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# **An Investigation into the Barriers to Entry in the South African Downstream Petroleum Industry**

**Jazze .K.J. Mokoena**

August 2003

Thesis Submitted in Partial Fulfilment of the Requirements for the  
Degree of Master of Philosophy in Energy Studies, Faculty of  
Engineering and the Built Environment.  
University of Cape Town

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# Abstract

This dissertation investigates barriers to entry into the downstream petroleum industry of South Africa. The study seeks to understand why there is insignificant entry into the downstream petroleum industry by Historically Disadvantaged South Africans (HDSA's), while the government has set itself an objective of achieving sustainable presence, control and ownership by HDSA's of approximately a quarter in all facets of the industry. The government has set this objective in order to address the past imbalances before the industry could be deregulated. In an endeavour to ascertain why this key policy objective was not achieved, the study investigated barriers to entry into the industry, and revealed a number of these impediments.

There are three categories of these impediments or barriers to entry, namely, economic barriers to entry, non-economic barriers, and cross-sectoral barriers. These barriers contribute towards deterring entry by HDSA's and hold back the BOC's from increasing their market share in the downstream industry. In order to address some of these barriers a business model for economic empowerment has been developed, which seeks to assist in the achievement of the government's set key policy objective. The barriers to entry could be circumvented through this business model, with an aim of making entry into the industry easy for HDSA's. The model could create a business environment that will allow the BOC's to increase their market share in the downstream while at the same time alleviating the identified barriers to entry in order to achieve approximately twenty five percent sustainable presence, control and ownership of the industry by HDSA's. The model would also enable BOC's to capture five percent (5%) of the market share of the refiners in a sustainable way without significantly harming the established oil companies. The role of government in this regard would be limited to issuing a licence to the BOC's in order to acquire the 5% target at an Import Parity Price (IPP), which is far less than the Basic Fuel Price (BFP). The revenue loss of the refiners for their petrol and diesel would be 0.5% and 0.26% respectively.

# Acknowledgement

I wish to acknowledge the assistance of Prof J.C. Nkomo for his comments and suggestions. Prof Ogunlade Davidson and Dr Chris Cooper (RAU) for reading some of my work and their valuable comments. Prof A.A. Eberhard for his encouragement on the completion of the thesis and for organising financial support for my studies. I also wish to acknowledge the assistance of the following persons from the industry: Mr Zwelakhe Mkhasibe (Sasol Oil), Mr Kevin Mulder (Caltex Oil), Mr Allan Doble (BP), Chandu Kashiram (Exel), Mr Steve Magubane (Tepco), Mr Mandla Shabala (Amef), Mr Anton Moldan (Sapia), Mr Colin McClelland (Sapia), Miss Barbara Manson (Engen), and Mr Theuns Burger (DME).

Above all, I am grateful to my supervisor Prof Phillip Lloyd for his guidance throughout the writing process. His guidance, comments, and advice on the approach to the study cannot be measured. His grasp of arithmetic and understanding of the petroleum industry is beyond measure. All these fused together added value to my study. For these reasons, I am more than thank full for his supervision.

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# Abbreviations

\$	United States Dollar (currency)
A	African
ACSA	Airports Company of South Africa
AMEF	African Minerals and Energy Forum
Bbl	Barrel
BEE	Black Economic Empowerment
BFP	Basic Fuels Price
BOC	Black Oil Company
BP	British Petroleum Southern Africa
BPA	Blue Pump Agreement
C	Coloured
c/l	cents per litre
Calref	Caltex Refinery
Caltex	Caltex Oil
CEF	Central Energy Fund
CIF	Cost Insurance Freight
CO <sub>2</sub>	Carbon Dioxide
DL	Dealer Leased
DME	Department of Minerals and Energy
DO	Dealer Owned
Engen	Engen Petroleum
Enref	Engen Refinery
EPP	Export Parity Price
Exel	Exel Petroleum
FOB	Free On Board
Forex	Foreign Exchange
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GLT	Gas to Liquid Technology
HDSA	Historically Disadvantaged South African

