it only after presenting acquittal certificates to the authority. It was pointed out that the refund system takes too long and is not well defined and predictable and so adversely affects cash flows. It was further pointed out that there is the risk of one losing their money all together.

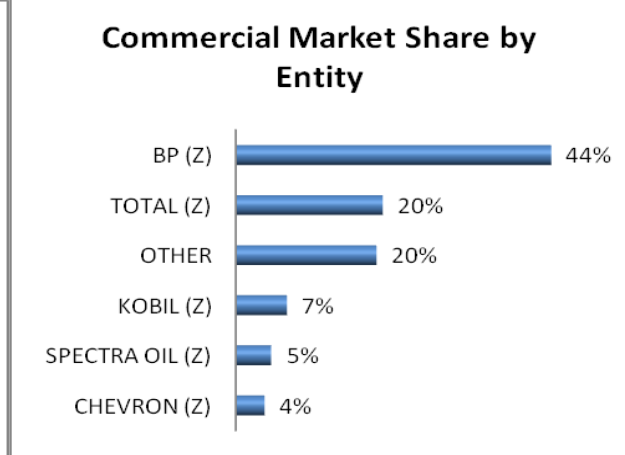
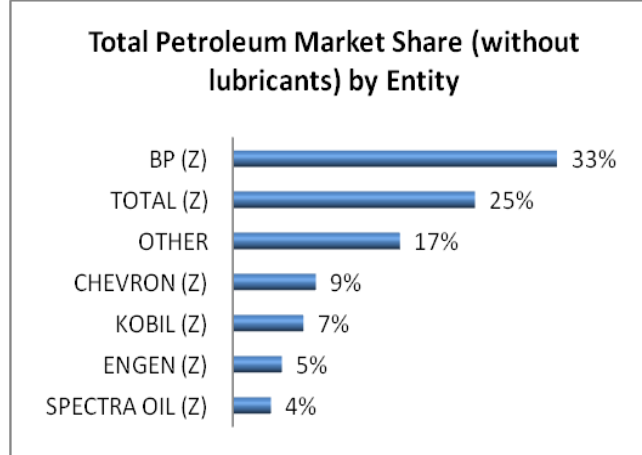
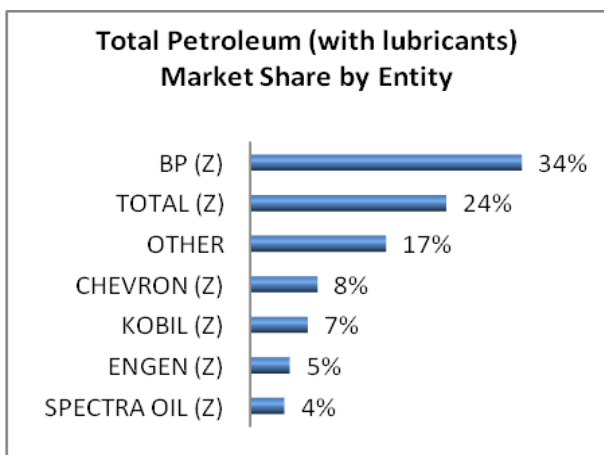
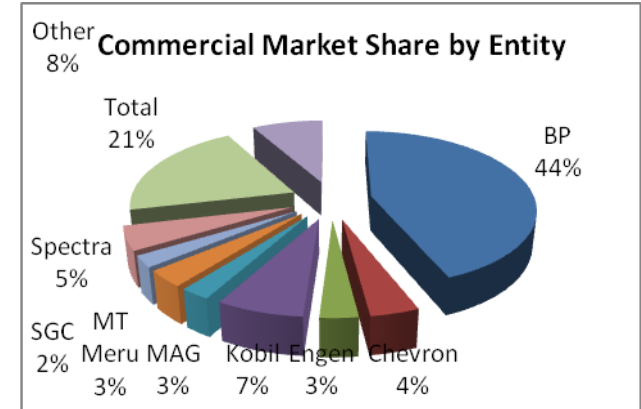
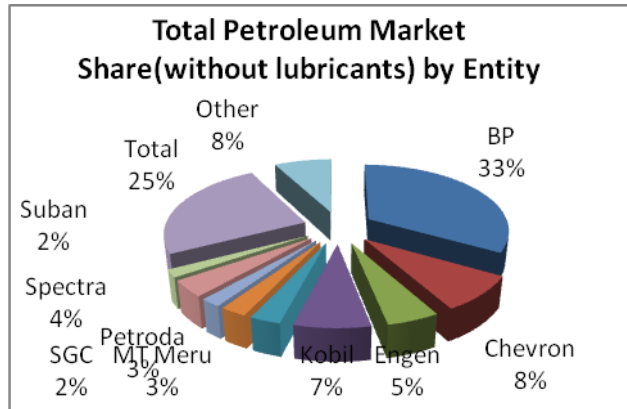
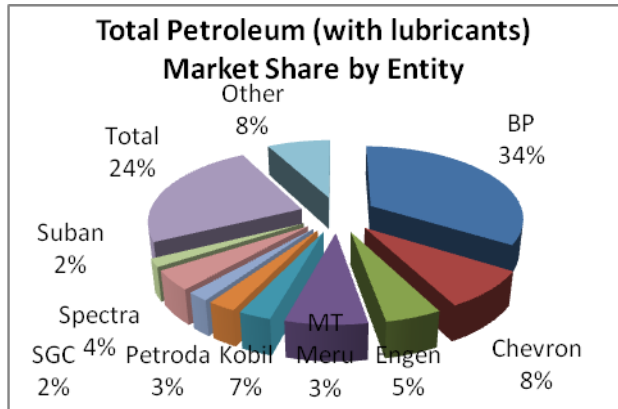
The export market, particularly the Democratic Republic of Congo (DRC) is mainly serviced by companies from South Africa and Tanzania using Zambia as a transit route. Zambia is therefore losing out on the benefits that would arise from economies of scale and reduction in the industries average costs that would result from an expanded market. Below are the export figures for 2007.

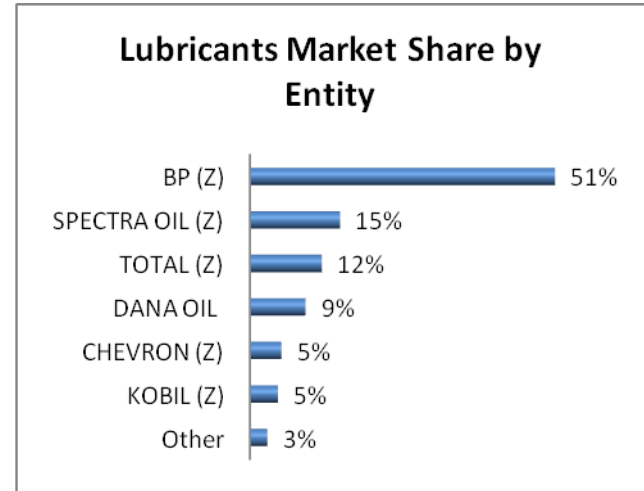
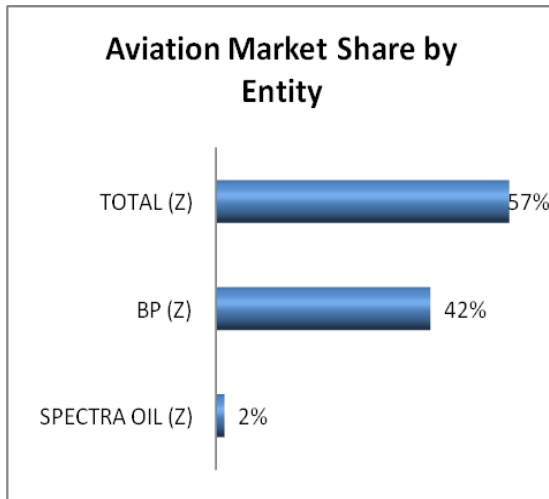
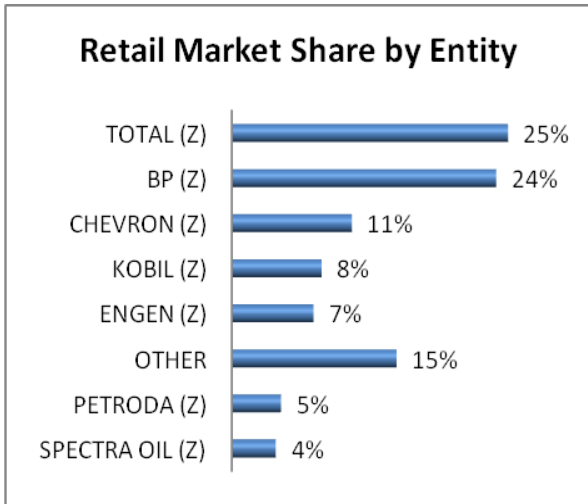
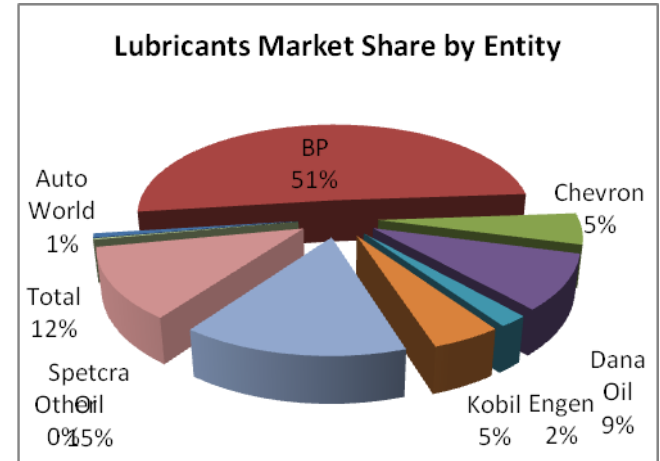
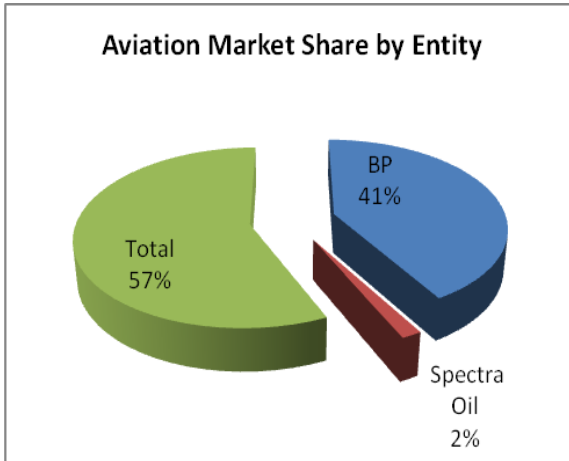
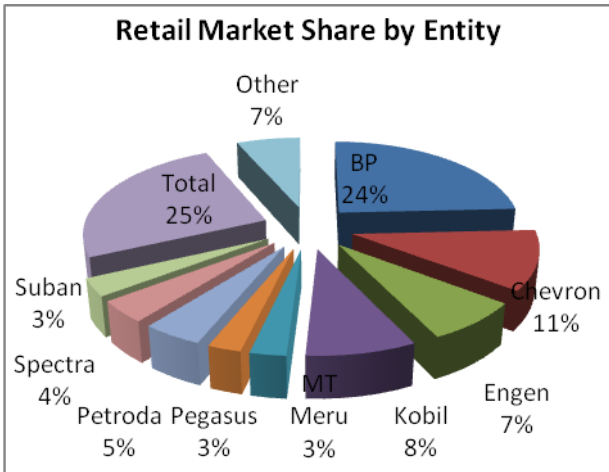
**Table 3. 2007 Petroleum Exports by Product & Country of Destination**

<b>2007 Petroleum Export BY Products &amp; Country of Destination (Tonnes).</b>								
<b>No.</b>	<b>COUNTRY</b>	<b>PETROL</b>	<b>DIESEL</b>	<b>JET A1</b>	<b>HFO</b>	<b>LFO</b>	<b>LPG</b>	<b>BITUMEN</b>
1	KENYA	-	-	-	-	-	1,072	-
2	SOUTH AFRICA	-	-	-	2	-	-	-
3	TANZANIA	-	-	-	-	-	675	-
4	UNITED KINGDOM	-	-	-	-	0.03	-	-
5	DRC	19,552	24,852	6,023	6,511	61	123	6
6	ZIMBABWE	218	-	-	-	-	206	-
7	OTHERS	-	-	-	409	-	153	-
	<b>TOTAL</b>	<b>19,770</b>	<b>24,852</b>	<b>6,023</b>	<b>6,922</b>	<b>61</b>	<b>2,229</b>	<b>6</b>

39

**Figure 11 , 2009 Market Share by Entity (ERB).**





Many Multinational Oil Marketing Companies have or are in the process of pulling out of Africa. BP Africa is selling its shareholding in six countries in Africa. These include Tanzania, Malawi, Botswana, Namibia, Zambia and Zimbabwe. In this region BP will only remain with its infrastructure in Mozambique and the refinery in South Africa<sup>40</sup>.

BP Zambia shares have been sold to PUMA Energy Holdings Limited of Ireland (Puma Energy). This comes after BP Africa sold its African stake to Puma Energy for US\$ 296 million. The sold African stake includes 75 per cent of BP Zambia.<sup>41</sup> As at 26 November 2010, the CCPC had not received an application for authorization of the transaction.

South African petroleum group Engen is in the process of taking over Chevron's fuel distribution interests in seven countries in Africa. These are Zambia, Malawi, Tanzania, Mauritius, Zimbabwe, Réunion and Mozambique. The Chevron Group stressed that the transaction did not affect its operations in South Africa, Botswana, Namibia and Swaziland.<sup>42</sup>

In Zambia, the purchasing agreements have been signed and the CCPC has granted Unconditional authorization for the acquisition of 100 per cent shareholding of Chevron Zambia Limited (CALTEX) by Engen International Holdings (Mauritius) Limited. This was resolved during the Commission's Extraordinary Board of Commissioners meeting held at the Commissions offices on 12 November 2010.<sup>43</sup>

One petroleum expert commented as follows, *"Some Oil Majors have embarked on a disengagement processing, thereby making room for regional and national companies which are gradually gaining momentum. This disengagement is due to specific pressures exerted on them worldwide and which adversely affect their corporate image. One of the pressures is exerted by shareholders who increasingly demand higher profits"*<sup>44</sup>.

#### **4.2.3.9 RETAIL**

There are over two hundred (200) service stations throughout the country with most of them situated in the major cities of the country and along the line of rail. The distribution of service stations in Zambia remains centred along the line of rail and in the provincial headquarters, leaving most outlying districts around the country without fuel facilities. The ERB in 2008 established that there were 17 fuel deficit areas with potential for development. The number of operational service stations in the country stands at 233 as at October 2010. This portrays an increment of only 10 per cent from 207 in 2006 despite the combined growth of 36 per cent in demand for petrol, diesel and kerosene. As new sites have opened up in the cities, some of the older ones have closed down, especially in the far flung districts. This has resulted in most motorists in these deficit areas having to rely on illegal fuel vendors for their fuel supplies.

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<sup>40</sup> BP Zambia Limited,

<sup>41</sup> Zambia National Broadcasting Corporation (ZNBC) website, [www.znbc.co.zm](http://www.znbc.co.zm), 23/11/2010

<sup>42</sup> The Post News Paper, Tuesday September 7, 2010,

<sup>43</sup> CCPC Press Release, 12<sup>th</sup> November 2010.

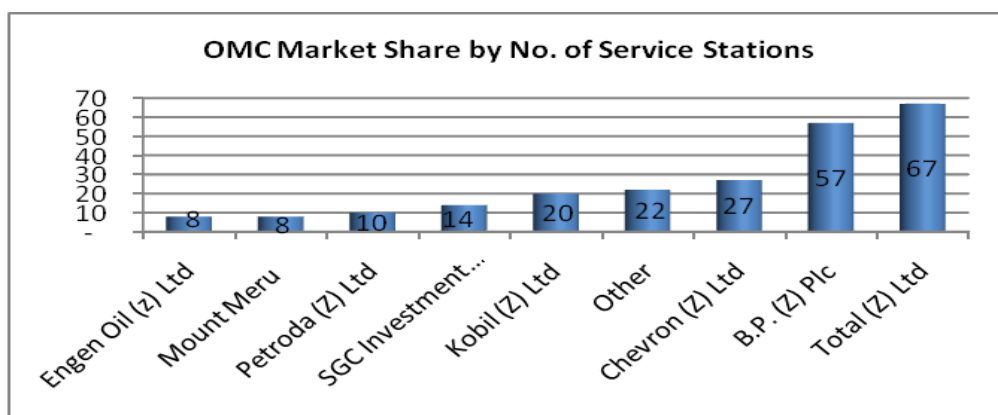
<sup>44</sup> Africa Refinery Association (ARA), Newsletter, No. 1,



The main challenges contributing to this poor distribution of service stations around the country is the threat of cheaper fuel and competition from illegal fuel vendors, especially in districts bordering neighbouring countries.<sup>45</sup>

The vast majority of service stations are Company Owned and Dealer Operated (CODO). A few service stations are Company Owned and Company Operated (COCO) and even fewer service stations are Dealer Owned and Dealer Operated (DODO).

**Figure 12 OMC Market Share by number of service station**



The formula for determining the pump price provides for a Dealers Margin. The dealers margin is regulated and is set by the ERB. The dealer margin was revised in May 2010. In practice however, the OMC determines the margin given to the dealer and sets the pump prices for the service station. Thus a dealer leasing an OMC site cannot unilaterally decide to charge a margin that is higher or lower than that determined by the OMC.

<sup>45</sup> Energy Sector Report, 2008, ERB.

**Table 4 Pump Price, Price Build Up**

WHOLESALE PRICE TO OMC		a
Ndola Fuel Terminal Fee	\$5/m <sup>3</sup>	b
Excise Duty	0 - 36%	c
Ex Refinery Gate	K/m <sup>3</sup>	$d=(a+b+c)$
*Transport Margin	ZMK/litre	e
*Transport Claim/Charge	ZMK/litre	f
TOTAL (Excl VAT)	K/m <sup>3</sup>	$g=(d+e+f)$
OMC Margin	ZMK397/litre	h
15 Days Holding Cost Line	ZMK65/litre	i
Dealer Margin	ZMK263/litre	j
Price to Dealer	K/m <sup>3</sup>	$k=(g+h+i+j)$
ERB Fees	0.70%	m
Strategic Reserves Fund	ZMK/litre	n
Price before VAT	K/m <sup>3</sup>	$P=(k+m+n)$
VAT	16.0%	q
Uniform Pump Price	ZMK/litre	$r=(p+q)$

\*Transporter Margins and Transport Claim/Charges have been computed for all the zones in the country and are different for each of the 54 geographical areas.

In June 2001 the Government issued a policy statement to liberalise pump prices. This meant the discontinuation of the Price Cap Pricing Mechanism. The liberalisation of the pump price came with it amendments to the distribution, importation and retail of petroleum products licences. These amendments included the introduction of two additional conditions requiring the licensees to display their pump prices at all service station and maintain a minimum quantity of petroleum products in their depots to cover at least 15 days of

consumption. This licence condition was promulgated by the issuance of SI No. 90 of 2005; The Energy Regulation (Minimum Petroleum Products Stocks) Regulation, 2005.

The pump prices were liberalized with the Energy Regulation Board still required to set indicative prices and play an ex-post monitoring role so as to ensure that the price build ups were just and fair.

On 11 May 2010, the ERB wrote to all OMCs informing them of the variation of the wholesale price of petroleum products. This letter stated: “You are advised that these prices are cap prices (maximum). Therefore, OMCs are not to charge any higher than the advised prices”.<sup>46</sup> This was in effect a reversion to the Price Cap Pricing Mechanism.

#### **4.2.3.10 PRICING BEHAVIOUR OF OMCs**

With a capped pump prices, OMCs compete by charging lesser prices. Smaller OMCs tend to offer lower prices than their big brothers.

A price survey was conducted in Ndola, Kitwe and Lusaka. The major findings of the survey were as follows:

- There exist geographical markets within these cities. Different parts of the cities have different prices. These markets are based on geographic substitution possibilities available to the consumer with regard to the economic good concerned and are defined by distance and/or accessibility for motorists.
- Price retaliation is been practiced in these markets. Other than BP and Kobil which maintains the same price at all its service stations, regardless of the competition, the other big OMCs tend to respond to the lower prices offered by smaller OMCs close to their service stations. In Ndola for example, Total (Z) Ltd’s pump prices were K6, 786 and K7, 461 for diesel and petrol respectively, for all service stations except the one along Kabelenga Road which was selling diesel and petrol at K6, 746 and K7, 416. This one services station is situated opposite an SGC Ltd service station which was selling diesel and petrol at K6, 750 and K7, 420. Observe that on both products Total priced their products a few kwachas below SGC. Similar pricing behavior was observed in Lusaka at a Chevron service station, which is situated opposite a Petroda service station. Along Mumbwa road in Lusaka Total and Engen service stations had responded to the low prices been offered by Mount Meru and Petroda, making Mumbwa road the cheapest regional market in Lusaka. So if you are looking for cheap fuel in Lusaka try driving along Mumbwa road.

Most of the big OMCs talked to admitted that pump prices would be higher if they were not capped. This they said was because of low margins. Others said that prices would be much higher along very busy streets and lower in less congested streets.

His Excellency Mr. Ruphia Bwezani Banda, President of the Republic of Zambia on Friday 17 September 2010, during his speech for the official opening of the fifth session of the Tenth

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<sup>46</sup>ERB correspondence to OMC dated 11 May 2010.

National Assembly announced the introduction of a Uniform Petroleum Pricing (UPP) Mechanism to ensure fuel prices across the country are the same. On Saturday 18 September 2010, the ERB announced the commencement of the implementation the UPP mechanism and the new countrywide prices that were to take effect midnight the same day.