I	Indian
IBLC	In-Bond Landed Cost
IEA	International Energy Agency
IPP	Import Parity Price
K	Thousand
LOC	Local Oil Company
LPG	Liquefied Petroleum Gas
LRAC	Long Run Average Cost
Ltd	Limited
Med	Mediterranean
MER	Market Efficiency Ratio
MIC	Mineworkers' Investment Company
MOC	Multinational Oil Company
MPAR	Marketing of Petroleum Activities Return
MSA	Main Supply Agreement
Natref	National Refinery of South Africa
NBFRA	National Black Fuel Retailers Association
OCL	Oil Company Leased
OCO	Oil Company Owned
Petrosa	Petroleum and Gas Corporation of South Africa
PPC	Parliamentary Portfolio Committee
PPI	Petroleum Products Importation
Pty	Propriety
R	South African Rand (currency)
Ratplan	Service Stations Rationalisation Plan
RAU	Rand Afrikaans University
RMI	Retail Motor Industry Organisation
SABC	South African Broadcasting Corporation
SABS	South African Bureau of Standards
SAFDA	South African Fuel Dealers Association
SANCO	South African National Civic Organisation
SANTACO	South African National Taxi Council
SAPIA	South African Petroleum Industry Association
Sapref	South African Petroleum Refinery

Sasol	South African Coal, Oil, and Gas Corporation
SBMS	Single Buoy Mooring System
SFF	Sasol Synthetic Fuels
Shell	Royal Dutch Shell (South Africa)
Soris	Sasol Oil Retail Information System
SO <sub>x</sub>	Sulphur Oxide
SPD	Slurry Phase Distillate
SPM	Small Particulate Matter
SRAC	Short Run Average Cost
SSAM	Shell South Africa Marketing
SWOT	Strengths, Weaknesses, Opportunities, and Threats
Synfuel	Synthetic Fuel
T	Tonne
Tepco	Thebe Petroleum Company
TV	Television
UN	United Nations
VAT	Value Added Tax
W	White
WAIH	Worldwide Africa Investment Holding
WDBIH	Women Development Bank Investment Holding
WOC	White Owned Company

## Chapter One

### 1. Introduction

#### 1.1. Overview Introduction

*“The key milestones to be achieved in the first phase will be: sustainable presence, ownership or control by historically disadvantaged South Africans of approximately a quarter of all facets of the liquid fuels industry or plans to achieve this.....” (White Paper, 1998:81).*

The White Paper on the Energy Policy of the Republic of South Africa (1998) expresses the government’s desire to allow previously disadvantaged people to play a significant role in the petroleum industry. It also expresses the government’s determination to restructure the petroleum industry in order to achieve significant domestic ownership or control by Historically Disadvantaged South Africans (HDSA’s) and to redress the past imbalances. These desire and measures are an attempt to address the problem of heavy domination of the petroleum industry by Whites who are a majority in the entire value chain. This is exacerbated by the fact that, control and ownership of the industry rest on the hands of the Multinational Oil Companies (MOC’s). It seems that the business environment is not conducive for entry by HDSA’s into the downstream industry in order that the above policy objective may be achieved.

This raises the following crucial empirical questions: why is there no significant number of blacks entering the downstream petroleum industry, and why are Black Oil Companies (BOC’s) that are already in the industry struggling to increase their market share? In understanding and answering the research questions, we endeavour to investigate the barriers to entry and attempt to determine the extent to which these impediments deter HDSA’s from both entering and capturing the market share.

The answers to these questions should contribute towards developing an entry strategy to achieve sustainable presence, ownership or control by a quarter of HDSA's in all facets of the liquid fuels industry.

## 1.2. Background to the Problem

During the apartheid era, the government employed entry deterring strategies such as information classification, with an aim of ensuring security of supply and protecting the petroleum industry, which is the key to South African economy. This classification of information was done for both economic and political reasons. The economic reason for the classification of information was to lessen the impact of the United Nations (UN) and independent African states imposed economic sanctions.

The UN Resolution No 1899 on the sanctions against the apartheid government taken in November 1963, urged "all states to refrain from the supply in any manner or form any petroleum or petroleum products to South Africa" (Bailey and Rivers, 1978: 72). The repercussions of this embargo, as foreseen by the UN, were the total collapse of the apartheid state and its withdrawal from the illegal occupation of Namibia.

The political reason for the sanction was to protest against the disenfranchisement of the black majority and the scrapping of apartheid, which the UN regarded as a crime against humanity.

In order to further lessen the impact of the imposed economic sanctions, the apartheid regime began to acquire crude oil clandestinely from other countries. According to Bailey and Rivers (1978), small quantities of oil from Bahrain, Brunei, Indonesia, Iraq, Kuwait, Oman, Qatar, and United Arab Emirates have been reaching South Africa in most cases without the knowledge and against the decisions of their governments.

In order to address issues of vulnerability of supply the government introduced policy measures in the form of legislation, which indirectly led to the following developments:

- The apartheid regime was able to extend its life span in power, even though it faced both domestic and international pressure. When the tempo of the pressure increased the government amended some laws to allow for political reforms, presumably with the hope that the sanctions will be relaxed.
- The government continued on a more rapid pace to achieve economic self-sustenance, which was triggered by vulnerability of supply and began to develop its own petroleum industry. This was intended to limit reliance on foreign supply of crude and other petroleum products, which could have been curtailed at any time. This led to the development of synthetic fuel production through the Sasol project.
- Another development, linked to the above was the indirect, although intentional, exclusion of blacks from entering the petroleum industry and acquiring information.

Furthermore, the Service Station Rationalization Plan (Ratplan) (1962), which *inter alia* regulated the number of new service stations that were to be built within a specific period, and prohibited oil companies to operate more than one service station in each province, was agreed upon between the government and the MOC's.

The Petroleum Product Act No120 of 1977 was also passed classifying information and consequently led to a situation where persons who were not in the industry could not enter due to lack of information. For example, the Petroleum Products Act No 120 of 1977 states that "the Minister may by regulation or notice or in such a manner deem fit prohibit the publication, releasing, announcement, disclosure, or conveyance to any person of information or the making of comments regarding the source, manufacture, transportation, destination, storage, consumption, quality, or stock levels of any petroleum products acquired or manufactured for or in the Republic" (Petroleum Products Act, 120 of 1977). This led to paucity of literature on the industry, since no information was available in the public domain, and therefore made it difficult for those who were not in the industry to enter, and even to write about it.

In addition, the Petroleum Products Act and the states' intention to ensure security of supply led Multinational Oil Companies (MOC's) that operated in South Africa, viz BP, Caltex, Mobil (later disinvested), and Shell to entrench themselves in the petroleum market. For instance, the MOC's or international companies owned about 62% of crude refining capacity contributing about R2. billion to the Gross Domestic Product (GDP) on turnover of R10.4 billion and foreign exchange (forex) savings were estimated at R1.1. Billion (IEA, 1996:178).

Their combined market share of major products (petrol and diesel) stood at 89.7%(petrol) and 93.38% (diesel) in 1997, three years after the elections and seven years later their share of major products stood at 91.34%(petrol) and 91.10%(diesel) (Sapia Report, 1997). Their market share or sales volume increased by 2.27% (petrol) and diesel fell by 2.28 between the years 1997 and 2001(Sapia Report, 2001).

Noting all the above disparities, as briefly stated, and the fact that foreign oil companies own and control most facets of the industry, the ministry of minerals and energy instituted a transparent and inclusive process in 1995, which culminated in the release of a Green Paper, which was subsequently followed by the release of the White Paper on the Energy Policy of the Republic of South Africa (1998), that propounds ideas of restructuring the energy sector, and more especially the liquid fuels industry. The White Paper (1998) states that, "such restructuring was to be informed, *inter alia*, by the need to redress economic and social imbalances"(White Paper, 1998:9).

### 1.3.Objectives of the Study

In examining why there is no significant entry of blacks into the downstream petroleum industry and why BOC's that are in the industry struggle to increase their market share the objectives of the study will be:

- To investigate the barriers to entry into the downstream petroleum industry.

This objective entails searching, enquiring, and ascertaining barriers to entry that face both potential and new entrants in the South African petroleum industry. Searching will begin by presuming that barriers to entry exist. Paradoxically, enquiring and ascertaining departs from the premise that barriers to entry might be existent or may not be the contributing factors to less entry.

- To examine critically the constraints and barriers to entry with reference to the downstream industry. This involve analyses, and evaluation of the impact of the barriers to entry, and to understand them with an aim of applying the result of the examination in the development of an HDSA's entry strategy.
- To contribute knowledge in the downstream petroleum industry by identifying the barriers to entry and developing a business model for black economic empowerment, which will serve as an entry strategy aimed at alleviating the identified barriers.

#### 1.4. Methodology

The study sourced its data from both primary and secondary literature sources, and supported by interviews.