The implementation of the UPP mechanism implies that the maximum prices for petrol, diesel & kerosene prevailing at all retail sites throughout the country shall be the same. This is in line with the Government policy to cushion the rural and outlying areas against high fuel prices. Previously, the difference between the costs of petroleum products across the country was because of the incremental transportation costs with the farthest town from Ndola having the highest cost.

The main features of the UPP mechanism are summarised below:<sup>47</sup>

### **Rural Fuel Subsidy Fund (RFSF)**

- The Ministry of Energy and Water Development (MEWD) has established the Rural Fuel Subsidy Fund (RFSF), to be administered by the ERB, to facilitate the cross-subsidization of “rural” consumers by “urban” consumers.
- The RFSF is expected to be self-financing through receipt of remittances from OMCs and independent dealers for surplus transport differentials in the distribution of petroleum products.

### **Transport Cost Differentials**

- The UPP is premised on transport cost differentials for the affected petroleum products, by geographical area.
- Based on the transport cost differentials for the various geographical areas:
  - Some Oil Marketing Companies or independent dealers are required to remit the transport cost differentials to the ERB.
  - In other cases, the OMCs or independent dealers shall be reimbursed from the fund.
- The transport cost differentials will be revised from time to time. The revision will be triggered by the following factors:
  - Wholesale fuel Prices revisions.
  - Changing fuel consumption patterns in the country.
  - Changes in the other cost elements in the price build ups such as:
    - OMC, dealer and transporter margins.
    - Strategic Fuel Reserves Fund cost line.
    - Taxes, i.e. excise duty and Value Added Tax.

### **Re-imburement Mechanism**

- OMCs and independent dealers should remit surplus transport cost differentials to the ERB by the 21<sup>st</sup> day of the following month.
- MEWD contracted Ashfield Resources (Z) Limited (the UPP Manager) as the Uniform Petroleum Pricing Manager, to facilitate implementation of the UPP.
- The main function of the UPP Manager is to receive and verify claims from OMCs for onward submission to MEWD.

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<sup>47</sup> ERB Presentation to Transporters,

- OMCs should submit their claims to the UPP Manager on the 15<sup>th</sup> and 30<sup>th</sup> (or last day of the month) of every month.
- The payment process will take 21 days from the date of submission, broken down as follows:
  - Maximum of 7 days with the UPP Manager who shall forward it to the Department of Energy (DOE) for further verification.
  - Another 7 days at the DOE; after which a directive is given to the ERB for payment.
  - The ERB should pay within 7 days.

During a meeting held at the Department of Energy (DOE) on 1 October 2010, on the implementation of the Uniform Petroleum Pricing (UPP) Mechanism, between MEWD and the OMCs, it was resolved as follows:<sup>48</sup>

- I. The Uniform Petroleum Pricing is a cap and not a fixed price.
- II. Commercial sales are not part of the current UPP mechanism.
- III. Independent dealers will claim and remit funds directly to the ERB. In mitigating against possible working capital challenges these entities might face, the ERB will advance these dealers their claims and follow up with verification later.
- IV. Claims and remittances shall be dealt with separately. This means that claims and remittances shall not be netted of on one consolidated return, but shall instead be handled using two separate returns.
- V. Dealers in rural areas shall be compensated immediately for losses arising from the impact of the fuel price reduction on the stocks that were procured at higher prices. Also, the UPP Manager shall prepare claiming format forms and write to the OMCs to present claims for the dealers. The ERB will then proceed to compensate the affected dealers. In the same light, the dealers in the urban areas will also remit funds on the windfall accrued in the urban areas.
- VI. Low Sulphur Gasoil shall not be part of the UPP framework.
- VII. The dealer margins in the rural areas may need to be revisited in the future because margins accruing to these dealers have in certain instances diminished following the introduction of the UPP. This is because previous margins in rural areas were higher than the ERB benchmark margins derived from the price build-up. The rural dealers were consequently getting a higher effective margin than the dealers in the urban areas were.
- VIII. Prices to dealers, who collect petroleum products on their own, shall be agreed between the OMCs and the dealers.

The UPP Mechanism is still under implementation. Some aspects of the mechanism will inevitably change in the course of implementation. The effects of the mechanism are yet to be seen. The UPP will significantly reduce the scope of enhancing competition in the downstream market. The full extent of its effect will only become clear months after its implementation.

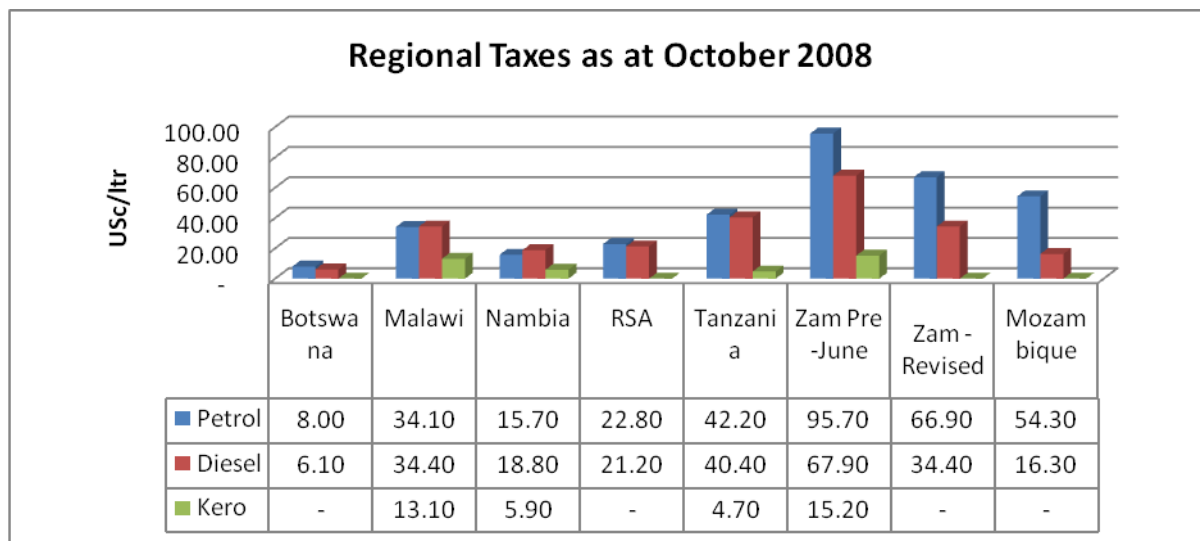
Zambia continues to have one of the highest tax regimes on fuel and consequently one of the highest fuel prices in the region.

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<sup>48</sup> MEWD letter to all OMCs, 12 October 2010.

Taxes on petroleum products in Zambia are ad valorem (percentage based): they include import duty, excise duty (which includes road levy) and Value Added Tax (VAT). Regional Taxes as at October 2008 are given in the table below.

**Figure 13 , Regional Taxes as at October 2008<sup>49</sup>**



In June 2008, the Government reduced the excise duty on petrol, diesel and kerosene. The objective of reviewing taxes was to discontinue subsidies on fuel prices and ensure affordable prices thereby cushioning consumers from high prices. In September 2008, the Government further reduced excise duty on petrol and diesel following its commitment to reduce petroleum prices in Zambia.

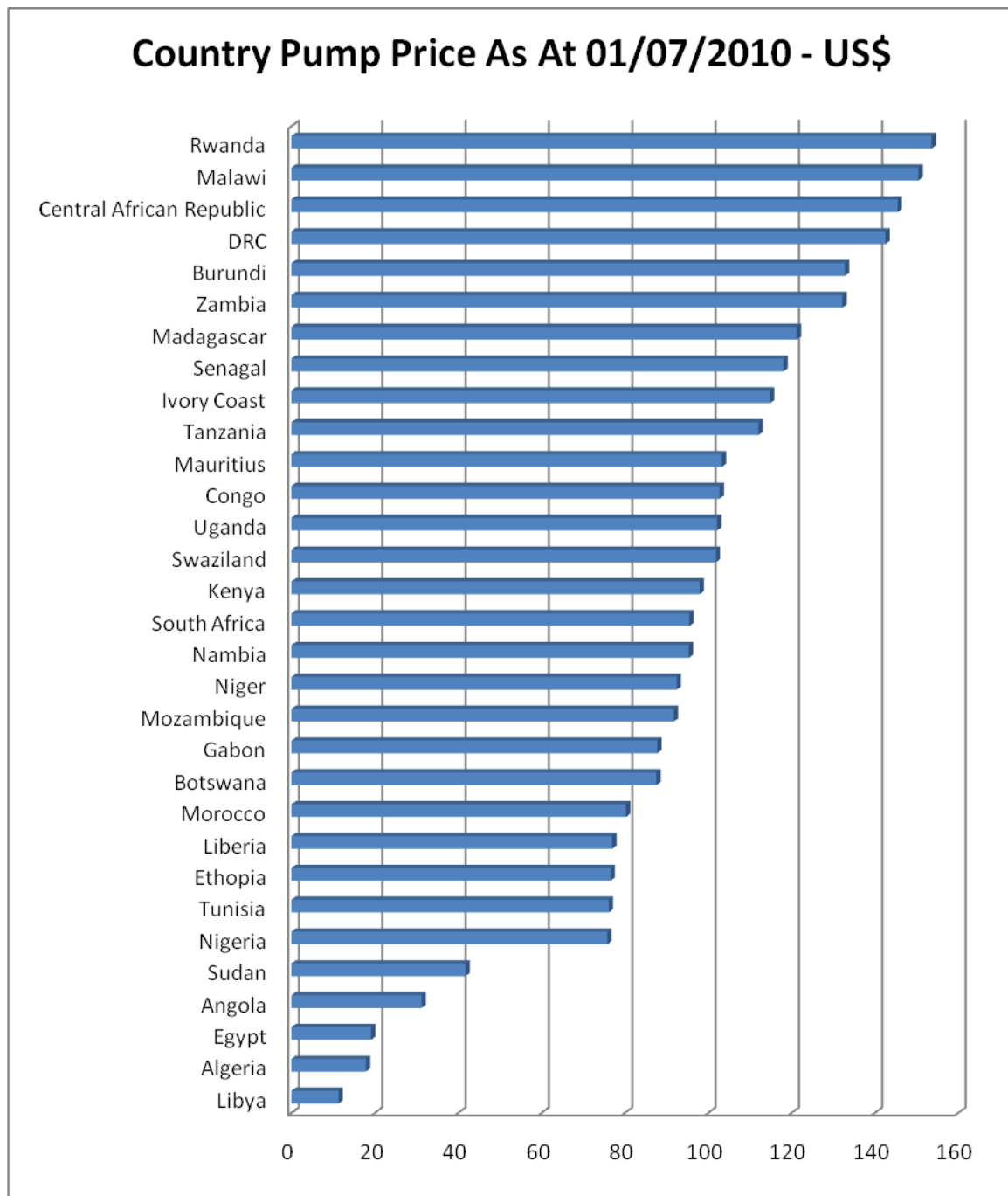
Despite these tax reductions, as at October 2008, Zambia's tax component was amongst the highest with the exception of kerosene, when compared to other countries in the sub region. One of the contributing factors is that taxes are percentage based creating a compounding effect. When the wholesale price increases, the tax component increases as well. Some countries like South Africa have dealt with this problem by applying absolute (non-percentage) taxes on fuel.

Later in December 2008, the Government issued a statutory instrument to increase import duty to 25 per cent from 5 per cent on petrol and diesel. This has further exacerbated Zambia's fuel tax position in comparison to other countries in the sub-region.

Pump prices for selected countries in Africa are given below.

<sup>49</sup> ERB

**Figure 14 , Selected African Countries Diesel Pump Price<sup>50</sup>**



<sup>50</sup> African Refineries Association,

## **4.2.3.11 BLENDING, PACKAGING AND TRADING IN LUBRICANTS**

### **4.2.3.11.1 BLENDING AND PACKAGING OF LUBRICANTS**

Lublend Limited is the only company licensed to blend and package lubricants in the country. The company is jointly owned by Total Zambia Limited, Kobil Zambia Limited and Spectra Oil Corporation Limited, each with a shareholding of 59.5 per cent, 25.5 per cent and 15 per cent respectively. Lublend Limited was once a SOE with the Government holding 51 per cent of the shares. Lublend Limited only processes lubricants for the participating companies. Processing for third parties can only be done through one of the participating companies.

The processing involves the blending of base oils and additives to come up with the desired lubricants. The participating companies provide all the raw materials required for the blending and packaging of lubricants. Because Indeni Petroleum Refinery Limited does not produce base oils, these are imported from South Africa. The participating companies also provide the own transportation. The participating companies pay Lublend Limited a blending fee. This fee is determined by the participating companies.

### **4.2.3.11.2 TRADING IN LUBRICANTS**

There are only 53 valid licenses for the importation of lubricants. Surprisingly, even some big names in lubricants are missing from the list. This market is segmented into commercial and retail. For purposes of understanding the market behaviour, the commercial segment can be further divided into large and small consumers. The large commercial consumers are sensitive to both product price and quality, with quality being of paramount importance. The small commercial consumers are sensitive to both product price and quality, with price being more important. The retail market is predominantly concerned with product price.

The market continues to be plagued by unlicensed operators who continue to flood the market with imported lubricants.<sup>51</sup> These are not registered and it is alleged that some of them are smuggling the products into the country. Quality of these products is not checked and it is felt by all players that there is regulatory failure in this regard. The illegal traders have targeted the small commercial and retail consumers. Despite the fact that DANA Oil Corporation Limited is the sole distributor of BP and Castrol lubricants in the country, these brands can be sourced elsewhere at extremely low prices.

Some industry players estimated that about 30 per cent of the market with respect to small commercial and retail consumers is met by the illegal traders.

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<sup>51</sup> Energy Sector Report, 2008, ERB.



## **4.3 INTERNATIONAL AND REGIONAL PERSPECTIVES**

### **4.3.1 INTERNATIONAL PERSPECTIVES**

#### **4.3.1.1 ENERGY DEVELOPMENTS**

World primary energy consumption, including oil, natural gas, coal, nuclear and hydro power – fell by 1.1 per cent in 2009, the first decline since 1982 and the largest decline (in percentage terms) since 1980. Consumption in the Organisation for Economic Co-operation and Development (OECD) countries fell by 5 per cent, the largest decline on record; OECD consumption reached the lowest level since 1998. Energy consumption declined in all regions except Asia Pacific and the Middle East; Chinese energy consumption growth accelerated to 8.7 per cent. Hydroelectric power generation increased by 1.5 per cent, and was the world's fastest-growing major fuel for a second consecutive year.

Tony Hayward, the BP Group Chief Executive, commented on the reduction of world primary energy consumption as follows: “Energy developments in 2009 were dominated by a global recession and, later in the year, a tentative recovery. For the year as a whole, the global economy contracted for the first time since the Second World War, and global energy consumption fell as well. We can't know how durable this recovery will be. But the data shows changes in the pattern of global energy consumption that are likely to indicate long-term change”.

#### **4.3.1.2 INTERNATIONAL PETROLEUM DEVELOPMENTS**

Dated Brent averaged US\$ 61.67 per barrel in 2009, a decline of 37 per cent – the largest decline (in percentage terms) since 1986. Other benchmark crudes registered similar declines. Prices began the year below US\$ 40 and rose steadily throughout the year, reaching a peak of more than US\$ 78 in mid-November. Sustained Organisation of Petroleum Exporting Countries (OPEC) production cuts and improving economic prospects as the year progressed supported prices.

Global oil consumption declined by 1.2 million barrels per day (b/d), or 1.7 per cent, the largest decline since 1982. OECD consumption fell by 4.8 per cent (2 million b/d), a fourth consecutive decline. Outside the OECD, consumption growth slowed to 860,000b/d, or 2.1 per cent, the weakest percentage growth since 2001. China, India and Middle Eastern countries accounted for all of the non-OECD growth.

Global oil production dropped even more rapidly than consumption, falling by 2 million b/d, or 2.6 per cent, the largest drop, again, since 1982. OPEC production cuts implemented late in 2008 were maintained throughout 2009, resulting in a decline of 2.5 million b/d, or 7.3 per cent the largest decline since 1983. Every OPEC member participating in the production-cutting agreement reduced output in 2009. OPEC's Middle Eastern members accounted for nearly 75 per cent of the overall reductions. Oil production outside OPEC grew by 0.9 per cent or 450,000b/d. US production increased by 460,000b/d, or 7 per cent, the largest

increase in the world last year and largest US percentage increase. Elsewhere, production growth in Russia, Brazil, Kazakhstan and Azerbaijan was offset by declines in China and of Mexico, Norway and the UK. Overall OECD production declined for a seventh consecutive year.

Global refining capacity in 2009 grew by 2.2 per cent, or 2 million b/d, the largest increase since 1999. Non-OECD capacity surpassed OECD capacity for the first time. The Asia-Pacific region accounted for more than 80 per cent of the global growth, largely due to increases in India (+19.5 per cent, or 580,000b/d) and China (+10.5 per cent, or 820,000b/d). Global crude runs fell along with oil consumption, declining by 1.5 million b/d, or 2 per cent. Throughput declines were concentrated in the EU (-6.4 per cent, or 870,000b/d) and other OECD countries; throughput outside the OECD increased by 0.9 per cent or 310,000b/d, as strong growth in China and other Asia-Pacific countries more than offset declining throughput in South and Central America (-11.4 per cent, or 610,000b/d). Higher refining capacity and declining consumption pushed global refinery utilization to 81.1 per cent, the lowest rate since 1994.

Global oil trade fell by 3.1 per cent or 1.7 million b/d, a second consecutive decline and the largest decline since 1987. The US accounted for 84 per cent of the net decline in imports, driven by declining consumption and rising domestic production. Among exporters, the Middle East – with falling production and rising domestic consumption – accounted for virtually the entire decline.<sup>52</sup> See appendixes I to IV for global oil statistics.

Energy and petroleum in particular, is an internationally traded commodity. Therefore, world events have a direct impact on what happens in the region and ultimately to the individual countries. The SADC region for example is a net importer of petroleum products. Also, infrastructure in the region is not well developed and products cannot freely move from one country to another. This means that the region and the countries therein have no mechanism of insulating themselves from global trends and will continue to depend and be influenced by factors external to the region.

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<sup>52</sup> International perspective on energy and petroleum based on the analysis in the BP Statistical Review of World Energy, June 2010, [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).

## 4.3.2 REGIONAL PERSPECTIVES

### 4.3.2.1 ECONOMIC OVERVIEW

Zambia is a member of two regional groupings namely Common Market for Eastern and Southern Africa (COMESA) and Southern African Development Community (SADC). The two regional groupings have population and GDP figures as given in the table below.

**Table 5, COMESA & SADC Statistics<sup>53</sup>**

	POPULATION (Million)	GDP (US\$ Million)
COMESA	430	472, 133
SADC	258	471,118

With regards to the petroleum sector, Zambia heavily depends on SADC member states, in particular, South Africa and Tanzania which are both members of SADC and not COMESA. The regional analysis will therefore focus on the SADC region.

**Figure 15 SADC Member states.**



In 2004, the combined Gross Domestic Product (GDP) for Southern Africa was approximately US\$ 296.4 billion. Individual national economies are structurally diverse and at varying stages of development. South Africa, the region's most developed economy, had a GDP of US\$ 213.1 billion, which was more than double the combined GDP of the other Southern African countries.

<sup>53</sup> COMESA & SADC Websites

Challenges of post-war disarmament and reconstruction (in Angola and DRC), and continuing internal strife (Zimbabwe) have adversely affected economic performance in these states. The Zimbabwean economy has experienced a sharp deterioration over the past ten years, with real GDP contracting by about 30 per cent during the period 2000 to 2005 and inflation reaching 600 per cent in 2003, before dropping to 124 per cent in 2005. The economies of DRC and Angola have begun to experience GDP growth as peace agreements in both countries begin to take hold.

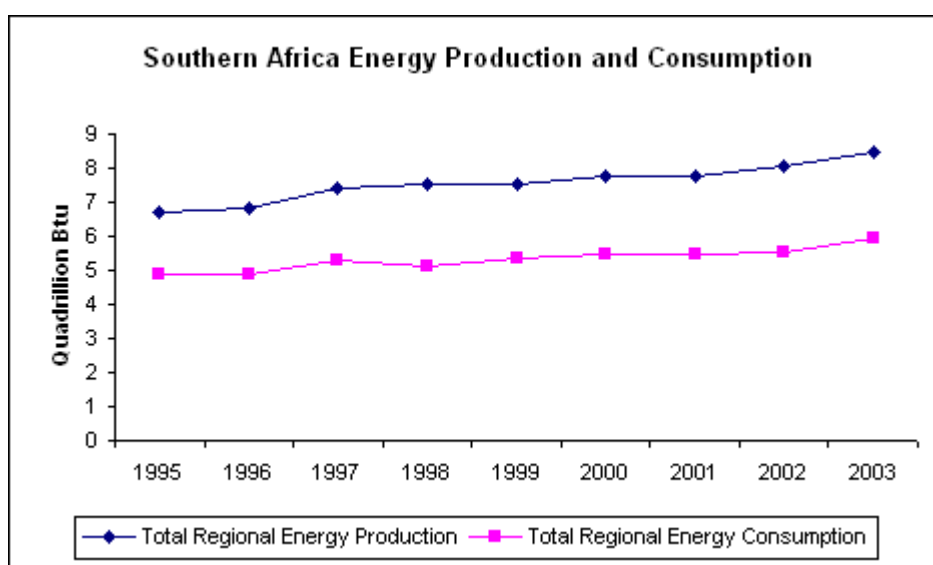
### 4.3.2.2 ENERGY OVERVIEW

Overall, Southern Africa is a net energy exporter. In 2003, the countries of Southern Africa collectively consumed 5.9 quadrillion British thermal units (Btu) of commercial energy (1.4 per cent of total world consumption) and produced 8.5 quadrillion Btu (2 per cent of total world production). Also in 2003, the region generated 126.33 million metric tons of carbon dioxide emissions (1.8 per cent of the world total). The region's dominant economy, South Africa, accounted for 83.1 per cent (4.9 quadrillion Btu) of the region's energy consumption, 69.4 per cent (5.9 quadrillion Btu) of its energy production, and 88.8 per cent (112 million metric tons) of its carbon dioxide emissions.

Throughout the region, there are significant reserves of coal, petroleum, and natural gas. Electricity in Southern Africa is generated mainly through thermal or hydroelectric resources (with one nuclear facility in South Africa). Natural gas is becoming more significant to the region's energy sector as fields off Mozambique, Namibia, South Africa and Tanzania are developed.

Due to the region's relatively small urban population (approximately 25.4 per cent), access to commercial energy sources is limited.

**Figure 16 Southern African Energy Production and Consumption**

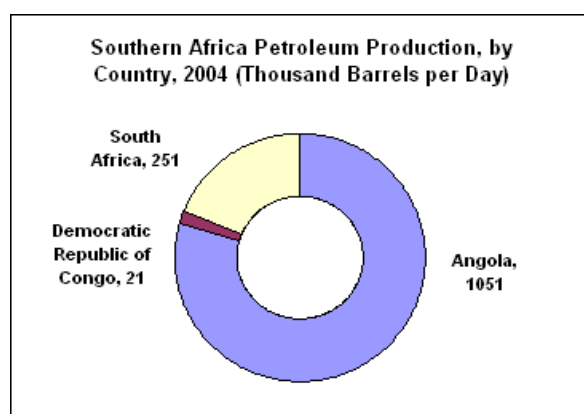


The majority of Southern Africa's population still relies on the use of biofuel (wood and charcoal) as its primary source of energy.

### 4.3.2.3 PETROLEUM

Angola, Southern Africa's only significant oil producer, produced an average of 1.05 million barrels per day (b/d) in 2004. Angola's estimated reserves of 5.4 billion barrels constitute 96 per cent of the region's estimated proven crude reserves. Smaller reserves are found offshore DRC and South Africa (South Africa's oil production meets 10 per cent of its domestic needs). The region's refineries are concentrated in South Africa, with additional refining capacity located in Angola, Madagascar, Tanzania, DRC and Zambia.<sup>54</sup> South Africa is the region's largest oil consumer (over 68 per cent of the region's total), and the second largest oil consumer in Africa after Egypt.

**Figure 17 Southern Africa Petroleum Production by Country Consumption**



In 2004, petroleum consumption in Southern Africa averaged 685,000 b/d. The vast majority of petroleum consumed in the region is imported; Angola and DRC are the only net exporters. Several countries in the region, particularly Zimbabwe, have experienced periodic, sometimes severe, petroleum shortages.

All of Botswana's refined oil needs are supplied by South Africa, except for a small supply to the western part of the country by Namibia. Namibia itself acquires 90 per cent of its petroleum requirements from South Africa.

Most of Malawi's fuel imports are supplied via Tanzanian and South African ports, although additional sources of imports, via a pipeline from Mozambique, are also being developed.

### Oil Integration

The 1,704 km Tazama Pipeline transports crude from Dar es Salaam, Tanzania to Zambia's Indeni refinery. The pipeline, which is, jointly owned by the Governments of Zambia (67 per

<sup>54</sup> See appendix VI for the location of refineries in Africa,

cent) and Tanzania (33 percent), has a capacity of 22,000 bbl/d. In October 2004, the Zambian Government decided not to privatize the Tazama Pipeline due to the facility's strategic importance to the national economy. The pipeline was damaged during the December 2004 tsunami when a tanker unloading its cargo in the port was forced to lower its anchor, hitting the pipeline, to prevent being swept back to sea. Vandalism and the deterioration of pumping equipment are serious problems.

The Mozambique-Zimbabwe Petrozim Petroleum Products Pipeline runs from the port of Beira in Mozambique through Feruka, Zimbabwe to Msasa, located near Harare. Zimbabwe imports 80 per cent of its petroleum through the pipeline. Zimbabwe's Noczim is planning to construct an additional oil-product pipeline from Beira to Msasa to help meet Zimbabwe's growing oil demand.

In February 2004, the Nacala Development Corridor (NDC) Project announced the start of a feasibility study for an oil pipeline to link Mozambique's seaport of Nacala to Malawi. The NDC Project (which also includes Zambia) expects the 249-mile pipeline to greatly reduce transport costs and further integrate the three countries.<sup>55</sup>

## **5 INSTITUTIONAL AND LEGAL FRAMEWORK**

### **5.1 INSTITUTIONAL FRAMEWORK**

The main institutions with overall responsibility for administration and policy formulation on issues relevant to the study are:

- Ministry of Energy and Water Development:  
The Ministry of Energy and Water Development (MEWD) is Zambia's principal Government body responsible for energy policy formulation and administration.<sup>56</sup>
- Ministry of Commerce, Trade and Industry:  
The Ministry of Commerce Trade and Industry (MCTI) is Zambia's principal Government body responsible for administering national policy for private sector development.<sup>57</sup>
- Other ministries directly involved with energy matters are Ministry of Mines and Minerals, and Ministry of Environment and Natural Resources.

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<sup>55</sup> The SADC Economic, Energy and Petroleum overviews are based on Country Analysis Briefs found on the Energy Information Administration (EIA) website, [www.eia.doe.gov/emeu/cabs/sadc](http://www.eia.doe.gov/emeu/cabs/sadc). Please note that this information was the best available as of July 2005. Some of the information might be outdated. It does however give the most comprehensive cover of the SADC region and very valuable insights into regional aspects of the petroleum sector.

<sup>56</sup> [www.mewd.gov.zm](http://www.mewd.gov.zm)

<sup>57</sup> [www.mcti.gov.zm](http://www.mcti.gov.zm)

## **5.2 LEGAL AND REGULATORY FRAMEWORK**

There are two principle Acts relevant to the study, namely, The Competition and Consumer Protection Act, No. 24 of 2010 which repeals and replaces the Competition and Fair Trading Act, No. 18 of 1994; and The Energy Regulation (Amendment) Act, No. 23 of 2003 which amends The Energy Regulation Act, No. 16 of 1995.

These two pieces of legislation establish the Competition and Consumer Protection Commission (CCPC) and the Energy Regulation Board (ERB).

### **The Competition and Consumer Protection Act, No. 24 of 2010<sup>58</sup>,**

*“An Act to continue the existence of the Zambia Competition Commission and re-name it as the Competition and Consumer Protection Commission; safeguard and promote competition; protect consumers against unfair trade practices; provide for the establishment of the Competition and Consumer Protection Tribunal; repeal and replace the Competition and Fair Trading Act, 1994; and provide for matters connected with, or incidental to, the foregoing”.* The Competition and Consumer Protection Act, No. 24 of 2010 came into operation on 4 October 2010 as stated in the Competition and Consumer Protection Act (Commencement) Order, 2010 as contained in the Statutory Instrument No. 83 of 2010.<sup>59</sup> Section 5 of the Act outlines the functions of the CCPC.

The functions of the Commission are to:

- (a) review the operation of markets in Zambia and the conditions of competition in those markets;
- (b) review the trading practices pursued by enterprises doing business in Zambia;
- (c) investigate and assess restrictive agreements, abuse of dominant positions and mergers;
- (d) investigate unfair trading practices and unfair contract terms and impose such sanctions as may be necessary;
- (e) undertake and publish general studies on the effectiveness of competition in individual sectors of the economy in Zambia and on matters of concern to consumers;
- (f) act as a primary advocate for competition and effective consumer protection in Zambia;
- (g) advise Government on laws affecting competition and consumer protection;
- (h) provide information for the guidance of consumers regarding their rights under this Act;

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<sup>58</sup> The purpose of the CCP Act and Section five have been extracted from the Competition and Consumer Protection Act, No. 24 of 2010

<sup>59</sup> Statutory Instrument No. 83 of 2010,

- (i) liaise and exchange information, knowledge and expertise with competition and consumer protection authorities in other countries;
- (j) advise the Minister on agreements relevant to competition and consumer protection and on any other matter relating to competition and consumer protection;
- (k) co-operate with and assist any association or body of persons to develop and promote the observance of standards of conduct for the purposes of ensuring compliance with the provision of this Act; and
- (l) do all such acts and things as are necessary, incidental or conducive to the better carrying out of its functions under this Act.

The Competition and Consumer Protection Commission (CCPC) reports to the Ministry of Commerce, Trade and Industry (MCTI).

A brief review of the operations of the CCPC's revealed the following:

1. The repealing of the Competition and Fair Trading Act, No. 18 of 1994 by the enactment of the Competition and Consumer Protection Commission, No.24 of 2010 has provided the Commission with adequate legal authority for the effective execution of its mandate. Unlike the old Act, the new Act comprehensively covers consumer protection. This has broadened the Commission's mandate and will entail an increased budget.
2. The Commission is grossly underfunded. A comparison of the operational budget to actual funding for the last five years is given in the table below;

**Table 6 ZCC Budget vs Actual Income<sup>60</sup>**

<b>Financial Year</b>	<b>Budget Requirement ZMK' Billion</b>	<b>Actual Funding ZMK' Billion</b>	<b>Actual funding as a % of Budget</b>
<b>2006</b>	5.3	1.8	34%
<b>2007</b>	5.3	1.9	36%
<b>2008</b>	5.3	2.1	40%
<b>2009</b>	5.3	3.1	58%
<b>2010</b>	5.3	2.2	42%
<b>Total</b>	<b>26.5</b>	<b>11.1</b>	<b>42%</b>

When compared with other regulatory bodies in the country the budget figure of ZMK5.3bn appears to be extremely conservative and the actual funding totally inadequate. For example, the ERB and the Zambia Information and Communications Technology Authority (ZICTA)

<sup>60</sup> Competition and Consumer Protection Commission,



had total incomes of ZMK35.37bn<sup>61</sup> and ZMK74.26bn<sup>62</sup> for the financial years ended 31 December 2008 and 31 March 2008 respectively.

Due to the differences in their regulatory mandate the budgets for the regulators referred to are not directly comparable. However, such a comparison is indicative of what could be deemed as a reasonable budget for a regulatory institution in this country.

The underfunding of the CCPC has resulted into the following:

- For over ten years, the Commission failed to fill up the initial establishment of 33 employees. The structure had to be revised downwards to 26 employees even when the optimum staff level stands at about 40.
- The Commission has failed to establish its physical presence in other parts of the country.
- The Commission is unable to attract, train and retain competent staff. As a result the Commission still requires:
  - Enhanced competencies in economic analysis,
  - Additional legal personnel,
  - Information and Communication Technology expertise,
  - Investigative skills, and
  - Better trained support staff.
- The Commission is also facing other operational challenges, including inadequate office equipment, office supplies, and, inadequate and unreliable transport.

The First Schedule, Part II, section 10 (1) of the Competition and Consumer Protection Commission, No.24 of 2010 states that, "The funds of the Commission shall consists of such money as may (a) be appropriated by parliament, (b) be paid to the Commissions by way of fees, levies, grants or donations; or (c) vest in or accrue to the Commission."

All well funded regulators in Zambia are funded by the entities they regulate.

3. The Commission has suffered from a relatively poor visibility in the domestic economy, owing largely to the low level of public awareness of its activities and/or interventions in key sectors of the economy.<sup>63</sup> The Commissions inability to establish its physical presence in other parts of the country greatly reduces its accessibility. A lot has been done to improve the Commissions visibility. However, the general public perception of competition as a technical subject makes it harder to attract public attention. Consumer protection is a subject that the public may easily relate to and are more directly affected by. It might help arouse public interest towards the activities of the Commission.

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<sup>61</sup> ERB - Annual Report, 2008,

<sup>62</sup> ZICTA - Annual Report, 2008.

<sup>63</sup> Zambia Competition Commission Strategic Plan 2008 – 2011.

**Energy Regulation Act, No. 16 of 1995 as amended by the Energy Regulation (Amendment) Act No. 23 of 2003.**

“An Act to establish an Energy Regulation Board and to define its functions and powers; to provide for the licensing of undertakings for the production of energy or the production or handling of certain fuels; to repeal the National Energy Council Act and the Zambia Electricity Supply Act; and to provide for matters connected with or incidental to the foregoing”.<sup>64</sup>

Section 5 of the Act<sup>65</sup> that outlines the ERB’s functions states that the Board shall:

- (a) issue licences under this Act;
- (b) monitor the efficiency and performance of undertakings, having regard to the purposes for which they were established;
- (c) receive and investigate complaints from consumers on price adjustments by any undertaking, and regulate such adjustments by the attachment of appropriate conditions to licences held by undertakings or by such other means as the Board considers appropriate;
- (d) receive and investigate complaints from consumers and licensed undertakings on services provided by the undertakings and regulate such services by the attachment of appropriate conditions to licences held by undertakings or by such other means as the Board considers appropriate;
- (e) approve the location and construction of, and receive and investigate complaints concerning the location or construction of any common carrier or any energy or fuel facility or installation or the carrying out of any works by any undertaking, and regulate such location and construction by the attachment of appropriate conditions to licences held by undertakings;
- (f) in conjunction with the Zambia Competition Commission established by the Competition and Fair Trading Act, (i) investigate and monitor the levels and structures of competition within the energy sector with a view to promoting competition and accessibility to any company or individual who meets the basic requirements for operating as a business in Zambia; and (ii) develop and implement appropriate rules to promote competition in the energy sector”.
- (g) in conjunction with the Zambia Bureau of standards established by the Standards Act, design standards with regard to the quality, safety and reliability of supply of energy and fuels;

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<sup>64</sup> The Energy Regulation Act, No. 16 of 1995.

<sup>65</sup> The Energy Regulation (Amendment) Act, No. 23 of 2003

- (h) in conjunction with the Environmental Council of Zambia established under the Environmental Protection and Pollution Act, formulate measures to minimise the environmental impact of the production and supply of energy and the production, transportation, conversion, storage and use of fuels and enforce such measures by the attachment of appropriate conditions to licences held by undertakings; and
- (i) make recommendations to the Minister as to the measures to be taken through regulations to be made under this Act.

The Ministry of Energy and Water Development is responsible for the Energy Regulation Board (ERB). The energy sector regulator, ERB and the CCPC are obligated by the Acts that established them to work together in tackling competition issues in the energy sector.

Part VI, section 43 of the Competition and Consumer Protection Act, No.24 of 2010 states that “The Commission shall, for the purposes of coordinating and harmonising matters relating to competition in other sectors of the economy, enter into a memorandum of understanding with any regulator in that sector, in the prescribed manner and form”.

A draft M.O.U between the CCPC and the ERB is currently under consideration. It is envisaged that it will be approved and adopted by the end of this year (2010).

Other Acts directly linked to energy and competition matters include:

- Petroleum (Production and Exploration) Act 2008,
- Zambia Bureau of Standards Act, and
- Environment Protection and Pollution Control Act.

### **5.3 REGIONAL CONTEXT**

Common Market for Eastern and Southern Africa (COMESA), East Africa Community (EAC) and Southern African Development Community (SADC) are regional communities whose main objectives can be summarised as the enhancement of economic prosperity through regional integration.

An area with the most progress is trade liberalisation. COMESA launched a Free Trade Area (FTA) in 2000. SADC launched an FTA in 2008 and EAC intends to launch one by 2010. COMESA and SADC are important trading blocks for Zambia.

In August 2010, SADC and COMESA were the second and third largest export markets for Zambia, accounting for 16.8 per cent and 11.5 per cent of total exports for the month. During the same period, SADC and COMESA were first and second largest import markets for the country, accounting for 62.8 per cent and 25.7 per cent of total imports for the month<sup>66</sup>

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<sup>66</sup> Central Statistical Office Monthly Publication, Volume 90, September 2010,

While trade liberalisation has enhanced consumer choice, supported more efficient resource allocation through increased competition and has fostered public-private sector collaboration, the existence of non-tariff barriers (NTBs) and non-tariff measures (NTMs) continue to inhibit intra-regional trade.

NTBs contribute to the high cost of doing business across the region and all 3 regional economic communities, (RECs), (COMESA, EAC and SADC) have established NTB monitoring mechanisms to reduce the cost of doing business in order to promote intra-regional trade.<sup>67</sup>

With regards to competition in particular, the three economic communities resolved to jointly develop Competition Regulations applicable to the regions under the auspices of the COMESA, EAC and SADC in a milestone development approved by the Summits and Authorities of the three bodies in December 2004. Subsequent to this development, the RECs developed Implementing Guidelines and Provisions for Implementation of Competition Regulations in the COMESA, EAC and SADC regions and these were expected to have been approved by the Supreme Organs of the three sub-regions by the end of August 2007”.<sup>68</sup>

Pursuant to Article 22 of the SADC Treaty, SADC has drawn up a Trade Protocol which amongst other things deals with issues of fair trade.<sup>69</sup>

Of the three economic communities, only COMESA has developed comprehensive competition regulations and rules. Article 55 of the COMESA Treaty deals with competition. Sub Article 3 states that “The Council shall make regulations to regulate competition within the Member States”.<sup>70</sup> The COMESA Competition Regulations and Rules were finalized in December 2004. Amongst other things, they provide for the establishment of the COMESA Competition Commission. Malawi won the bid to host the commission’s secretariat. The Commission is not yet operational.

It’s noteworthy to mention that some competition issues that would otherwise have been dealt with by the COMESA Competition Commission are not covered by the Competition Regulation and Rules. They are however dealt with by separate Articles of the COMESA Treaty. These include, Article 51 (Dumping), Article 52 (Subsidies Granted by Member States) and Article 53 (Exceptions to Levying of Countervailing Duty).<sup>71</sup>

Other Articles of the COMESA Treaty relevant to the study includes Article 90 and 107.

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<sup>67</sup> This is an extract from a document entitled Non-Tariff Barriers Monitoring Mechanism found on the COMESA website, [www.comesa.int](http://www.comesa.int)

<sup>68</sup> This is an extract from a document entitled Directorate of Infrastructure and Services found on the SADC website, [www.sadc.int](http://www.sadc.int),

<sup>69</sup> Both the SADC Treaty and the SADC Trade Protocol can be found on the SADC website, [www.sadc.int/english/document](http://www.sadc.int/english/document),

<sup>70</sup> This is an extract from the COMESA Competition Regulation and Rules. The full version of Article 55 is in appendix VII,

<sup>71</sup> Details of Articles 50, 51, 52 and 53 are in appendix VII.

## **ARTICLE 90 Pipeline Transport**

1. The Member States shall co-operate in the development of pipeline transport and in the utilisation of existing pipeline facilities.
2. Where common pipeline projects are feasible, the Member States shall co-operate in all aspects of planning, financing, execution, management and maintenance of pipeline services and facilities.

## **ARTICLE 107 Trade in Energy Resources**

1. The Member States agree to develop a mechanism for facilitating trade in energy fuels, such as coal, natural gas, petroleum and electricity.
2. For the purposes of paragraph 1 of this Article, the Member States agree to co-operate in:
  - (a) joint procurement of products; and
  - (b) interconnecting national electricity grids.

The electricity sub sector has seen a number of joint planning and execution of projects in both SADC and COMESA regions. Through the Southern African Power Pool (SAPP) based in Harare, Zimbabwe, power is traded by utilities in the regions. Not much joint planning and execution of projects has been seen in the petroleum sub sector.

## **6 MAIN SUPPORT POLICIES**

The changes in economic policy, in particular the liberalisation of various sectors of the economy was the main driving force of the reforms and current institutional and legal framework. These reforms led to the formulation of the National Energy Policy (NEP) 1994.

### ***PETROLEUM SECTOR NATIONAL POLICY***

The National Energy Policy (NEP) is the main energy policy document in the energy sector guiding changes and developments in the energy sector. The policy document contains measures for each energy sub-sector, outlines strategies for implementation and identifies the legal frame required to implement the policy.

The first National Energy Policy (NEP) sought to promote optimal supply and utilisation of energy, especially indigenous energy forms, for socioeconomic development in a safe and healthy environment. While the essence of the 1994 Energy Policy objectives remains valid, the social, political, environmental and economic situation has undergone significant changes. Due to the implementation of the 2002 Poverty Reduction Strategy Paper initiatives, the articulation of the Vision 2030 (December 2006), Fifth National Development Plan (2006 - 2010) and other related programmes, there is a new awareness of the integrated nature of energy in economic development. This prompted a review of the NEP (1994) in order to take

into account recent changes not only in the energy sector and domestic economy but also the regional and international energy scenario. Currently in force is the NEP (2008).

The sections of the NEP directly relevant to petroleum include 5.4 (Petroleum), 5.10 (Household Energy) and 5.11 (Energy Pricing). Abridged versions of these sections of the NEP are given below:<sup>72</sup>

## **5.4 Petroleum**

### **5.4.1 Objective**

The policy seeks to ensure an adequate, reliable and affordable supply of petroleum products at competitive and fair prices and also the reduction in importation costs.

#### **5.4.2 Policy Measure and Strategies**

- a) Enhance security and cost effectiveness of supply of petroleum,
- b) To promote the participation of Zambians in the Petroleum Industry,
- c) Improve efficiency in the petroleum industry,
- d) Promote health and environmental safety in the petroleum sector,
- e) Improve petroleum pricing, and
- f) Ensure prompt response to and minimisation of possible emergencies and disasters.

## **5.10 Household Energy**

### **5.10.1 Objective**

This energy policy seeks to reduce dependence on wood fuel and ensure sustainable provision of affordable, reliable modern energy services to rural and urban households as a means of reducing poverty and raising standards of living.

#### **5.10.2 Policy Measures and Strategies**

- a) Promote substitution of wood fuel as a household fuel with alternative sources of energy,
- b) Promote energy conservation and substitution at the household level.