The primary literature sources included *inter alia*, reports, theses, minutes of meetings, Acts of parliament, government commissioned studies, Oil companies' reports, and documents submitted to government by oil companies. The secondary literature sources included among others newspapers, books, and policy documents such as White paper. The acquisition of these literature sources was also aided by visiting the Department of Minerals and Energy in Pretoria, which has numerous reports and commissioned studies, which were not available in the public domain.

Approximately fifteen qualitative interviews were conducted with officials in some oil companies, Department of Minerals and Energy (DME), service stations operators, South African Petroleum Industry Association (Sapia) and African Minerals and Energy Forum (Amef) representatives. A number of questionnaires were also completed by some staff members in oil companies, such as BP South Africa, Caltex (now Caltex-Chevron Texaco), Sasol Oil, and Engen Petroleum, with the aim of sourcing additional information.

Lastly, the thesis apply a normative approach for analysis. The aim of applying this part of methodology is to determine the extent to which the impediments deter blacks from entering the downstream petroleum industry, in a way that avoids quantifying the barriers to entry.

### 1.5. Thesis Structure

The thesis is divided into five chapters.

In Chapter two the thesis provides an overview of the South African downstream petroleum industry, which *inter alia* covers issues of governance, regulatory framework, and legislation.

Chapter three presents and discusses the findings of the investigation, highlighting barriers to entry in the industry, avoiding the quantification of these impediments. In this chapter the thesis will be more on the qualitative analysis of the existence of barriers to entry. The chapter also analyses the South African downstream petroleum market, in an attempt to determine the extent to which the barriers to entry deter HDSA's from entering the industry in relation to the extent to which BOC's struggle to increase their market share.

In chapter four, a business model is presented and concentrates much on how the government's key policy objective could be achieved by circumventing the identified entry barriers.

The fifth chapter is conclusion which is based on the above chapters and provides a summation of the study evaluating whether the objectives of the thesis were achieved and briefly recapitulating the findings.

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## Chapter Two

### 2. An Overview of the South African Downstream Petroleum Industry

#### 2.1. Introduction

The purpose of this chapter is to provide an overview of the downstream petroleum industry of South Africa. It endeavours to achieve the following four objectives, namely:

- (a) to highlight the market power of the players in the industry in the refining, marketing and retailing sub-sectors of the industry, particularly between the BOC's and the MOC's.
- (b) to show where the market power presently resides in the industry. The discussion of this objective overlaps between sections dealing with the empowerment deals, on the one hand and profiles of companies, and industry associations, on the other hand.
- (c) to explore the history and outcome of the black economic empowerment (BEE) deals entered into between the MOC's and empowerment companies and to ascertain who stands to benefit out of these deals, and;
- (d) to provide an overview of the government's key policy objective of achieving approximately one quarter ownership, control and sustainable presence by Historically Disadvantaged South Africans, as contained in the White Paper (1998).

The outline of this chapter begins in section 2.2, which explains the White Paper's key policy objective. In section 2.3 the downstream sub-sectors are discussed, followed by section 2.4, which discusses the profitability of the oil industry, while Section 2.5 explains the categories and profiles of oil companies operating in the South African downstream industry. Section 2.6 discusses the industry associations and their membership, mainly Sapia and Amef.

Section 2.7 outlines the black economic empowerment deals that have been entered into by the MOC's with empowerment companies. Section 2.8 discusses the politics behind the empowerment deals. Sections 2.9 and 2.10 discuss the government's institutional structures and petroleum products agreements, respectively. The pricing mechanism is discussed in section 2.11, followed by section 2.12, which explains the legislation governing the petroleum industry. The conclusion of the chapter is provided in section 2.13.

## 2.2. White Paper's Key Policy Objective

The 1998 White Paper on the Energy Policy of the Republic of South Africa sets, as one of the key objectives to be achieved in the first phase, the sustainable presence, ownership or control by Historically Disadvantaged South Africans (HDSA's) of approximately one quarter of all facets of the liquid fuels industry or plans to achieve this. The White Paper, however, did not stipulate the timeframe but the Charter for the South African Petroleum and Liquid Fuels Industry on Empowering Historically Disadvantaged South Africans in the Petroleum and Liquid Fuels Industry (hereinafter referred to as Empowerment Charter (2000)), which was signed by the stakeholders in 2000, states that this should be achieved within a period of ten years.

Ownership refers to equity participation and the ability to exercise rights and obligations that accrue under such ownership. Control of a business entity according to the Empowerment Charter (2000) can be achieved in a number of ways:

- (a) majority shareholding position i.e. 50% + 1 share;
- (b) an effective controlling shareholding;
- (c) a majority of a board of directors; and/or
- (d) a shareholders agreement.