## **5.11 Energy Pricing**

### **5.11.1 Objective**

To ensure that energy prices reflect costs of providing energy and also take into account principles of fairness and equity.

#### **5.11.2 Policy Measures and Strategies**

- a) Promote the use of market prices where appropriate;
- b) where market pricing is not feasible or desirable, to ensure that mandated or regulated prices include allocation of costs among consumers according to the burden they impose on the delivery system;
- c) Promoting a reasonable degree of stability and avoiding large price

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<sup>72</sup> National Energy Policy, 2008. The full versions of these extracts are in appendix VIII,

- fluctuations from period to period;
- d) Providing a minimum level of service to consumers who are unable to afford the full cost; and
- e) Where prices are administered (regulation or promulgation), provide a reasonable return on investment.

## 7 ANALYSIS PER SUB SECTOR.

### 7.1 PRELIMINARY ISSUES

To assist with the understanding of market structure analysis, the table below presents a graphical interpretation of the various options available.

Figure 18, Market Structure Options

#### Market Structures

Sellers Buyers			
	<i>Bilateral Monopoly</i>	<i>+/- Monopsony</i>	<i>Monopsony</i>
	<i>+/- Monopsony</i>	<i>Bilateral Oligopoly</i>	<i>Oligosony</i>
	<i>Monopoly</i>	<i>Oligopoly</i>	<i>Competition</i>

Three of the major players in the Zambian Petroleum value chain are State Owned Enterprises, monopolies in nature. It has been observed that competition culture is difficult to sustain in government owned companies. It has also been observed that it appears there is a natural complementarity between liberalisation and competition. Liberalisation may be a necessary but not sufficient step to achieve competition, and history has shown that privatised monopolies had practically the same drawbacks as public monopolies. There is need therefore for the Regulator to control monopolistic activities. Liberalisation is considered worthwhile if it is given paramount importance to promoting consumer choice by allowing competition in the market.

Available modes of liberalisation include the following;

- removal of legal monopolies and exclusive rights,
- privatisation,
- open access,
- unbundling of services, and
- use of regulatory bodies.

Below is a brief discussion of concessions (one of the modes of privatisation) and open access modes of liberalization.

### **7.1.1 PRIVATISATION**

Full privatisation of public enterprises is not always feasible for political or legal reasons. In such situations, concessions can be used to get private enterprises to deliver public services often using public property. Concession means “*A grant to a private firm the right to operate a defined infrastructure or service and to receive revenues deriving from it. The concessionaire generally takes possession of the relevant public assets (but ownership usually remains with government) and uses them to provide the relevant product or service according to the terms of the contract*”.<sup>73</sup> It should be noted however that there are as many failed concessions as they are successful ones. This option should therefore be pursued with due diligence. Where it succeeds, it is expected to bring the following benefits:

- Change inefficient market structures,
- Increase the efficiency of operators, and
- Relieve the public budget.

### **7.1.2 OPEN ACCESS,**

The concept of open access means that any undertaking is entitled to have access to any existing transmission and/or distribution, processing and storage system. The system operator is:

- Obligated to build a system sufficient to meet all the needs of customers connected to the network,
- Obligated to connect any customer willing to pay a reasonable tariff,
- Obligated to anticipate load growth and build new facilities in advance,
- Obligated to charge a similar price to similar users,

There are two main types of open access

- Negotiated access (based on negotiated tariffs, terms and conditions),
- Regulated access (based on regulated tariffs, terms and conditions),

Options for applying open access:

The “Merchant” option. This gives the rights to the facility operator to buy product, make use of the facility and sell the products on the other end. This option is attractive to private investors as the restricted competition could provide substantial profit,

The “Open-Access” option. This option specifies that the facility operator cannot own the product it transports or store. In addition, any industry player can have access to the facilities for a tariff. This provides potential for competition.

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<sup>73</sup> UNCTAD paper on Public monopolies, concessions and competition laws,



The “Hybrid” Option. This option is a hybrid of the two above options and could take advantage of the strong points of both options: attractiveness to investors and enhanced potential for competition.

## **7.2 PROCUREMENT**

From the time of the commissioning of IPRL in 1973, until the liquidation of ZNOC in 2002, the importation of petroleum feedstock was done by State-Owned-Enterprises (SOEs). Subsequent to that, the GRZ has been directly involved in the awarding of tenders for the supply of feedstock. At the moment government sources the financing, awards the tender through MEWD as the procuring entity. The feedstock is handled by a government appointed agent who is TPL.

At any one time there is one Wholesaler and a number of OMCs. This is therefore a Monopoly Market.

Its Governments view that it ought to get involved in the importation of feed stocks because of its strategic nature (it has the potential to influence both political and economic outcomes) and the desire for government to pursue social objectives, something that a private investor with a pure profit motive would not do. The notion that petroleum is “too important to be left to the market” lives on.

On the other hand Industry stakeholders are of the view that:

- Government should not be directly involved in the importation of petroleum feedstock,
- To address the fears of the product’s strategic nature, the Government should maintain adequate strategic reserves and leave the trading to the market under the institutional framework which government has or should establish,
- In whatever scenario, it was felt that the awarding of tenders to suppliers of feed stocks should be done in an open and transparent manner that will ensure that the end consumers get value for their money,
- Some OMCs still felt reluctant at the prospect of them taking part in the importation of feedstock either alone or as a consortium of OMCs,
- Short term contracts are problematic for the following reasons;
  - The supplier may be forced to obtain product at the spot market. The cost of feedstock would be higher than what would otherwise be possible under a long term arrangement,
  - Where multiple suppliers have used the pipeline and refinery in succession, conflicts have arisen between them with regards to stock reconciliations at the storage facilities for feedstock and refined and the intermediate products at the refinery,

The option of OMCs forming a consortium for the importation of petroleum feedstock still looks plausible. The issues that were raised by the consultant engaged by the OMCs, (which

mainly looked at the integrity of infrastructure in the value chain) are really issues that should have been operational and strategic considerations for the companies concerned had they been operating normally. At this point they are crucial issues with regards to nation's security of supply and the viability of IPRL. And so they will have to be attended to whether or not the consortium is formed.

During shutdowns of the refinery, either planned or unplanned, various models for the importation of finished petroleum products have been applied with varying results. Models applied during refinery shutdowns include the following;

- a. Importation of petroleum products by a selected OMC, as did BP in 2006.
- b. Importation of petroleum products by all OMCs with valid Importation licences. This model has been applied on several occasions.
- c. Importation of petroleum products by the GRZ and all OMCs with valid Importation licences, as was the case last year, 2009.
- d. Importation of petroleum products by the GRZ through an appointed agent, namely TPL, as is currently the case.

Even though there is no legal or regulatory impediment to import finished products, the governments regulates the flow of finished products by varying the import duty (between 5 per cent & 25 per cent). This it does, so as to protect TPL and IPRL from the imports that would land in the country cheaper at import duty of 5 per cent. Industry stakeholders' views were that:

- The most important consideration was that the awarding of tenders to suppliers of finished petroleum should be done in an open and transparent manner that will ensure that the end consumers get value for their money,
- It was felt by some OMCs that it would be preferable if an entity other than one from their number was awarded the contract to supply products so as to ensure that no OMC has more access to the products or information relating to the products than the others,
- The varying of Import duty should not be used to discourage imports.

It should be pointed out that the Government's objectives are not incompatible with competition. They should however be achieved using means that promote competition and enhance efficiency in the sector.

### ***7.3 PIPELINE TRANSPORTATION***

The construction of a pipeline is capital intensive, requires a guaranteed up take arrangements to make it viable and gives rise to environmental and social issues. They are fixed and immobile facilities involving important economies of scale and consequently the transport activities are subject to conditions of a natural monopoly. This makes TAZAMA Pipeline Limited (TPL) a natural monopoly.

TPL has an installed capacity of 1.1 million tonnes of crude per year which has been de rated to an operational capacity estimated at an annual pump over of about 800,000 MT due to the poor state of the pipeline. The projected throughput for 2010 is 650, 000 MT. The operational capacity of TAZAMA is still above the country's consumption. With some attention, the pipeline's capacity could be increased even further.

The issues for consideration include the following:

- Setting up access rights to the pipeline, to enable multiple players to use the pipeline without any segregation,
- Where it is not viable or desirable to increase the number of players, regulation becomes the best form of competition,
- Getting rid of state ownership inefficiencies. State ownership inefficiencies results into;
  - Operating inefficiency e.g. repairs and maintenance is underfunded resulting in poor performance of the company. Up until 2002 when ZNOC was liquidated, TPL received a pumping fee of between US\$ 22 to US\$ 25 per metric tonne. This was so as to keep the cost of fuel low. Two separate studies on the company recommended a pumping fee of between US\$ 33 to US\$ 40 per metric tonnes. The current pumping fee is US\$ 53.52 MT.
  - High labour costs. Usually high numbers because the SOEs are seen as a means to providing employment. The studies referred to above also raised the issue of over employment in the institution.
  - Poor quality of service,
    - Efforts to improve efficiency are blunted by a desire for a quiet life due to government protection, and
    - The pipeline could be considered for alternative use. It was originally designed for the transportation of finished products. It could therefore be reconverted back to its original design.

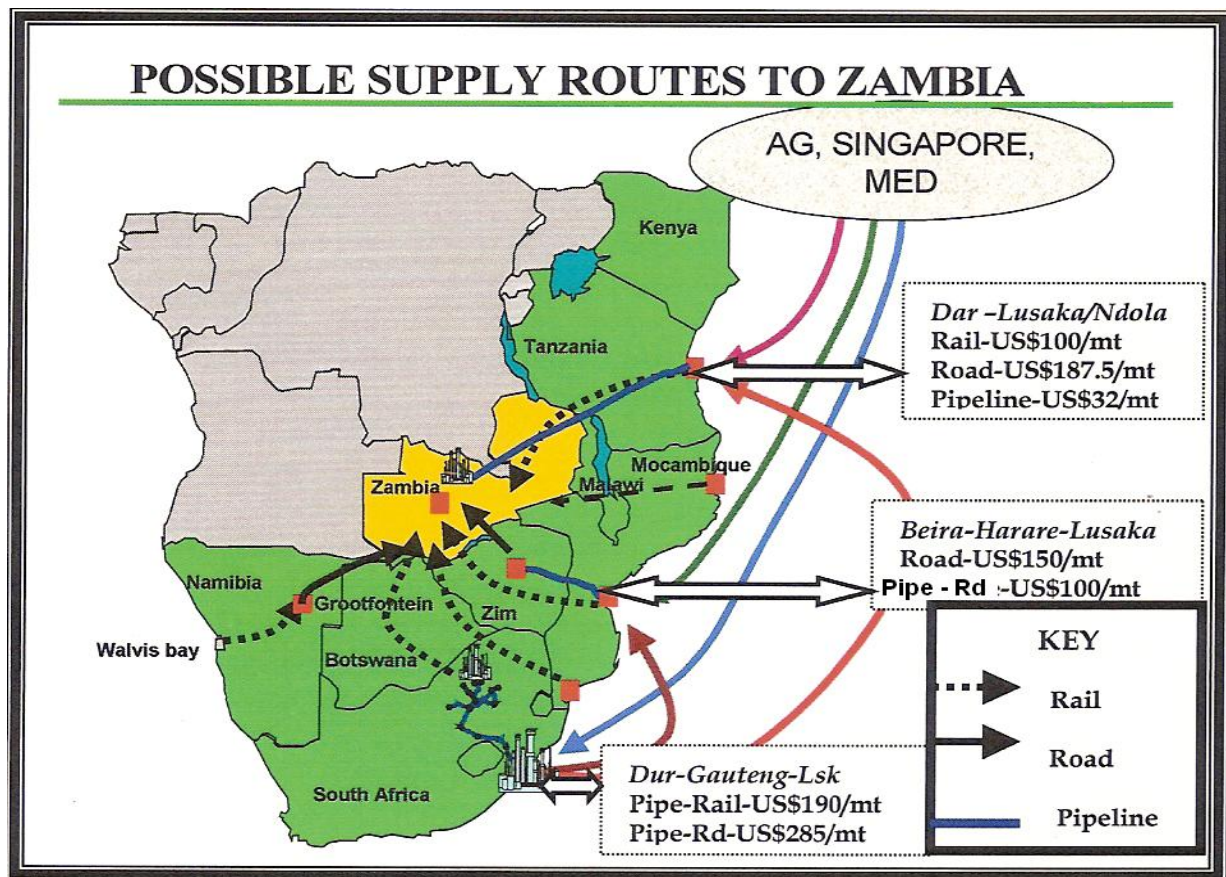
Any decisions taken with regards to the mode of operation of TAZAMA Pipelines Limited, will require reciprocal action to be taken by the Tanzanian Authorities for them to be effected.

This is necessary due to the joint ownership of the pipeline and the fact that the Single Buoy Mooring (SBM) and the Kurasini Oil Jetty (KOJ) are owned by the Tanzania Harbours Authority. Like all State owned facilities, the SBM and the JOK have been affected by state ownership inefficiencies.

Since the volumes of finished products consumed during shutdowns of the refinery mode may not make it economically viable to build a second pipeline to the coast, the Government could consider negotiating with existing or planned finished product pipelines in neighbouring countries. This could significantly improve security of supply of petroleum products in the country.

Possible options of supply routes for Zambia are given below (all figures are based 2005 transportation rates).

**Figure 19 Possible Supply Routes to Zambia**



**Importation of refined products by pipeline from Beira**

A feasible supply option would be to use the pipeline from Beira to Harare then use the rail or road transportation mode from Harare to Lusaka. Currently, only Zimbabwe utilizes the pipeline to supply product.

The cost of using the pipeline from Beira to Harare and onward transportation of the product by road from Harare to Lusaka is approximately US\$ 100/MT (for the section of the pipeline in Mozambique the charge is US\$ 20/MT) whereas using road transport from Beira to Lusaka would cost US\$ 150/MT.

For this to become a viable route, there is need for bilateral agreements between the governments of Zambia, Mozambique and Zimbabwe over the utilization of the pipeline and tankage in Beira and Harare.

**Extension of the pipeline from Harare to Lusaka**

The pipeline from Beira, Mozambique to Harare, Zimbabwe could be extended to Lusaka. This would entail the construction of a centralized and adequate fuel storage facility in Lusaka. The extension in the pipeline from Harare to Lusaka would cover a distance of about

600 KM bringing the total pipeline length from Beira to Lusaka to about 900 KM compared to the 1704 KM of the Tazama Pipeline. This option would result in the cost benefits arising in reduced petroleum product pump prices as this mode provides the cheapest mode of transporting finished product.

### **Importation by rail from Nacala to Chipata**

The railway line through the Nacala Corridor to Mchinji in Malawi, which has now been extended to Chipata is another possible route.

Supplies through this route could also be done by road depending on the state of the road. This provides an option for fuel supply into the eastern part of the country.

### **Importation by rail from Walvis Bay to Livingstone**

Namibia's fuel requirements are supplied from the South African refineries through Walvis Bay. At present, all supplies are finished products.

A possible option for supplies to Zambia would be the importation of finished products through Walvis Bay. The finished products would then be transported by rail to Grootfontein, which is 700 KM from the Zambian border (Katima Mulilo). The fuel would then be trucked into the southern part of the country, taking advantage of the newly constructed Katima Mulilo bridge and road.

It is important to note that a joint government initiative is already in place to develop and promote the Walvis Bay-Ndola-Lubumbashi Corridor, which includes infrastructure development. This is envisaged to provide the countries like Zambia and the DRC with access to Trans-Atlantic trade routes, via the port of Walvis Bay. The use of this route could also be considered for the supply of finished products from Angola.

### **Importation of refined products from South Africa**

Another option that could be exploited would be to supply product by pipeline from Durban to Gauteng and then use rail and/or road to move it up to Zambia. The turnover from Durban to Ndola by rail can take up to 40 days while the road mode takes 15 days. The cost of using the pipeline to Gauteng and then railing it through is US\$ 190/MT, whereas the pipeline-road option costs US\$ 258/MT.

One advantage of a finished product pipelines is that products can be offloaded into depots along the pipeline. This would improve logistics compared to the refinery mode where all products are transported from the NFT after refining. The existing Tazama pipeline for instance can have branches to Kasama, Mansa and Chipata, where storage depots exist. This would remove the requirement to move finished products from Ndola to the northern and eastern parts of the country. A pipeline connected to the Zimbabwean pipeline for instance can supply depots in Southern Province (such as Livingstone and Choma) and Lusaka.

The adoption and implementation of any of these options will require further studies.

#### **7.4 REFINING**

Indeni Petroleum Refinery Limited (IPRL) operates as a bilateral monopoly. With its current configuration and poor state of equipment, the refinery cannot possibly be run in an economically efficient manner. This makes it uncompetitive in open market conditions. It requires recapitalisation for rehabilitation for it to improve on its economic efficiency. The inefficiencies are as a result of the following:

- high operational losses of up to 10 per cent, compared to 0.2 per cent in more complex refineries,
- inability to meet the regional target for cleaner fuels, and
- inability to process cheaper feedstock in the form of pure crude.

Issues raised by some stakeholders include:

- Setting up common carrier rules for the refinery to enable multiple players to use the refining without any segregation,
- Where it is not viable or desirable to increase the number of players, at least in the short term, regulation is the best form of competition,
- Getting rid of state ownership inefficiencies. State ownership inefficiencies results into:
  - Operating inefficiency e.g. repairs and maintenance is underfunded resulting in poor performance of the company. Up until 2002 when ZNOC was liquidated, IPRL was paid a refining fee of only US\$ 25 per metric tonne. This was so as to keep the cost of fuel low. The refining fee is now US\$ 61.1/MT.
  - High labour costs. Usually high numbers because the SOEs are seen as a means to providing employment.
  - Poor quality of service.
  - Efforts to improve efficiency are blunted by a desire for a quiet life due to Government protection.

The Government should discontinue protectionist schemes. In the worst case scenario, subject to findings of a detailed study justifying this course of action, the Government could also consider closing the processing section of the refinery while preserving the storage and handling facilities

#### **7.5 BULK STORAGE**

The NFT is the major bulk storage facility in the country. Like the other Government facilities, issues raised include the setting up access rights to the storage facility, need for regulation, and eliminating state ownership inefficiencies.

#### **7.6 ROAD AND RAIL TRANSPORTATION**

In Zambia, 109 companies are licensed for road transportation of petroleum products. These service 32 OMCs. This is an oligopsony market. Issues raised by stakeholders include the following;

- The margin been paid by the OMCs to transporters is significantly lower than what the ERB has prescribed and is not commensurate with the investment required to meet the standards of fuel tankers set by ERB. This makes the transportation of petroleum products very unattractive. This is a buyer's market and the transporters have no say on what the OMC offers to pay. It was further stated that the ERB margin was reasonable though not satisfactory.
- Rates offered by customers from outside the country are much higher than those prevailing locally.
- OMCs require transporters to brand their tankers and yet the OMCs do not guarantee them continuous business. That means that the usage of branded tankers is restricted as they cannot be used to transport product for another OMC.
- Because product is collected only from Indeni in Ndola, the tankers go empty and are loaded only on their way back from Ndola
- Some transporters are not investing much in the trucks and are therefore able to accept low rates being offered by OMCs. This is making it difficult to negotiate for higher rates. These poorly maintained tankers are offering unfair competition.

In contrast, it was submitted that trucks carrying general goods are attracting rates 30 per cent higher than fuel tankers and yet these trucks do not need as much additional investments as the fuel tankers do. They can load both ways and therefore have a higher usage rate. It was felt by some players that unless this problem of margins is addressed the country might see a reduced rate of investment in new fuel tankers by transporters. This argument is supported by the conclusion and recommendation by an independent consultants engaged by the ERB, in 2006, who stated that "The average unit operating cost of the sampled transporters is ZMK366km/m<sup>3</sup> giving US\$ 0.031 per litre as cost of effecting a direct delivery to Lusaka. This cost of providing the service is clearly above the ERB recommended rate of US\$ 0.026 per litre and the rate therefore needs to be revised."<sup>74</sup>

## **7.7 DISTRIBUTION**

The Market is dominated by BP and Total which had a combined market share of 58 per cent as at the end of 2009. Based on the 2009 figures the Herfindahl Hirschman Index (HHI) for the Zambian market was 1, 936.<sup>75</sup> A market with a HHI above 1, 800 is considered highly concentrated.

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<sup>74</sup> Final Report on the Study of Margins in the Downstream Petroleum Industry, Grant Thornton Associates Limited & ENFIN Solutions Limited.

<sup>75</sup> See appendix XII for details,



Whereas the number of OMCs has increased, the total market share has continued to be concentrated between two OMCs. At the time of liberalization, there was one dominant player namely BP. Currently, there are two players, BP and Total with a joint dominant position. The resulting market structure cannot, theoretically, be expected to be competitive. BP and Total have risen to dominance mainly by takeover of other OMCs. The market has not seen significant organic growth of OMCs.

With respect to BP, the existing dominant player at the time of liberalization, the market share of the OMC has been falling. The issue, however, is whether the reduction in market share can be regarded as significant to ensure reduction in market power. The figures show that BP's market share fell from about 52 per cent in 1970 to 48 per cent in 2003. By 2005, BP's market share fell to 38 per cent. On the face of it, this may look like a significant fall in market share. The total view, however, reveals that the fall of the market share of BP has not been accompanied by significant growth of market share by the smaller OMCs. The smaller OMCs have remained at more or less the same market share since the liberalization of the market. The fall of the market share of BP has mainly corresponded with the increase in market share of Total. Moreover, BP is still the dominant player at 38 per cent of market share. It is therefore reasonable to conclude that it will take a long period of time for dominance to be reduced in the petroleum downstream industry in the absence of significant regulatory and structural reform.