Sustainability refers to, medium to long-term viability and adaptability through a presence across all facets of the liquid fuels value chain; ventures with prospects of long-term profitability, and the requisite levels of skills and access to technology.

The 25% ownership and control of all facets of the industry that the parties to the Empowerment Charter are seeking to bring about over a ten-year period means HDSA's owning in total, by the end of that period, not less than 25% of the aggregate value of the equity of the various entities that hold the operating assets of the South African oil industry.

The phrase “historically disadvantaged South Africans ” in the policy objective refers to Africans, Coloureds and Indians who are politically and collectively referred to as blacks, and all persons and groups who have been discriminated against on the basis of race, gender and/or disability.

By control, according to Radebe, the White Paper (1998) means and includes, “the ability to exercise legal rights associated with ownership, and a 51% shareholding or majority shareholding and control of the board” (Radebe, 2000:2). According to the African Minerals and Energy Forum, a true black economic empowerment deal should include ownership, control, management and transfer of skills. By management, it is referred to black management cadre running the business and being responsible for the day to day running of operations, and transfer of skills refer to and include entrepreneurial or innovative thinking, capacity and employees training.

According to Samodien (2000), the empowerment of historically disadvantaged South Africans should have the three key elements, namely, ownership, control and sustainable presence. Ownership according to Samodien (2000) refers to equal participation and the ability to exercise rights and obligations. Secondly, control refers to a majority shareholding position, that is, 50% plus 1, an effective control shareholding, and a majority of a board of directors. This should also be translated into action to mean directing the industry’s development, with blacks at the forefront.

Lastly, sustainable presence refers to the medium to long term viability of ventures with prospects of long term profitability. The thesis contends that this should extend to include the increment of many black employees in higher echelons of the industry for permanent presence of historically disadvantaged South Africans.

The ownership, control and sustainable presence in the liquid fuels industry has not yet been achieved, due to a number of factors that have to be removed to make way for ownership and control by HDSA's in the petroleum industry.

### 2.3. The South African Downstream Industry Sub-Sectors

The South African downstream petroleum industry, like the other countries' downstream industries has what may be termed sub-sectors, namely; refining, marketing and retailing. These sub-sectors did not exist prior to 1954 since South Africa used to import all of its petroleum products in refined form, and the four oil companies that operated then, viz; Shell, Caltex, Mobil, and BP distributed them (IEA, 1996:178). Following the commissioning of the first refinery in Durban in 1954, the sub-sectors began to emerge. These three sub-sectors, refining, marketing, and retailing are discussed below.

#### 2.3.1. Refining Sub-Sector

There are six refineries in South Africa as shown in Table 1 below. These six refineries are, National Refinery of South Africa (Natref), Mossgas (later PetroSA), Sasol Synthetic Fuels (SSF), South African Petroleum Refineries (Sapref), Caltex Refinery (Calref) and Engen Refinery (Enref). Following the construction of the early refineries, the Petroleum Products Act No 120 of 1977 was promulgated and prohibited the importation of refined petroleum products unless the local suppliers could not meet the local demand. The Petroleum Products Act of 1977 also required that a permit be granted to import refined petroleum products, even after the deregulation of the refining sub-sector in 1991.

However, the refining industry was and still is at liberty to acquire crude oil on its own from any supplier in the world market. The production capacity of the refineries as shown in Table 1 has increased since 1954, with the synthetic fuels (synfuels) at Sasol plants in Secunda, Mpumalanga Province, and PetroSA plant in Mossel Bay, Western Cape Province, having a combined refining capacity of 195 000 barrels per day as shown in Table 1.

The conventional refineries are capable only to produce an excess of 7% percent of petrol over diesel, with the demand ratio of petrol to diesel at 1.67 far more than the 1.07 produced by the conventional refineries (Industrial and Petrochemicals Consultants, 2001:10). The synfuel, therefore, are important to the country's supply and address the country's diesel and petrol imbalance.