Submissions from the industry stakeholders interviewed included the following:

- Some small OMCs interviewed complained that regulatory requirements made entry into the industry prohibitive due to the high cost of meeting the required standards of building facilities (service stations and storage facilities). This complaint was countered by other OMCs who felt that there is need for the regulator to insist on, safety standards because the industry deals with a hazardous product. They further argued that the ERBs insistence on a minimum capitalisation level was necessary to ensure that only serious players are allowed into the market.
- Trucks are not allowed to move at night. This reduces their utilisation of company owned trucks and forces them to use hired trucks, thus increasing their transportation costs.  
This measure was introduced so as to deal with fuel thefts and adulteration.
- BP and Total are price leaders. All OMCs are at least mindful of prices that BP and Total are charging. The price behaviour is evidence of the existence of dual price leadership in the market.  
With dominant players in the market, this behaviour is expected.
- The price CAP only applies to small OMCs. The Bigger ones sometimes exceed the maximum price without being censored.

The survey of pump prices conducted in Lusaka, Kitwe and Ndola revealed that no OMC had exceeded the maximum price set by the ERB. Most of the big OMCs were selling their products at the maximum price,

- The requirement for OMCs to keep 15 days stock is a barrier to entry and the ZMK65 (US\$ 0.137)/litre provision in the pricing structure is not adequate to meet the cost of purchasing the stock and the finance costs associated with holding these stocks. This requirement is a licence condition and was promulgated by the issuance of Statutory Number 90 of 2005, The Energy Regulation (Minimum Petroleum Product Stocks) 2005.

This would require a detailed study to ascertain its validity.

- The prohibition of decanting in the service station from a foreign truck is unnecessarily increasing transportation costs of imported finished products. They submitted that it was not possible to have a depot in every border town where one has a service station. Meaning that if a truck is coming from the southern route for example and you have a service station in Livingstone and your depot is in Ndola, the truck will have to bypass the service station in Livingstone to decant at the depot in Ndola. One then has to hire a local truck to pick the fuel from Ndola and take it back to Livingstone. This means that the fuel will have to be transported through an additional 1,600 km.

This measure was introduced so as to deal with fuel dumping, thefts and adulteration.

- The Government should repair the disused depots in the districts and run them on a commercial basis. This would help OMCs with service stations in outlying areas. The Government has announced that they are in the process of repairing these disused depots. It is not clear if they will open them for use by third parties.
- A major concern was raised concerning the lack of supervision of bitumen (brief case) traders from South Africa by the sector regulator. This was cited as a case of regulatory failure.  
sThe ERB responded as follows” the bitumen traders particularly, Colas Zambia limited have a major complaint in that the major road contractors import bitumen for own consumption without ERB licences. There will be a need to further improve monitoring of this section of the industry. However, since the ERB does not licence “for own consumption” activities more consultation will be required on this matter”.
- Feedback from the market is that that some distributors are selling butane to unsuspecting customer as though it is LPG.  
This would require to be investigated to ascertain its validity.
- The high fuel prices in the country are partly due to the high taxes in Zambia compared to other countries in the region. See figure 12 for comparative tax regional tax figures.

This problem is acknowledged by all.

- It is becoming more prevalent among OMC who close service stations to sale the land on condition that it will not be developed into another service station. It is believed that this is done so as to stifle competition. Environmental issues arise because the underground tanks are usually not properly disposed of.

This would require to be investigated to ascertain its validity.

- Some small OMCs complained that TPL, the Government agent is refusing to extend credit to them even when they offer to obtain a bank guarantee. The feel that this practice is aimed at making them uncompetitive.

This would require to be investigated to ascertain its validity.

- It was alleged that the mines sell fuel to their transporters at special prices. The question is whether or not the mines should also be dealing in fuel distribution, even if it is to their contracted transporters.

This would require to be investigated to ascertain its validity.

- It was alleged that some OMCs are offering low prices and very good terms to commercial customers where the competition is stiff and the customers have bargaining power and making up for these lost revenues from the retail business where the customer is in no position to negotiate for a better price. This they said was done through the inclusion of a financing cost in the pump price build up and yet the retail customers pays cash for the product. The issue is whether or not the OMCs were cross-subsidising between commercials and retail customers. Some OMCs argued that the finance cost in the pump price build up was meant to cover the financing costs incurred for the construction of infrastructure (the service station),

A report by an independent consultants engaged by the ERB, in 2006, concluded that “OMCs do not extend credit to dealers and therefore should not include cost of finance as an expense in their cost build up leading to pump prices”.<sup>76</sup>

- OMCs have complained of unfair competition from OMCs that are selling adulterated Diesel at low prices. The allegation is that the Diesel is being mixed with Kerosene. Some support this argument with the industry sales statistics that show that Kerosene sales by some small OMCs are not supported by their overall market share or their distribution networks (see figure 21). This argument is further supported by a story carried in a newspaper in Tanzania, the Citizen, which stated that the “The Energy and Water Utility Regulatory Authority (EWURA) has announced that results from a test conducted confirmed that Total Rafiki Station sold adulterated fuel to vehicles in the presidential motorcade”. A statement released in Dar es Salaam said in addition to the one year closure, owners of the fuel station would be fined Sh5million for a second offence. The article further stated that the results also indicated that fuel at Mount Meru Petroleum Ltd where the Total Rafiki Station had said he bought his fuel

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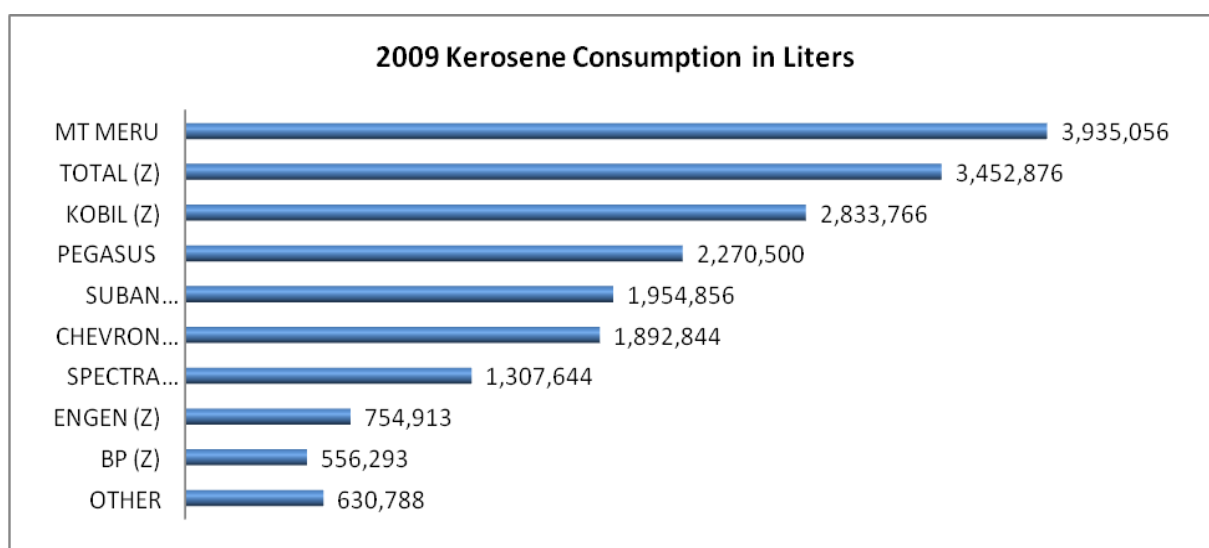
<sup>76</sup> Report on the Study of Margins in The Downstream Petroleum Industry,

from, was contaminated and the owners face a year closure plus a Sh5 million fine because it was a second offence.<sup>77</sup> This allegation was countered by the small OMCs who argued that they are able to offer lower prices because they have less overheads mainly because they are vertically integrated from Distribution, Retailing and Transportation. They argued that they therefore have three Margins (OMC Margin, Dealer Margin and Transporter Margin) to play around with, unlike the larger OMCs that hire transport and run CODO service stations.

The sector regulator had this to say over the matter “If adulteration is taking place it should stand to reason that the OMCs engaging in this act could ultimately undercut competitors. Although these allegations have not been definitely proven, the ERB has detected adulterated fuel through its periodic sampling inspections. The ERB will continue working with other agencies in arresting this scourge”.

Below is the 2009, Kerosene consumption by OMC. Compare this with the overall fuel consumption of 2009, in figure 11.

**Figure 20 2009 Kerosene Consumption by Entity**



- Due to the higher fuel prices in Zambia compared to those of its neighbours (see figure 14), OMCs with service stations in border towns have complained of rampant illegal fuel vending and factors such as the so called “fill up tourism” which are fuelled by comparatively low fuel prices in neighbouring countries. Some OMCs estimate that in some border areas, illegal fuel vending and “fill up tourism”, accounts for about 50 per cent of the market.

The ERB responded as follows: “Illegal fuel vending continues to be a serious source of concern for the ERB, especially in border towns as the fuel in the neighbouring

<sup>77</sup> The Citizen of Tanzania, Friday, 18 June 2010,

countries usually tends to be cheaper. The ERB, other agencies and the OMCs are engaged in concerted efforts to curb illegal fuel vending due to the hazardous effects it poses to humans and the environment in general. Besides, there is no way of assuring the quality of the illegally vended fuel”.

In 2002, the ERB led a team of stakeholders in formulating strategies for combating illegal fuel vending, fuel dumping and fuel adulteration. The following strategies were adopted:

**Legislative review:** This resulted in the enactment of SI No. 46 of 2002, The Energy Regulation (Marking and Transportation of Petroleum) Regulations, 2002.

**Marking of Fuels:** The SI included the aspect of marking. The programme was implemented. However, it did not last beyond the first marking contract due to disagreements on who was to fund the exercise. The ERB had this to say “Fuel marking is still an option worth considering for the purpose of detecting adulteration, thefts, smuggling and so on. However, its implementation has potential implications on the price of petroleum products. Therefore, a cost benefit study may be necessary before implementation of the option”.

**Public awareness campaign:** Public sensitising materials were prepared and disseminated. The Report on the Study of Margins in The Downstream Petroleum Industry recommended an OMC margin of 9USc/Litre, which is 50 per cent higher than the 6USc/Litre prescribed by the ERB<sup>78</sup>.

In the light of a highly concentrated distribution market, the disengagement of some Oil Majors presents an opportunity for the regulators to dilute the market concentration. According to section 15 of the Competition and Consumer Protection Act, No. 24 of 2010, BP which had 34 per cent market share as at the end of 2009, is above the threshold of thirty percent and holds a dominant position.

It was BP’s view that BP Africa would like to sell off all the assets of BP Zambia Plc as one unit. This constitutes a simple transfer of market power. The disposal of BP assets offers an opportunity for existing and potential new entrants to purchase existing contracts and assets.

The Competition and Consumer Protection Act, No. 24 of 2010 does not prohibit the existence of a dominant position and market power per se. It is only the abuse of the dominant position that is prohibited under Section 16 of the Act. Mergers and acquisitions that would result in significant power in the market should be blocked ex ante so as to avoid the difficult task of ex post monitoring of abuse of dominant position. For example, the abuse of dominant position may not necessarily mean that the oligopoly members make anticompetitive agreements, it can also be effected through implicit collusion, which might be difficult to detect.

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<sup>78</sup> Report on the Study of Margins in The Downstream Petroleum Industry, 2006.

South African petroleum group Engen is in the process of taking over Chevron's fuel distribution interests in seven countries in Africa. In Zambia, the purchase agreement has been signed and the CCPC has granted unconditional approval. As at the end of 2009, Engen and Chevron had 5 per cent and 8 per cent market share respectively. Their combined shareholding comes to 13 per cent. The resultant company will be a significant player in the market. The merged company will be the third largest OMC and will offer the other two large OMCs stiff competition to the benefit of the consumers.

## **7.8 RETAIL**

The second segment on the demand side of the second market consists of dealers. The vast majority of these service stations are CODOs. These are governed by tenancy agreements between the OMCs and the dealers. A few service stations are COCOs (this is common with small family run OMCs) and even fewer service stations are DODOs.

The terms and conditions of the tenancy agreements are normally determined by the OMCs. A common characteristic of the tenancy agreements is that dealers have to exclusively source the fuel sold at the service stations from the mother OMCs. Such service stations are branded by the OMC.

There are two main competition issues in the second market. The first is to do with whether OMCs practice price discrimination in segmented markets by offering lower prices and favorable credit terms to commercial customers whilst making up from the retail business. This has been refuted by those with big market shares in the commercial segment of the market saying that the lower prices to commercial customers is a consequence of the comparatively lower costs associated with the provision of product to the commercial segment of the business.

The second issue relates to OMCs' vertical integration between the distribution and retail businesses and its impact on competition. OMCs invest in service stations so as to establish for themselves a guaranteed market. As earlier outlined, the majority of service stations are CODOs. This implies that although there are many dealers, the dealers are not free to shop for products from different OMCs. In essence, the dealers become agents of OMCs. Thus, the retail segment of the second market is an extension of the first market and is contracted in nature. This is a significant limitation to competition.

The third market consists of many service stations serving many small customers. In theory, this market is supposed to be relatively competitive. No single service station is big enough to affect price by its own actions, except in specific geographical locations. However, as mentioned above, majority service stations are CODOs. Due to the restriction on competition because of vertical integration, this is an oligopoly market.

The terms of the tenancy agreements are such that the OMC and not the dealers determine the prices of petroleum products. OMCs own the service stations, which are part of their fixed plant investment. Consequently, prices for products sold in these service stations should fall within the OMCs' overall pricing and quantities (volumes and market share) strategies.

The OMCs could choose to operate or lease out the service stations. Lease agreements are signed between willing sellers and willing buyers. Thus, the vertical integration of OMCs gives them power to determine prices in the downstream.

In order to reduce this power, the regulatory agency has three options –

1. Prohibit vertical integration in the downstream, particularly, prohibit vertical integration of the distribution and retail businesses. This move would require that OMCs divest all their service stations. The following concerns were noted:
  - a. Such a move is likely to result in loss of interest and confidence in the Zambian petroleum market and firms may exit the market.
  - b. Given the amount of investment required to build service stations, the standards of services stations in the country would drop drastically in the hands of individuals.
  - c. It would be a logistical nightmare for the ERB to monitor over two hundred service stations and cases of fuel adulteration would be impossible to resolve where the services station buy product from several OMCs.
  - d. It is felt that the customer stands to lose more under this arrangement, than what they stand to gain from the prospects of enhanced competition. A case in point is the confusion in the lubricants business.
  - e. The bigger OMCs see this as opening up of their fixed investment to “dumping” of product especially by small OMCs that have low levels of investment and therefore lower average costs.
2. Require that all tenancy agreements between OMCs and dealers be approved by the ERB before coming into force. This way the regulator would disallow terms and conditions that are anti-competitive. It is felt that this would not be significantly different from the first option; and
3. Regulated pricing of petroleum products to end at the handover price from the OMC to the dealer. This way, the dealers would be free to determine their gross margins taking into account their cost structures and volumes strategies. Large OMCs interviewed were of the view that such a move would remove the incentive for the new entrants to invest in new fixed plant (depots and service stations).

Some large OMCs complained that new OMCs that have not yet built their own service stations report both commercial and retail sales in their statistics to ERB. The large OMCs conclude that this is proof that the said OMCs dump products at service stations of other OMCs.

This would require to be investigated to ascertain its validity.

When asked to comment on which model (CODO, COCO, DODO) would enhance competition in the retail market the ERB said, “The ERB currently licences all the three types of service stations. Under DODO, the dealers are not tied to OMCs. For quality control purposes, independent service stations still need to be operated in such a manner that allows the quality of fuel to be traced back to the source”.<sup>79</sup>

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<sup>79</sup> ERB

The Report on the Study of Margins in The Downstream Petroleum Industry concluded that dealer operating costs from all the three markets Lusaka, Copperbelt and Provincial Markets are at a level that cannot be sustained by existing dealer margins. The study recommends US\$ 0.06/Litre, which is 50 per cent higher than the US\$ 0.04/Litre prescribed by the ERB.

Complaints from some CODO Service Station Operator is that the OMC determines what margin the operator gets and it is often well below what the ERB has prescribed which is itself inadequate according to the findings of the study.<sup>80</sup>

There exist geographical markets within cities. These markets are based on geographic substitution possibilities available to the consumer with regard to the economic good concerned and are defined by distance and/or accessibility for motorists.

Price retaliation is been practiced in these markets. The issues is whether this is predatory pricing or just competitive pricing.

## ***7.9 BLENDING, PACKAGING AND TRADING IN LUBRICANTS.***

One serious concern raised by all entities dealing in lubricants is the unlevel playing field. This has resulted in unfair competition from unlicensed dealers. It is further alleged that some of these illegal traders could be smuggling the lubricants into the country and that is why they are able to offer the lubricants at very low prices. The quality of these lubricants and/or their suitability for this market was said to be questionable.

Stakeholders stated that numerous complaints made to the sector regulator, the ERB have not yielded any positive results. It's the industry's view that the case of lubricants in this country is one of total "Regulatory Failure" by the ERB, ZABS and ZRA. It is noteworthy to mention here that, as earlier mentioned in this report, the ERB has acknowledged the existent and the extent of the problem.

# **8 CONCLUSIONS**

## ***8.1 CONDITIONS PREVAILING IN THE MARKET***

The Upstream Petroleum Industry in Zambia is still in its infancy. It is still at the exploration stage. No production has yet occurred.

Three of the main players in the Zambian petroleum value chain are SOEs. These are:

- TAZAMA Pipelines Limited. The pipeline is a 1, 704 kilometre facility running from the tank farm at Kigamboni in Dar-es-Salaam to the refinery at Ndola in Zambia. This provides pipeline transportation of feedstock to the refinery and is a natural monopoly. TAZAMA is also managing the feedstock on behalf of government in an agency arrangement,
- Indeni Petroleum Refinery Limited. This is the only refinery in the country, a single monopoly, and

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<sup>80</sup> Report on the Study of Margins in The Downstream Petroleum Industry, 2006.



- Ndola Fuel Terminal. This is the only bulk storage facility in the country, a monopoly.

The first market of the petroleum value chain is the wholesale of refined petroleum products and consists of one supplier (feedstock importer) and several buyers (OMCs), and thus is a monopoly market. This market is intermediary in nature since OMCs resale the petroleum products to commercial customers and dealers (the second market). Within the first market, the LPG and Bitumen segments are characterized by one supplier (the feedstock importer) and one major buyer Afrox (Z) Limited and Colas (Z) Limited for LPG and Bitumen respectively. Both segments are dual monopoly markets. The second market has two segments, the OMCs as suppliers and commercial customers and dealers as buyers. The first segment is a final market as commercial customers purchase the petroleum products for their own consumption. The second segment is an intermediary market since dealers resell the petroleum products.

OMCs are vertically integrated in the distribution and retail businesses. The second market has several suppliers (OMCs) characterized by joint dominance and many buyers (commercial customers and dealers), an oligopoly market.

The third market consists of dealers as suppliers to retail customers. This market is final in nature as retail customers purchase the petroleum products for final consumption. The market is characterized by many suppliers and many buyers, potentially a competitive market.

The distribution of petroleum products is mainly done by road transportation.

The petroleum wholesale price is determined using the Cost-Plus Pricing (CPP) model, and the pump price is determined using the Price Cap Pricing Mechanism. Both are regulated prices.

On Friday 17 September, 2010, the Government announced the introduction of a Uniform Petroleum Pricing (UPP) Mechanism in the country. On Saturday September 18, 2010, the Energy Regulation Board (ERB), the Government regulatory Board in the energy sector implemented the UPP Mechanism and announced the new countrywide prices that took effect at midnight the same day.

The Energy Regulation Board was established by the Energy Regulation Act, No. 16 of 1995. This Act was amended by the Energy Regulation (Amendment) Act No. 23 of 2003.

The Competition and Fair Trading Act, Cap 417 of the Laws of Zambia No. 18 of 1994 established the Zambia Competition Commission (ZCC), which institution stated its operations in 1997. The Competition and Consumer Protection Act, No. 24 of 2010, repealed this Act and renamed the Commission to Competition and Consumer Protection Commission (CCPC).

The National Energy Policy (NEP) is the main energy policy document in the energy sector, guiding changes and developments in the sector. The policy document contains measures for each energy sub-sector, outlines strategies for implementation and identifies the legal framework required to implement the policy.

## **8.2 ROLE OF THE STATE AND PUBLIC POLICIES IN THE SECTOR**

The Ministry of Energy and Water Development (MEWD) is Zambia's principal Government body responsible for energy policy formulation and administration. The Ministry has developed the National Energy Policy (NEP) which guides changes and developments in the energy sector.

The Government policies influence the level of competition in the sector by determining the market structure, the Government involvement in the sector and the level of liberalisation. In 2001, the Government announced the liberalisation of the pump price. This year, the Government has introduced Uniform Petroleum Pricing (UPP) Mechanism. This in effect reverses the liberalisation of the pump price.

## **8.3 TRANSPARENCY IN THE SECTOR**

The main transparency concern in the sector has been the method of feedstock procurement. It is pleasing to note that the awarding of the last two contracts has been done in a transparent manner and with due diligence, in accordance with the provisions of the Public Procurement Act No. 12 of 2008. This has helped to address the concerns people had on the authenticity of the cost of feedstock which is the main factor for the determination of the petroleum wholesale price.

The energy sector has a sector regulator, the ERB. The existence of the ERB has tremendously enhanced the transparency in the sector. However, instances of regulatory failure, where the ERB is seen not to enforce the laid down procedures and standards is undermining the sectors transparency.

## **8.4 EFFICIENCY OF THE SECTOR**

The petroleum sector is at the moment running inefficiently. Factors adversely affecting the sector's efficiency include the following:

- State ownership inefficiencies have resulted into:
  - Operating inefficiency emanating from allocative inefficiency: e.g. repairs and maintenance is underfunded, due to the company's inability to charge cost reflective tariffs as a result of government's desire to keep the cost of fuel low, resulting in poor performance of the companies.
  - High labour costs. Usually high numbers because the SOEs are seen as a means of providing employment.
  - Poor quality of service.
  - Efforts to improve efficiency are blunted by a desire for a quiet life due to the Government protection.

- Dynamic inefficiency resulting in the inability for the company to respond to changing market requirements as exemplified by Indeni's failure to recapitalize so as to produce cleaner fuels.
- The choice of the route that the pipe line took was driven by the regional politics at that time rather than economic considerations. There are alternative routes which would have turned out to be cheaper.
- The refinery is running inefficiently and passing on its inefficiencies downstream.
- The country's failure to expand its export market and benefit from economies of scale and reduction in the industries average costs that would result from an expanded market.
- Prohibitive import duty (at 25 per cent) imposed on imported petroleum products by government to discourage the importation of cheaper imports.

## ***8.5 CONDITIONS AND PRACTICES THAT LIMIT COMPETITION IN THE SECTOR***

Conditions and practices that limit competition in the sector include the following:

- Governments involvement in the procurement of petroleum feedstock.
- Protectionist approach adopted by the Government. This is done by the variation of import duty by the Government as means of discouraging imports.
- The market structure is such that competition is difficult to realise:
  - Three of the main players in the value chain are state owned monopolies:
    - TAZAMA Pipelines Limited, a natural monopoly.
    - Indeni Petroleum Refinery Limited, a monopoly.
    - Ndola Fuel Terminal, a monopoly.
- The distribution segment of the value chain is characterised by joint dominance by BP Zambia Plc and Total Zambia Limited.
- OMCs are vertically integration between the distribution and retail businesses.
- The failure by the sector regulator, ERB, to enforce the provisions of the Energy Regulation Act, especially with regards to investments by OMCs and illegal lubricants traders, is distorting competition.

## ***8.6. CONDITIONS AFFECTING THE LEGAL AND REGULATORY ENVIRONMENT***

The key legal and regulatory issues are summarised below:

- The Competition and Consumer Protection Act, No. 24 of 2010 and the Energy Regulation (Amendment) Act No. 23 of 2003 provides adequate legal provisions for the effective monitoring and resolution of competition issues in the energy sector.
- The CCPC is grossly underfunded. This has resulted in under and inadequate staffing and other operational difficulties.
- The CCPC has suffered from a relatively poor visibility in the domestic economy, owing largely to the low level of public awareness of its activities and/or interventions in key sectors of the economy.

- The CCPC and the ERB should quickly conclude the MOU between them. This will enhance the monitoring and resolution of competition issues in the energy sector.

The CCPC has dealt with a considerable number of cases and has scored some notable successes. Given the level of funding, it's fair to say that the CCPCs performance has been well above expectation.

## **9 RECOMMENDATIONS**

### ***9.1 MEASURES TO IMPROVE THE CONDITIONS IN THE MARKET***

#### **9.1.1 MEASURES TO STRENGTHEN THE INSTITUTIONAL FRAMEWORK**

The Competition and Consumer Protection Commission should be adequately funded. This can only be attained if the Government increases the funding levels to the Commission or if the Commission is funded by a fee to be paid by companies at the time of registration and/or at the time of submitting their annual returns.

#### **9.1.2 MEASURES TO IMPROVE TRANSPARENCY IN THE SECTOR**

- The procurement of petroleum feedstock should be done in a transparent manner through a competitive bidding process, and,
- The sector regulator should build stakeholder confidence in the sector by firmly and fairly enforcing the provisions of the law.

#### **9.1.3 MEASURES TO IMPROVE THE EFFICIENCY OF THE SECTOR**

- The Government should commercialise the operations of the three SOEs in the petroleum value chain. These are TAZAMA Pipelines Limited, Indeni Petroleum Refinery Limited and the Ndola Fuel Terminal. The most desirable mode would be to concession these assets. In this way, the private sector gets involved while ownership still remains with the Government.
- The Government should consider developing an alternative route for the transportation of petroleum products, preferably finished products. One possible route that could be as cheap as or even cheaper than the TAZAMA route is importation of refined products by pipeline from Beira through Harare.
- As a matter of urgency, the Indeni Petroleum Refinery Limited must be recapitalised for rehabilitation. As a barest minimum it should be upgraded to allow it meet the regional specification for unleaded petrol and low sulphur diesel and reduce losses to acceptable levels.
- The Government should discontinue protectionist schemes. In the worst case scenario, subject to findings of a detailed study justifying this course of action, the Government could also consider closing the processing section of the refinery while preserving the storage and handling facilities.
- The tax regime governing exports should be reviewed with a view to facilitate exports. Indeni and TAZAMA and the country as a whole will benefit from a bigger market that will mean higher throughputs through these companies and greater economies of scale. This will also make the two companies more attractive as investment opportunities.

## **9.2 MEASURES TO IMPROVE COMPETITION IN THE SECTOR**

- With regards to the procurement petroleum feedstock:
  - The private sector, OMCs, should form a consortium whose responsibility will be the procurement of petroleum feedstock.
  - The concerns raised by the OMCs in 2001 (operational state of infrastructure) when this idea was first discussed should be attended to. The concessioning of the Government assets namely TAZAMA Pipelines Limited, Indeni Petroleum Refinery Limited and Ndola Fuel Terminal could address these concerns.
  - The ERB should issues appropriate licences and monitor the operations of the consortium, including issues to do with pricing.
- The Government should apply the same import duty on all petroleum products. Rather than adopting a protectionist approach, the Government should commercialise them and allow them to compete.
- Open access regimes should be enforced on all monopolies in the petroleum value chain. These are TAZAMA Pipelines Limited, Indeni Petroleum Refinery Limited and Ndola Fuel Terminal. This should be a regulated open access regime where the infrastructure operator cannot own the products.

## **9.3 MEASURES RELATED TO THE ALLEGED ANTI-COMPETITIVE PRACTICES**

Stakeholders interviewed raised some pertinent issues. Most of them, however, need to be investigated so as to establish their validity, the extent of the problem and determine the appropriate course of action for their resolution. Issues raised include the following:

- Some transporters are not investing much in their tankers (as they do not meet the set standards) and are therefore able to accept low rates being offered by OMCs. This is making it difficult for transporter, who are investing in their tankers, to negotiate for higher rates and it is distorting competition.
- The licence condition requiring OMCs to keep 15 days stock is a barrier to entry and the ZMK65 (US\$ 0.0137)/litre provision in the pricing structure is not adequate to meet the cost of purchasing the stock and the finance costs associated with holding these stocks.
- The lack of supervision of bitumen (brief case) traders from South Africa and illegal lubricants traders by the sector regulator is distorting competition.
- It is becoming more prevalent among OMCs who close service stations to sale the land on condition that it will not be developed into another service station. The main aim of this action is to stifle competition. Environmental issues also arise because the underground tanks are usually not properly disposed of.
- Some small OMCs complained that TAZAMA Pipelines Limited, the Government agent, is refusing to extend credit to them even when they offer to obtain a bank guarantee.
- It was alleged that some OMCs are offering low prices and very good terms to commercial customers where the competition is stiff and the customers have

bargaining power and making up for these lost revenues from the retail business where the customer is in no position to negotiate for a better price. This they said was done through the charging of a financing cost in the pump price build up and yet the retail customer pays cash for the product. The issue is whether or not the OMCs were cross-subsidising between commercial and retail customers.

- The Competition and Consumer Protection Commission should block ex ante, Mergers and Acquisitions that would result in significant power so as to avoid the difficult task of ex post monitoring of abuse of dominant position.
- OMCs' vertical integration between the distribution and retail businesses restricts competition. Facts on the ground point to the fact that the customer stands to gain more under this arrangement, than what they stand to gain from the prospects of enhanced competition, that would arise under Dealer Owned and Dealer Operated (DODO) service stations,
- Some large OMCs complained that some OMCs dump products at service stations of other OMCs.

#### ***9.4 MEASURES RELATED TO THE ALLEGED UNFAIR TRADING PRACTICES***

- Feedback from the market is that some industry players are selling butane to unsuspecting customer as though it is LPG.
- OMCs have complained of unfair competition from OMCs that are selling adulterated Diesel at low prices. The allegation is that the diesel is being mixed with kerosene.

#### ***9.5 GENERAL MEASURES***

Other issues of importance to the sector include the following:

- It has been suggested that the Government should make the depots that it's repairing in the provinces available to third parties. This will encourage OMCs to invest in rural areas.
- Zambia continues to have one of the highest tax regimes on fuel in the region and consequently one of the highest fuel prices in the region. It's the view of most stakeholders that the Government should review the tax regime on petroleum products. Amongst other measures government should consider reviewing the ad valorem (percentage of value of goods) basis of taxation. Some countries like South Africa have dealt with this problem by applying absolute (non-percentage) taxes on fuel.
- The ERB should find a lasting solution to illegal fuel vending. Due to the higher fuel price in Zambia compared to those of its neighbours, OMCs with service stations in border towns have complained of rampant illegal fuel vending which has grown to levels that make the illegal fuel vendors significant players in those markets.
- It was alleged that the mines sell fuel to their transporters at special prices. The question is whether or not the mines should also be dealing in fuel distribution, even if it is to their contracted transporters.
- OMCs require transporters to brand their tankers without guaranteeing business. The usage of these branded tankers is restricted as they cannot be used to transport product for another OMC. This practice is disadvantaging transporters.

- The OMCs, transporters and dealers complained that operating costs are at a level that cannot be sustained by existing margins.
- Fuel marking should be considered as a strategy for detecting fuel adulteration and curbing thefts, dumping and smuggling. This measure should be backed by appropriate legislation. To successfully implement it, a cost benefit study may be necessary and a sustainable funding mechanism must be developed.
- The Government should put in place programmes that will promote the use of LPG as an alternative energy source for domestic purposes. This should include specific and targeted fiscal measures as well as public awareness campaigns.

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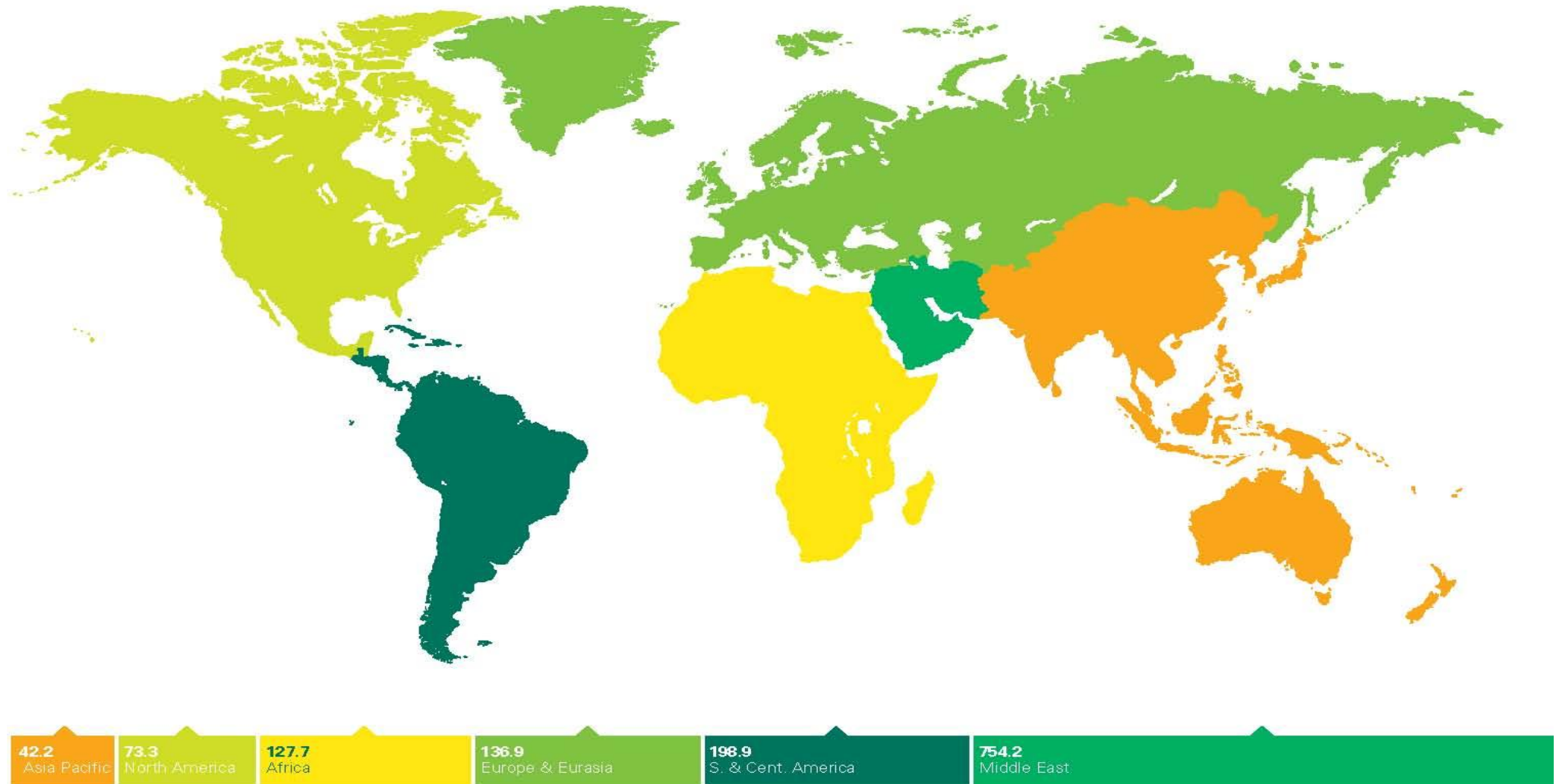
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**Proved reserves at end 2009**

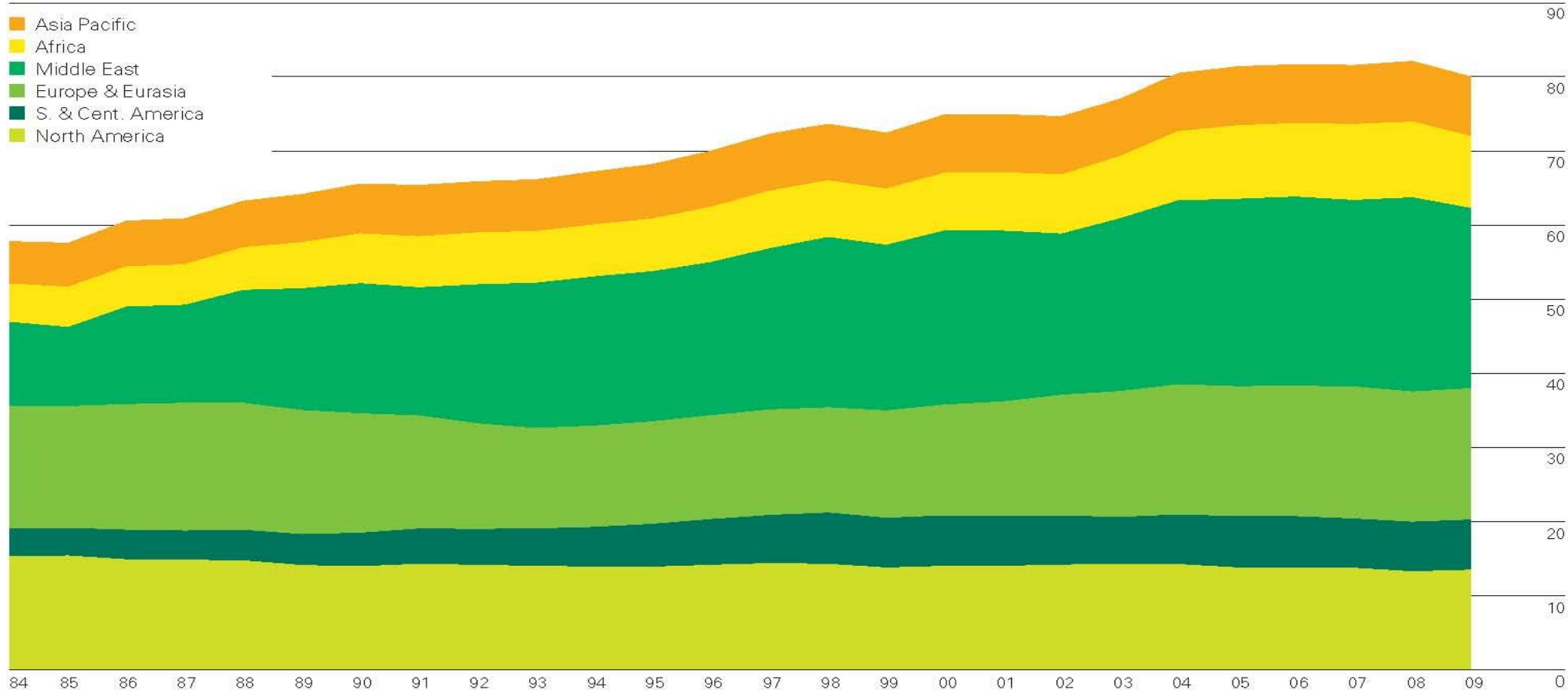
Thousand million barrels



Source: BP Statistical Review of World Energy, June 2010, [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).

**Production by region**

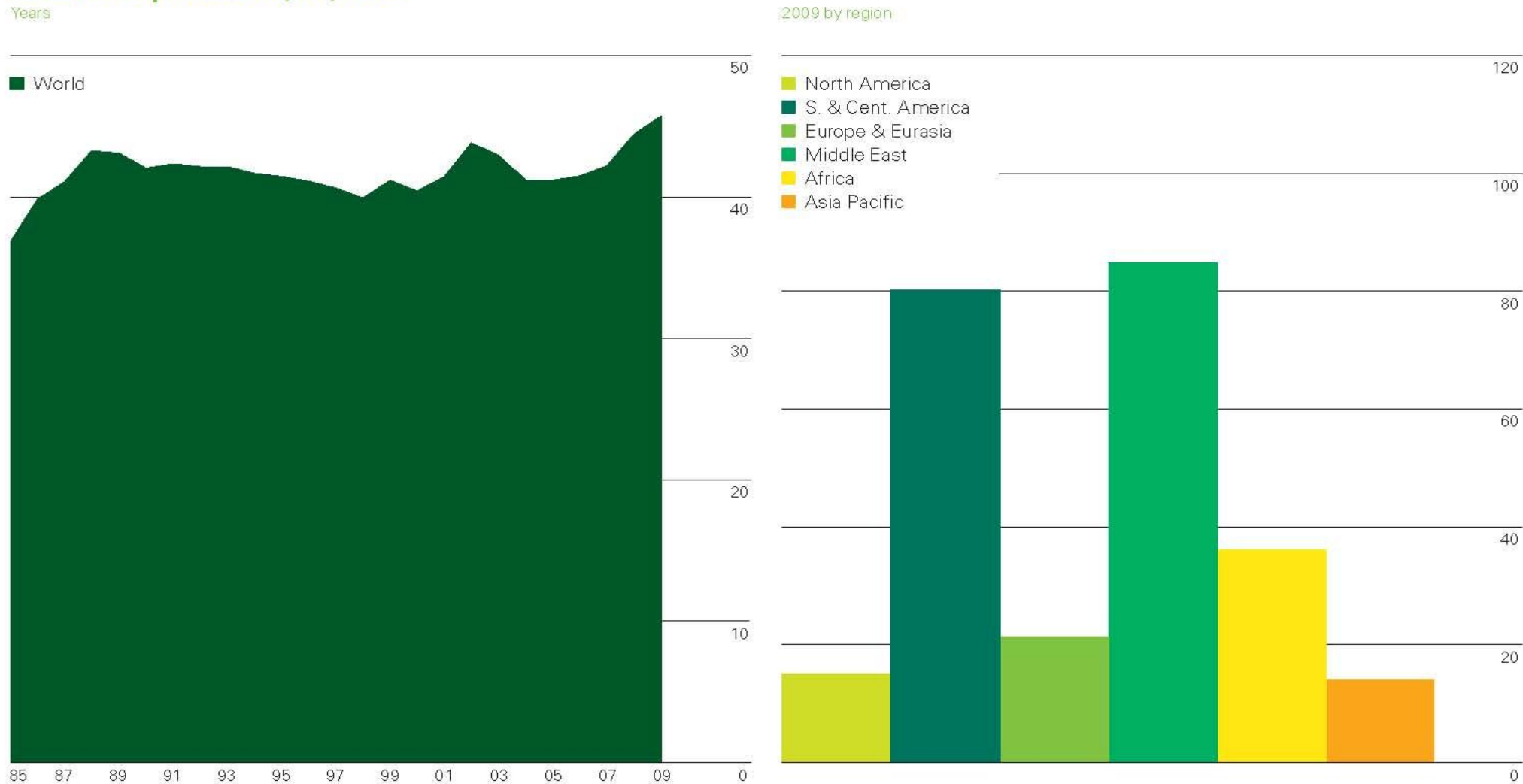
Million barrels daily



World oil production fell by 2 million b/d in 2009, the largest decline since 1982. OPEC production fell by 2.5 million b/d; Saudi Arabian output fell by 1.1 million b/d, the world's largest volumetric decline. Production outside OPEC rose by 450,000b/d, led by an increase of 460,000b/d in the US, the largest increase in the world and the strongest US growth since 1970.

**Source:** BP Statistical Review of World Energy, June 2010, [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).

Reserves-to-production (R/P) ratios

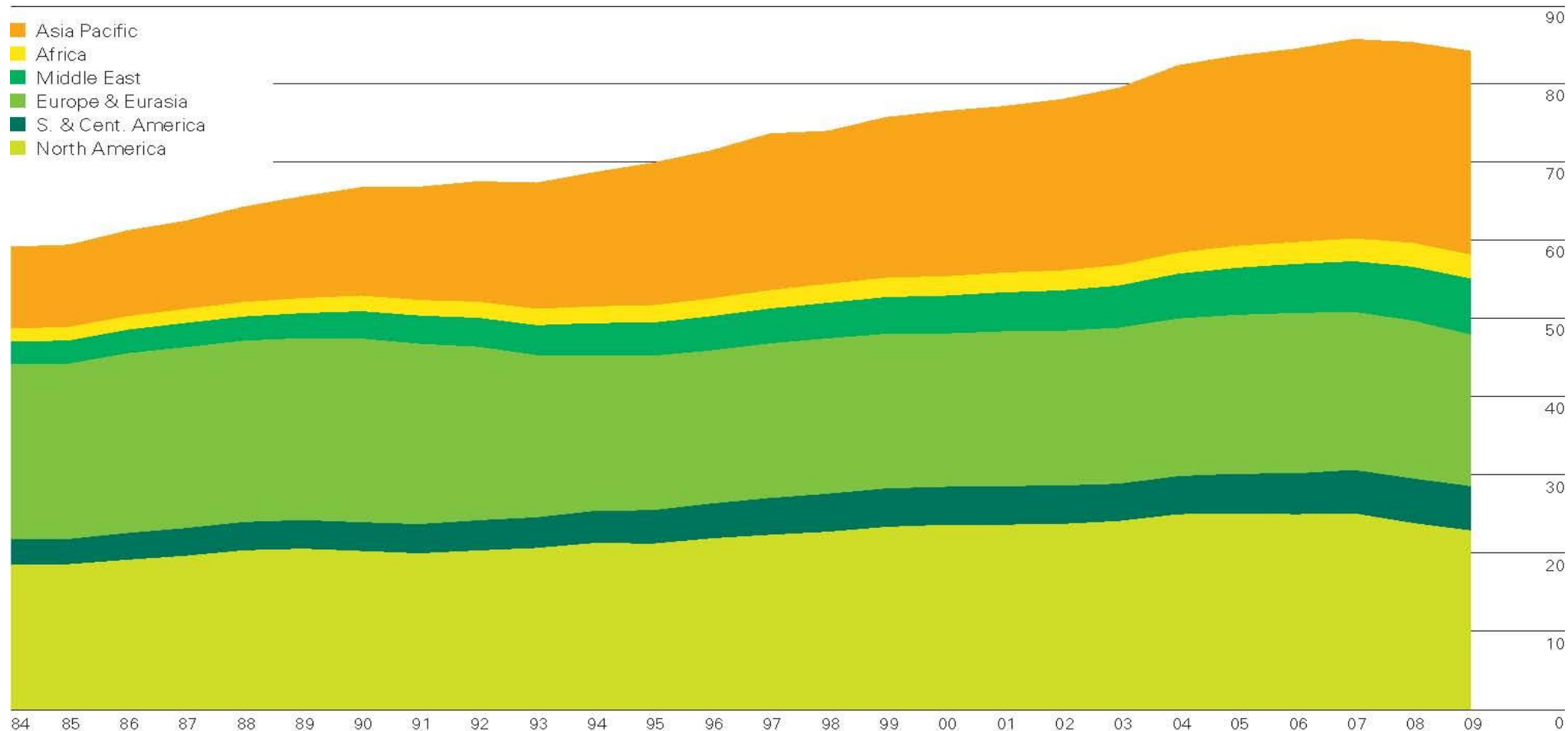


Global proved oil reserves rose by 0.7 billion barrels to 1,333.1 billion barrels, with an R/P ratio of 45.7 years. Increases in Indonesia and Saudi Arabia more than offset declines in Norway, Mexico and Vietnam. The 2008 figure has been revised higher by 74.4 billion barrels, largely due to an increase in Venezuelan official reserves.

Source: BP Statistical Review of World Energy, June 2010, [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).

Consumption by region

Million barrels daily



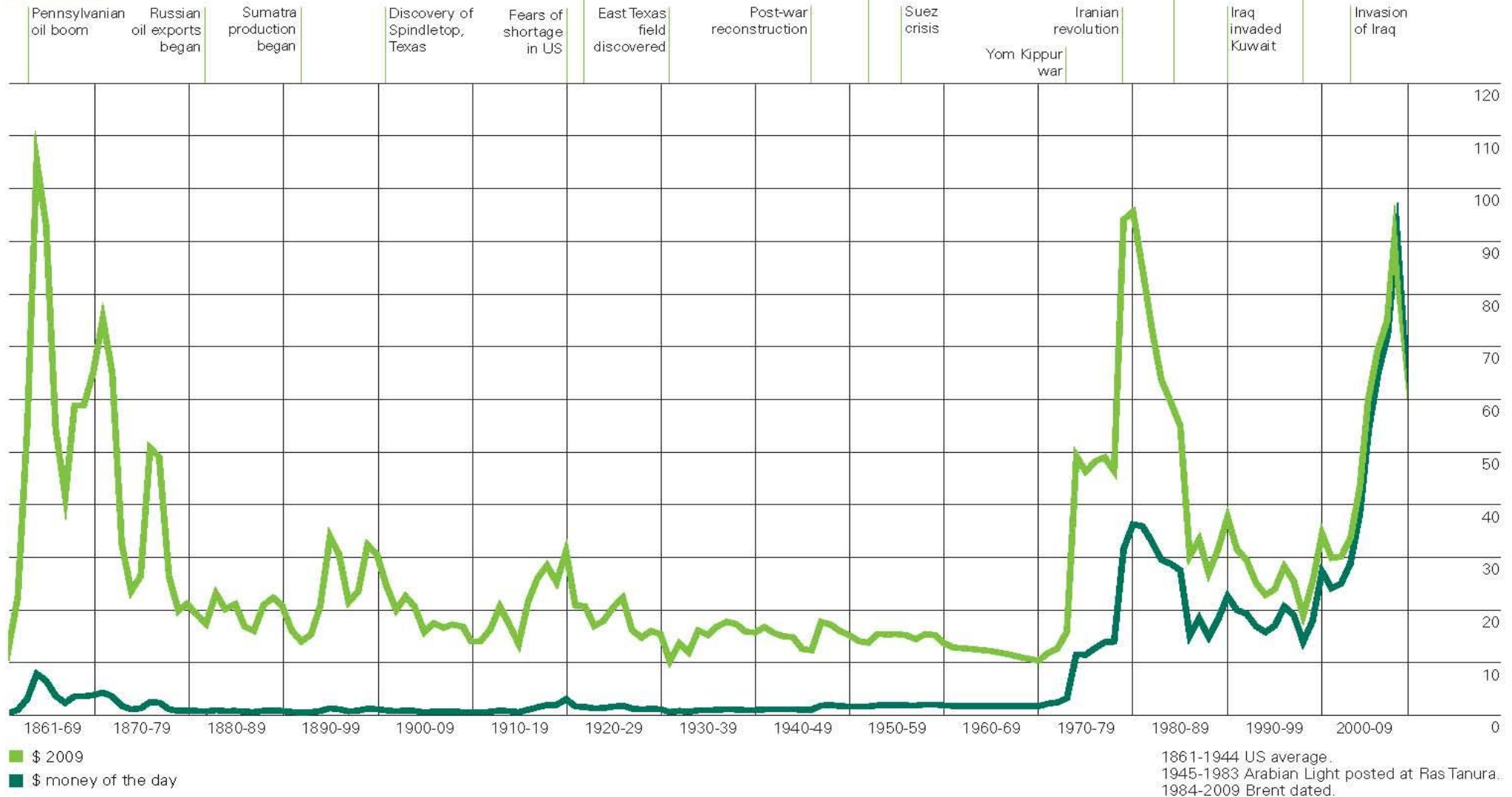
World oil consumption fell by 1.2 million b/d, a second consecutive decline and, like oil production, the largest decline since 1982. OECD consumption fell by 2 million b/d, a fourth consecutive annual decline. Consumption outside the OECD increased by 860,000b/d. Consumption declined in North America, South and Central America and Europe and Eurasia, outweighing modest increases in the Middle East, Africa and Asia-Pacific regions.

Source: BP Statistical Review of World Energy, June 2010, [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).

**Crude oil prices 1861-2009**

US dollars per barrel

World events

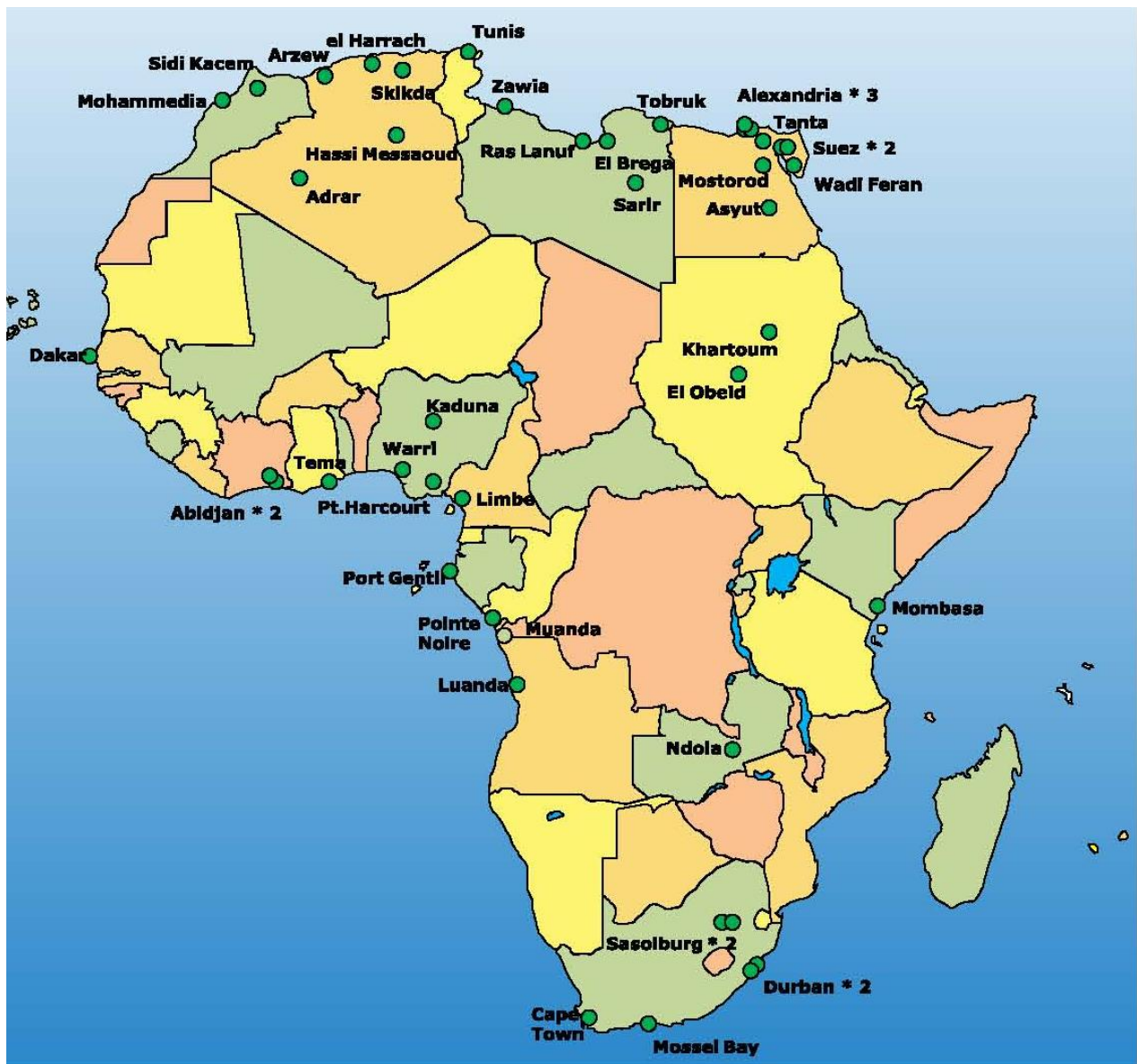


Source: BP Statistical Review of World Energy, June 2010, [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).

SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM  
INDUSTRY IN ZAMBIA

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LOCATION OF AFRICAN REFINERIES



Source : African Refineries Association.



**SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM  
INDUSTRY IN ZAMBIA**

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**COMESA TREATY, ARTICLE 50 - Security and Other Restrictions to Trade**

1. A Member State may, after having given notice to the Secretary-General of its intention to do so, introduce or continue or execute restrictions or prohibitions affecting:
  - (a) the application of security laws and regulations;
  - (b) the control of arms, ammunition and other war equipment and military items;
  - (c) the protection of human, animal or plant health or life, or the protection of public morality;
  - (d) the transfer of gold, silver and precious and semi-precious stones;
  - (e) the protection of any item deemed to be of national importance provided that the Member State concerned shall furnish proof to the Council that the item is of national importance; and
  - (f) the maintenance of food security in the event of war and famine.
2. A Member State shall not so exercise the right to introduce or continue to execute the restrictions or prohibitions conferred by this Article as to stultify the free movement of goods envisaged in this Chapter.
3. Security and other restrictions imposed in accordance with paragraph 1 of this Article shall not extend for more than is necessary to achieve security aims and other risks intended to be eliminated and shall be applied on the basis of non-discrimination.

**COMESA TREATY, ARTICLE 51 - Dumping**

1. The Member States recognise that dumping, by which products of a Member State are introduced into the commerce of another Member State at less than the normal value of the products, is to be prohibited if it causes or threatens material injury to an established industry in the territory of the other Member State or materially retards the establishment of a domestic industry.
2. For the purposes of this Article, a product is to be considered as being introduced into the commerce of an importing Member State at less than its normal value, if the price of the product exported from one Member State to another:
  - (a) is less than the comparable price in the ordinary course of trade, for the like product when destined for consumption in the exporting Member State; or
  - (b) in the absence of such domestic prices, is less than either:
    - (i) the highest comparable price for the like product for export to any third country in the ordinary course of trade; or
    - (ii) the cost of production of the product in the country of origin plus a reasonable addition for selling cost and profit:

Provided that due allowance shall be made in each case for differences in conditions and terms of sale, for differences in taxation and for other differences affecting price comparability.

3. A Member State may, for the purposes of offsetting or preventing dumping, and subject to the provision of paragraph 4 of this Article, levy on any dumped product an anti-dumping duty not greater in amount than the margin of dumping in respect of such product. For the purposes of this Article, the margin of dumping is the price difference determined in accordance with the provisions of paragraph 2 (b) (ii) of this Article.
4. No Member State shall levy any anti-dumping duty on the importation of any product of another Member State unless it is determined that the effect of the alleged dumping is such as to cause or threaten material injury to an established domestic industry or such as to retard materially the establishment of a domestic industry.

## **SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

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5. Dumping from a third country into a Member State shall be prohibited and any affected Member State may, pursuant to the provisions of paragraph 3 of this Article, levy an anti-dumping duty on any dumped products.

6. Proceedings initiated pursuant to the provisions of this Article shall be carried out in accordance with anti-dumping regulations made by the Council.

### **COMESA TREATY, ARTICLE 52 - Subsidies Granted by Member States**

1. Except as otherwise provided in this Treaty, any subsidy granted by a Member State or through state resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between the Member States, be incompatible with the Common Market.

2. A Member State may, for the purposes of offsetting the effects of subsidies and subject to regulations made by the Council, levy countervailing duty on any product of any Member State imported into another Member State equal to the amount of the estimated subsidy determined to have been granted directly or indirectly, on the manufacture, production or export of such product in the country of origin or exportation.

3. Except as otherwise provided in this Treaty, any subsidy granted by a third country or through state resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between the Member States and the third country, be incompatible with the Common Market.

4. A Member State may, for the purposes of offsetting the effects of subsidies and subject to regulations made by the Council, levy a countervailing duty on any product of any third country imported into another Member State equal to the amount of the estimated subsidy determined to have been granted directly or indirectly, on the manufacture, production or export of such product in the country of origin or exportation.

### **COMESA TREATY, ARTICLE 53 - Exceptions to Levying of Countervailing Duty**

No Member State shall levy a countervailing duty on the importation of any product of the territory of another Member State unless it determines that the effect of the subsidisation is such as to cause or threaten material injury to an established domestic industry or is such as to materially retard the establishment of a domestic industry.

### **COMESA TREATY, ARTICLE 54 - Co-operation in the Investigation of Dumping and Subsidies**

1. The Member States shall co-operate in the detection and investigation of dumping and subsidy practices and in imposing agreed measures to curb such practises.

2. Where there is evidence of dumping or export of subsidised goods by a third country to the territory of a Member State that threatens or distorts competition in the Common Market, the affected Member States may request the Member State in whose territory the goods are being dumped or exported to impose anti-dumping duties or countervailing duties on those goods from the third country.

### **COMESA TREATY, ARTICLE 55 Competition**

1. The Member States agree that any practice which negates the objective of free and liberalised trade shall be prohibited. To this end, the Member States agree to prohibit any

## **SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

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agreement between undertakings or concerted practice which has as its objective or effect the prevention, restriction or distortion of competition within the Common Market.

2. The Council may declare the provisions of paragraph 1 of this Article inapplicable in the case of:

- (a) any agreement or category thereof between undertakings;
- (b) any decision by association of undertakings;
- (c) any concerted practice or category thereof;

which improves production or distribution of goods or promotes technical or economic progress and has the effect of enabling consumers a fair share of the benefits:

Provided that the agreement, decision or practice does not impose on the undertaking restrictions inconsistent with the attainment of the objectives of this Treaty or has the effect of eliminating competition.

3. The Council shall make regulations to regulate competition within the Member States.

## SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA

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### NEP, Chapter 5.4 Petroleum

Petroleum is wholly imported and subject to ever increasing international prices and uncertain supply. The high cost of petroleum imports affects the costs of production and development programmes.

#### 5.4.1 Objective

The policy seeks to ensure an adequate, reliable and affordable supply of petroleum products at competitive and fair prices and also the reduction in importation costs.

#### 5.4.2 Policy Measure and Strategies

a) Enhance security and cost effectiveness of supply of petroleum by:

- (i) Attracting investment in the exploration and development of hydrocarbon resources;
- (ii) Facilitating the acquisition of geological and geophysical data for assessing the petroleum potential of the country;
- (iii) Building capacity in the relevant institutions to monitor and regulate petroleum exploration and development;
- (iv) Diversifying the shareholding structure in the petroleum refinery to include other investors;
- (v) Establishing and maintaining strategic stocks of feedstock and refined products ;
- (vi) Enhancing regional cooperation in the importation of petroleum to improve security of supply;
- (vii) Accessing alternative international sources of petroleum supply as well as alternative procurement and pricing mechanisms to reduce cost and supply vulnerability;
- (viii) Facilitating the blending of petroleum products with bio fuels like biodiesel and ethanol;
- (ix) Effective management of the Single Point Mooring (SPM) through Government-to-government cooperation between Zambia and Tanzania;
- (x) Increasing petroleum, infrastructure capacity including storage facilities;
- (xi) Rehabilitating the existing petroleum infrastructure and running them on commercial basis; and,
- (xii) Ensuring that the pipeline continues to be governed, and operated as agreed between the Zambian and Tanzania Governments.

b) To promote the participation of Zambians in the Petroleum Industry through:

- (i) Ensuring that Zambians hold shares in OMCs and given priority to participate in all stages of supply, transportation, storage and distribution.

c) Improve efficiency in the petroleum industry by:

- (i) Ensuring full capacity utilisation of existing petroleum infrastructure; and
- (ii) Encouraging investment in the modernisation of the petroleum infrastructure through appropriate incentives.

## **SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

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- d) Promote health and environmental safety in the petroleum sector through:
  - (i) Transitioning from leaded to unleaded petrol in line with regional and international commitments;
  - (ii) Promoting the use of bio fuels as fuel additives;
  - (iii) Ensuring the operations of the Refinery and Pipeline are environmentally friendly;
  - (iv) Formulating policy and standards on the quality of fuels including reducing sulphur content in diesel; and
  - (v) Ensuring retail outlets adhere to environmental, safety and service standards.
  
- e) Improve petroleum pricing by:
  - (i) Constantly reviewing petroleum pricing to reflect existing arrangements in the market;
  - (ii) Engaging in long-term supply contracts;
  - (iii) Ensuring full price deregulation and competition at the pump;
  - (iv) Setting up an incentive mechanism to mitigate high petroleum prices in rural areas; and
  - (v) Encouraging low cost petroleum retailing in rural areas.
  
- f) Ensure prompt response to and minimisation of possible emergencies and disasters by:
  - (i) Putting in place early warning systems and mitigation measures; and
  - (ii) Regular reviewing of emergency systems.

### **NEP, Chapter 5.10 Household Energy**

#### **5.10.1 Objective**

This energy policy seeks to reduce dependence on wood fuel and ensure sustainable provision of affordable, reliable modern energy services to rural and urban households as a means of reducing poverty and raising standards of living.

#### **5.10.2 Policy Measures and Strategies**

- a) Promote substitution of wood fuel as a household fuel with alternative sources of energy by:
  - (i) Encouraging alternative fuels such as LPG and Gel fuel; and
  - (ii) Wherever possible encourage people to grow and use energy crops.
  
- b) Promote energy conservation and substitution at the household level through:
  - (i) Provision of incentives to encourage energy conservation and substitution;
  - (ii) Encouraging efficient end-use technologies and household energy practices; and
  - (iii) Encouraging the use of renewable energy to meet some household energy needs.
  
- c) Promote the use of efficient cook stoves by:
  - (i) Providing innovative financing schemes designed to reduce the initial cost problem for low income households.

## **SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

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- d) Promote Coal and biomass briquetting as household energy sources by:
- (i) Setting up small and medium scale enterprises to develop briquetting technology;
  - (ii) Encouraging Research and Development in briquetting of biomass, for example, bagasse, maize and cotton stalks, and by products of milling and brewing processes; and
  - (iii) Encouraging the use of briquetting products through practical demonstrations and pilot schemes.

### **NEP, Chapter 5.11 Energy Pricing**

#### **5.11.1 Objective**

To ensure that energy prices reflect costs of providing energy and also to take into account principles of fairness and equity.

#### **5.11.2 Policy Measures and Strategies**

- (i) Promote the use of market prices where appropriate;
- (ii) where market pricing is not feasible or desirable, to ensure that mandated or regulated prices include allocation of costs among consumers according to the burden they impose on the delivery system;
- (iii) Promoting a reasonable degree of stability and avoiding large price fluctuations from period to period;
- (iv) Providing a minimum level of service to consumers who are unable to afford the full cost; ; and
- (v) where prices are administered (regulation or promulgation), provide a reasonable return on investment. .

**SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM  
INDUSTRY IN ZAMBIA**

**NDOLA PUMP PRICE SURVEY (27/08/2010)**

No	OMC	ROAD / LOCATION	DIESEL	PETROL	KEROSENE
1	BP ZAMBIA PLC	BROADWAY	6,783	7,461	-
2	BP ZAMBIA PLC	INDEPENDENCE AVENUE	6,783	7,461	-
3	BP ZAMBIA PLC	KWACHA ROAD	6,783	7,461	-
4	BP ZAMBIA PLC	LUBUTO ROAD (KX)	6,783	7,461	-
5	CALTEX/CHEVRON ZAMBIA LTD	CHIFUBU	6,786	7,461	-
6	CALTEX/CHEVRON ZAMBIA LTD	KABWE ROAD	6,700	7,401	-
7	CALTEX/CHEVRON ZAMBIA LTD	LOWENTHO	6,750	7,420	-
8	CALTEX/CHEVRON ZAMBIA LTD	MAKOLI	6,700	7,401	-
9	KOBIL ZAMBIA LIMITED	MATELO	6,799	7,461	-
10	MOUNT MERU	INDEPENDENCE AVENUE	6,750	7,420	4,650
11	PETRODA ZAMBIA LIMITED	KASUBA	6,700	7,400	-
12	SAMFUEL LIMITED	SHINDE STREET	6,690	7,390	-
13	SGC INVESTMENTS LIMITED	BROADWAY	6,750	7,420	-
14	SGC INVESTMENTS LIMITED	KABELENGA/ TOWN CENTRE	6,750	7,420	-
15	SGC INVESTMENTS LIMITED	KABWE ROAD	6,760	7,420	-
16	SUBAN PETROLEUM LIMITED	CHISOKONE	6,700	7,400	4,700
17	SUBAN PETROLEUM LIMITED	MAIN MASALA	6,700	7,400	4,700
18	TOTAL ZAMBIA LIMITED	BUTEKO	6,786	7,461	4,790
19	TOTAL ZAMBIA LIMITED	DAT DRIVE	6,786	7,461	4,798
20	TOTAL ZAMBIA LIMITED	KABELENGA/TOWN CENTRE	6,746	7,416	4,798
21	TOTAL ZAMBIA LIMITED	KABWE ROAD	6,786	7,461	4,798
22	TOTAL ZAMBIA LIMITED	KITWE ROAD	6,786	7,461	4,798
<b>AVERAGE NDOLA PUMP PRICES</b>			<b>6,753</b>	<b>7,433</b>	<b>4,754</b>

**SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM  
INDUSTRY IN ZAMBIA**

**KITWE PUMP PRICE SURVEY (28/08/2010)**

No	OMC	ROAD / LOCATION	DIESEL	PETROL	KEROSENE
1	BP ZAMBIA PLC	BUCHI	6,805	7,479	-
2	BP ZAMBIA PLC	CENTRAL STREET	6,805	7,479	-
3	BP ZAMBIA PLC	CHIBULUMA	6,805	7,479	-
4	BP ZAMBIA PLC	INDEPENDENCE AVENUE	6,805	7,479	-
5	BP ZAMBIA PLC	NDOLA RD /KANYAGA	6,805	7,479	-
6	BP ZAMBIA PLC	NDOLA RD /KANYAGA	6,805	7,479	-
7	BP ZAMBIA PLC	PRESIDENT AVENUE	6,805	7,479	-
8	CALTEX/CHEVRON ZAMBIA LTD	FREE TOWN ROAD	6,819	7,500	-
9	CALTEX/CHEVRON ZAMBIA LTD	OXFORD STREET	6,815	7,490	-
10	CONTINENTAL OIL CO. LTD	CHISOKONE	6,730	7,400	-
11	ENGEN OIL (Z) LTD	INDEPENDENCE AVENUE	6,826	7,501	-
12	KOBIL ZAMBIA LIMITED	13TH STREET	6,829	7,504	-
13	KOBIL ZAMBIA LIMITED	CHINGOLA ROAD	6,829	7,501	4,841
14	KOBIL ZAMBIA LIMITED	NYERERE ROAD	6,829	7,504	-
15	KOBIL ZAMBIA LIMITED	OXFORD STREET	6,829	7,504	-
16	SGC INVESTMENTS LIMITED	CHIMWEMWE	6,770	7,430	-
17	SGC INVESTMENTS LIMITED	JUMBO DRIVE	6,770	7,430	-
18	SUBAN PETROLEUM LIMITED	ACCRA ROAD	6,730	7,400	4,700
19	TOTAL ZAMBIA LIMITED	CHISOKONE	6,786	7,471	4,848
20	TOTAL ZAMBIA LIMITED	INDEPENDENCE AVENUE	6,816	7,477	-
21	TOTAL ZAMBIA LIMITED	KUOMBOKA	6,816	7,477	-
22	TOTAL ZAMBIA LIMITED	OXFORD STREET	6,836	7,476	-
<b>AVERAGE KITWE PUMP PRICES</b>			<b>6,803</b>	<b>7,474</b>	<b>4,796</b>



**SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

**LUSAKA PUMP PRICE SURVEY (30/08/2010 - 14/09/2010)**

No.	OMC	ROAD / LOCATION	DIESEL	PETROL	KEROSENE
1	BP ZAMBIA PLC	KAFUE ROAD / CHILANGA	6,897	7,573	-
2	BP ZAMBIA PLC	KAFUE ROAD / CASTLE	6,897	7,573	-
3	BP ZAMBIA PLC	KAFUE ROAD / MISISI	6,897	7,573	4,893
4	BP ZAMBIA PLC	CAIRO ROAD / OPP. N. MILLING	6,897	7,573	-
5	BP ZAMBIA PLC	CAIRO ROAD / NORTH END	6,897	7,573	-
6	BP ZAMBIA PLC	LONG ACRES	6,897	7,573	-
7	BP ZAMBIA PLC	KABULONGA	6,897	7,573	-
8	BP ZAMBIA PLC	WOODLANDS	6,897	7,573	-
9	BP ZAMBIA PLC	BURMA ROAD / INTERLAND	6,897	7,573	-
10	BP ZAMBIA PLC	CHILIMBULU / KABWATA	6,897	7,573	-
11	BP ZAMBIA PLC	BURMA ROAD / KABWATA	6,897	7,573	-
12	BP ZAMBIA PLC	GREAT EAST ROAD / CHELSTONE	6,897	7,573	-
13	BP ZAMBIA PLC	GREAT EAST ROAD / ARCADES	6,897	7,573	-
14	BP ZAMBIA PLC	GREAT EAST ROAD / M/HILL	6,897	7,573	-
15	BP ZAMBIA PLC	LOS ANGELS ROAD	6,897	7,573	-
16	CALTEX/CHEVRON ZAMBIA LTD	KAFUE ROAD / MAKENI	6,840	7,500	-
17	CALTEX/CHEVRON ZAMBIA LTD	KAFUE ROAD / MISISI - ACROSS	6,840	7,499	-
18	CALTEX/CHEVRON ZAMBIA LTD	MUNGWI ROAD	6,840	7,540	4,893
19	CALTEX/CHEVRON ZAMBIA LTD	CRN KALAMBO /CHA CHA CHA RD	6,878	7,553	-
20	CALTEX/CHEVRON ZAMBIA LTD	GREAT NORTH /IMPALA	6,800	7,500	-
21	CALTEX/CHEVRON ZAMBIA LTD	LUMUMBA / BUSEKO	6,840	7,540	-
22	CALTEX/CHEVRON ZAMBIA LTD	LONGACRES	6,897	7,573	-
23	CALTEX/CHEVRON ZAMBIA LTD	GREAT EAST ROAD / N.R.D.C	6,898	7,573	-
24	CALTEX/CHEVRON ZAMBIA LTD	BEN BELLA /COMESA	6,898	7,573	4,893
25	ENGEN OIL (Z) LTD	KAFUE ROAD /	6,898	7,573	4,993

**SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

**LUSAKA PUMP PRICE SURVEY (30/08/2010 - 14/09/2010)**

No.	OMC	ROAD / LOCATION	DIESEL	PETROL	KEROSENE
		MAKENI			
26	ENGEN OIL (Z) LTD	CROSS ROADS	6,897	7,573	-
27	ENGEN OIL (Z) LTD	CHILIMBULU / KANGWA	6,898	7,573	-
28	ENGEN OIL (Z) LTD	GREAT EAST ROAD / MAKISHI	6,898	7,573	-
29	ENGEN OIL (Z) LTD	BEN BELLA /COMESA	6,898	7,573	-
30	ENGEN OIL (Z) LTD	MUMBWA ROAD	6,800	7,500	-
31	ENGEN OIL (Z) LTD	MUMBWA ROAD	6,800	7,500	-
32	KOBIL ZAMBIA LIMITED	KAFUE ROAD / MISISI	6,898	7,573	-
33	KOBIL ZAMBIA LIMITED	KAFUE ROAD / CAROUSSEL	6,898	7,573	-
34	KOBIL ZAMBIA LIMITED	MALAMBO	6,890	7,573	-
35	KOBIL ZAMBIA LIMITED	ALICK NKATA / MUTENDERE	6,898	7,573	-
36	KOBIL ZAMBIA LIMITED	CRN BEN BELLA / LUMUMBA RD	6,898	7,573	-
37	KOBIL ZAMBIA LIMITED	KATIMA MULILO ROAD	6,898	7,573	-
38	MOUNT MERU	KAFUE ROAD / MAKENI	6,800	7,500	4,800
39	MOUNT MERU	GREAT NORTH ROAD / SOS	6,800	7,500	-
40	MOUNT MERU	MUMBWA ROAD	6,750	7,500	-
41	ODY'S OIL (Z) LIMITED	GREAT EAST ROAD / ARCADES	6,895	7,570	-
42	ORYX OIL (Z) LIMITED	GREAT NORTH ROAD / SOS	6,800	7,500	4,880
43	PETRODA ZAMBIA LIMITED	KAFUE ROAD / CHILANGA	6,850	7,550	-
44	PETRODA ZAMBIA LIMITED	KAFUE ROAD / MISISI	6,800	7,500	-
45	PETRODA ZAMBIA LIMITED	GREAT NORTH ROAD / SOS	6,800	7,500	-
46	PETRODA ZAMBIA LIMITED	ALICK NKATA / FRIDAYS CORNER	6,850	7,550	-
47	PETRODA ZAMBIA LIMITED	CHILULU	6,850	7,550	-
48	PETRODA ZAMBIA LIMITED	MUMBWA ROAD	6,700	7,500	-
49	PETRODA ZAMBIA LIMITED	KATIMA MULILO ROAD	6,850	7,550	-
50	RAVASIA MOTORS LTD	CHA CHA CHA ROAD	6,800	7,500	4,800

**SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

**LUSAKA PUMP PRICE SURVEY (30/08/2010 - 14/09/2010)**

No.	OMC	ROAD / LOCATION	DIESEL	PETROL	KEROSENE
51	SGC INVESTMENTS LIMITED	MUNGWI ROAD	6,790	7,540	-
52	SPECTRA OIL CORP.LTD	GRT NTH RD / KABANGO P. POST	6,650	7,500	-
53	SPECTRA OIL CORP.LTD	LUMUMBA / MELISA MATERO	6,650	7,500	-
54	SUBAN PETROLEUM LIMITED	GRT NTH RD / EMMALSDALE	6,650	7,500	4,850
55	TOTAL ZAMBIA LIMITED	KAFUE ROAD / MISISI	6,840	7,540	4,893
56	TOTAL ZAMBIA LIMITED	CAIRO ROAD / NORTH END	6,898	7,573	-
57	TOTAL ZAMBIA LIMITED	GREAT NORTH ROAD	6,898	7,573	-
58	TOTAL ZAMBIA LIMITED	GREAT NORTH ROAD	6,898	7,573	-
59	TOTAL ZAMBIA LIMITED	GRT NTH RD / EMMALSDALE	6,848	7,548	4,893
60	TOTAL ZAMBIA LIMITED	GRT NTH RD / IND. STADIUM	6,840	7,540	4,893
61	TOTAL ZAMBIA LIMITED	MATERO ROAD	6,848	7,548	4,893
62	TOTAL ZAMBIA LIMITED	MATERO ROAD	6,848	7,548	4,893
63	TOTAL ZAMBIA LIMITED	ALICK NKATA / CVC	6,898	7,573	-
64	TOTAL ZAMBIA LIMITED	KABULONGA	6,898	7,573	-
65	TOTAL ZAMBIA LIMITED	CHILIMBULU / CHILENJE	6,888	7,558	4,893
66	TOTAL ZAMBIA LIMITED	CHILIMBULU / KAMWALA	6,898	7,573	4,893
67	TOTAL ZAMBIA LIMITED	CHURCH ROAD / EVELYN HONE	6,898	7,573	-
68	TOTAL ZAMBIA LIMITED	GRT EAST RD / N/MEAD SHOPS	6,898	7,573	-
69	TOTAL ZAMBIA LIMITED	GREAT EAST ROAD / N/MEAD	6,883	7,563	-
70	TOTAL ZAMBIA LIMITED	LOS AGELS ROAD	6,898	7,573	4,893
71	TOTAL ZAMBIA LIMITED	MUMBWA ROAD	6,868	7,558	4,893
72	TOTAL ZAMBIA LIMITED	MUMBWA ROAD	6,868	7,558	4,893
73	VUMA / PEGASUS ENERGY	KAFUE ROAD / ANDREWS	6,895	7,570	-
<b>AVERAGE LUSAKA PUMP PRICES</b>			<b>6,858</b>	<b>7,551</b>	<b>4,885</b>

## Herfindahl Hirschman Index (HHI)

No.	OMC	Annual Consumption	MARKET SHARE %	Si <sup>2</sup>
1	AGRO-FUEL	1,878,418	0.21	0.04
2	AUTO WORLD	216,921	0.02	0.00
3	BOC GASES	1,978,001	0.22	0.05
4	BP ZAMBIA	307,650,461	33.84	1,145.37
5	CHEVRON ZAMBIA	76,482,037	8.41	70.79
6	CONTINENTAL OIL	7,433,201	0.82	0.67
7	DANA OIL	2,693,735	0.30	0.09
8	ENGEN PETROLEUM ZAMBIA	44,897,263	4.94	24.39
9	GULF OIL	606,527	0.07	0.00
10	KOBIL ZAMBIA	65,286,244	7.18	51.58
11	MAG PETROLEUM	12,795,070	1.41	1.98
12	MOUNT MERU	25,886,361	2.85	8.11
13	ODY'S OIL ZAMBIA	8,791,707	0.97	0.94
14	ORYX OIL ZAMBIA	6,740,240	0.74	0.55
15	PEGASUS ENERGY	13,043,900	1.43	2.06
16	PETRODA ZAMBIA	22,474,381	2.47	6.11
17	PETROTECH OIL	8,264,648	0.91	0.83
18	SAMFUEL	6,217,740	0.68	0.47
19	SGC INVESTMENTS	17,602,880	1.94	3.75
20	SINDY TRADING	13,158	0.00	0.00
21	SPECTRA OIL ZAMBIA	38,719,486	4.26	18.14
22	STAR OIL	385,000	0.04	0.00
23	SUBAN PETROLEUM	16,351,895	1.80	3.24
24	TOTAL ZAMBIA	222,143,381	24.44	597.17
25	ZAMBIA ROAD BINDERS	490,078	0.05	0.00
$\Sigma$		<b>909,042,733</b>	<b>100.00</b>	<b>1,936.33</b>

HHI is  $\sum S_i^2$ , where  $S_i$  is the share of the  $i$ 'th firm's capacity in the market. The index varies between unity for a monopoly and zero for perfect competition (a very large number of equally sized firms). Above 1800 is "highly concentrated".

**SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

**LIST OF INTERVIEWEES**

<b>No.</b>	<b>NAME</b>	<b>ORGANISATION</b>	<b>DESIGNATION</b>
1	MR. SYLVESTER NGOMA	AFROX ZAMBIA LIMITED	MANAGING DIRECTOR
2	MR. KENNY MUHANGA	BP ZAMBIA LIMITED	FINANCE MANAGER
3	MR. CLEMENT NGALATI	CHEVRON ZAMBIA LIMITED	COUNTRY REPRESENTATIVE - DIRECTOR
4	MR. KOBUS BERTRAM	COLAS ZAMBIA	GENERAL MANAGER
5	MR. MWANSA J. MUSONDA	COMESA	TRADE & INTEGRATION ADVISOR, REGIONAL INTEGRATION PROJECTION
6	MR. THIERRY MUTOMBO KALONJI	COMESA	SENIOR INVESTMENT PROMOTION OFFICER
7	MR. KEYO K. CHENGA	CONTINENTAL OIL COMPANY LTD	MARKETING MANAGER
8	MR. KEITH KWALELA KHUZWAYO	DANA OIL CORPORATION LTD	AREA SALES MANAGER - SOUTH
9	DR. MUSHIBA NYAMAZANA	ENERGY REGULATION BOARD	DIRECTOR - ECONOMIC REGULATION
10	MR. LUKONDE MFULA	ENERGY REGULATION BOARD	DIRECTOR - INFRASTRUCTURE & OPERATIONS REGULATION
11	MR. SIMWEEMBA BUUMBA	ENERGY REGULATION BOARD	SENIOR FINANCIAL ANALYST
12	MRS. PETHEL PHIRI	ENERGY REGULATION BOARD	HEAD - ECONOMIC REGULATION (FOSSIL FUEL)
13	MS. BANJI MICHELO	ENERGY REGULATION BOARD	LEGAL OFFICER
14	MR. ALFRED K. MUKUKA	INDENI PETROLEUM REFINERY LTD	MANAGER - PROCESS PLANNING & CONTROL
15	MR. MAYBIN HUDSON	INDENI PETROLEUM	MANAGING DIRECTOR

**SECTORAL STUDY ON MARKET STRUCTURE AND COMPETITION IN THE PETROLEUM INDUSTRY IN ZAMBIA**

	<b>NOOLE</b>	<b>REFINERY LTD</b>	
16	<b>MR. WILMONT S. MUZOKA</b>	<b>KEREN MOTORS LIMITED</b>	<b>FINANCE &amp; ADMINISTRATION MANAGER</b>
17	<b>MRS KIBROM</b>	<b>KEREN MOTORS LIMITED</b>	<b>DIRECTOR</b>
18	<b>MR. JERRY K. THOMAS</b>	<b>KOBIL ZAMBIA LIMITED</b>	<b>MANAGING DIRECTOR</b>
19	<b>MR. SEPISO LUNGWEBUNGU</b>	<b>LUBLEND LIMITED</b>	<b>GENERAL MANAGER</b>
20	<b>MR. NOAH NYIRENDA</b>	<b>MAG PETROLEUM</b>	<b>MANAGING DIRECTOR</b>
21	<b>MR. MUYAMBANGO NKWEMU</b>	<b>MINISTRY OF COMMERCE, TRADE &amp; INDUSTRY</b>	<b>SENIOR ECONOMIST</b>
22	<b>Ms BEATRICE NALIKENA MUKALA</b>	<b>MINISTRY OF ENERGY AND WATER DEVELOPMENT</b>	<b>ENERGY INFORMATICS OFFICER</b>
23	<b>MR. CHARLES L. MULENGA</b>	<b>MINISTRY OF ENERGY AND WATER DEVELOPMENT</b>	<b>ACTING ASSISTANT DIRECTOR</b>
24	<b>MR. SAUL JERE</b>	<b>MINISTRY OF ENERGY AND WATER DEVELOPMENT</b>	<b>PRINCIPAL ENERGY OFFICER - EXPLORATION</b>
25	<b>MR. ABEL SONEKA</b>	<b>PEGASUS ENERGY</b>	<b>MANAGING DIRECTOR</b>
26	<b>MR. SANJAY NERKAR</b>	<b>PETRODA ZAMBIA LTD</b>	<b>COUNTRY SYSTEM CO-ODINATOR</b>
27	<b>MR. COSTA SHINGANYA</b>	<b>SGC INVESTMENTS LTD</b>	<b>CHIEF EXECUTIVE OFFICER</b>
28	<b>MR. DAVIE SIMUKONDA</b>	<b>SPRING ENERGY CORPORATION LIMITED</b>	<b>MANAGING DIRECTOR</b>
29	<b>MR.L.M. MUZELENGA</b>	<b>TAZAMA PIPELINES LIMITED</b>	<b>MANAGING DIRECTOR</b>
30	<b>MR. M. S. KIKULA</b>	<b>TAZAMA PIPELINES LIMITED</b>	<b>DIRECTOR OF OPERATIONS &amp; ENGINEERING</b>
31	<b>MR. STEPHANE LAPAUW</b>	<b>TOTAL ZAMBIA LIMITED</b>	<b>MANAGING DIRECTOR</b>
32	<b>MRS BETTY SOMBE</b>	<b>ZAMBIA PUBLIC PROCUREMENT AUTHORITY</b>	<b>BOARD SECRETARY</b>