Table 1 South African Refining Capacity

<b>Capacity (barrels per day)</b>			
<b>Refineries</b>	<b>1992</b>	<b>1997</b>	<b>2000</b>
<b>Sapref</b>	120 000	165 000	180 000
<b>Enref</b>	70 000	105 000	115 000
<b>Calref</b>	50 000	100 000	100 000
<b>Natref</b>	78 000	86 000	86 000
<b>Sasol</b>	150 000*	150 000*	150 000*
<b>PetroSA</b>	45 000*	45 000*	45 000*
<b>Total</b>	<b>513 000</b>	<b>651 000</b>	<b>676 000</b>

Source: Sapia Annual Report, 2002

NB: This reflect \*Crude equivalent since they are synfuel.

Moreover, in March 2003, Enref was granted approval to increase its crude oil processing capacity to 150 000 barrels a day and plans to commit the R150-million that it has set aside for increasing its production capacity ([www.engenoi.com](http://www.engenoi.com)). The combined production capacity of the four conventional refineries is 481 000 barrels per day and combined with the production capacity of the synfuel producers brings the production capacity to 676 000 barrels per day.

At the present moment there is no refinery that is wholly owned by a BOC, even though the refining sub-sector has been deregulated for more than ten years. This then poses two serious questions.

The oil companies market under their own brand names. The oil companies that are actively involved in the marketing sub-sector include all the MOC's, Sasol, and the few BOC's. The marketing sub-sector requires huge capital costs for, among other things, the transportation of their petroleum products. For example, the cost of transporting petroleum products through the Petronet pipeline from Durban to Sasolburg is R0.11 per litre (Industrial and Petrochemicals Consultants, 2001:20). According to the Industrial and Petrochemicals Consultants (2001) the expansion cost planned by Petronet for its pipeline will cost about R200 million to a new pipeline at a cost of R1 billion.

### 2.3.3. Retailing Sub-Sector

The retail sub-sector is the end-point on the value chain, comprising mainly of service stations where consumers get their liquid fuels products. There are presently approximately 4 900 service stations, which are scattered throughout the country. The number of new service stations used to be regulated by the Service Station Rationalisation Plan (Ratplan) which determined the number of new stations that can be built in a year, posing another challenge on the HDSA's. The Ratplan was a voluntary agreement between government and the wholesale and retail industry. The purpose of this voluntary agreement was to limit the number of service stations in order to promote throughput at service stations and thereby, economies of scale (White Paper 1998).

Furthermore, the Ratplan and the regulations as published in the Government Gazette No 10027 prohibited self service and sale of petrol on credit at retail fuel outlets (Government Gazette, November 1985). This was done to protect the jobs of pump attendants. According to the Ratplan wholesale marketers were also not allowed to operate service stations, in order to promote small business in the retail industry. However, oil companies were allowed to operate one filling station per province for training purposes.

The end of the Ratplan was heralded in September 2001 when the Department of Minerals and Energy (DME) published a draft bill to amend the Petroleum Products Act (Industrial and Petrochemicals Consultant, 2001:15).

In 2001 the Department of Minerals and Energy (DME) published the Bill which allows regulations to be made *inter alia* regarding, the conduct of business in petroleum products, including the prohibition of self-service, prevention of vertical integration, and prohibition of blending or mixing of products (Industrial and Petrochemicals Consultants, 2001).

The retail price of petrol is controlled by government, including, the retail margin of paraffin which is set by government at a maximum price +33%” through the Retail Price Maintenance. The retail profit margin of service stations is determined by the DME based on a sample of service stations’ actual operating costs with retail price maintenance applying to petrol. In addition, the price of petrol is fixed by law and cannot be discounted, although wholesale prices of diesel and illuminated paraffin are maximum prices they are, in practice discounted.

In 2000 the MOC’s had over 4000 service stations and the BOC’s less than 100 as shown in Table 2 below. In 2002 the market share of major products of each MOC was above 13% while the share of the BOC’s was below 5% as shown in Table 3. In addition, the retail ownership or operation of service stations is still dominated by Whites. For example, in 2000 only 31% of all Engen dealerships were owned by Historically Disadvantaged South Africans ([www.engenoil.com](http://www.engenoil.com)). Black people own about 25 percent of Shell's 800 service stations ([www.shell.co.za](http://www.shell.co.za)).

Table 2 Number of Service Stations Per Oil Company

1990		1995		2000	
Company	Service Stations	Company	Service Stations	Company	Service Stations
Afric Oil	0	Afric Oil	0	Afric Oil	5
BP	845	BP	821	BP	819
Caltex	1007	Caltex	989	Caltex	995
Engen	952	Engen	1430	Engen	1311
Exel	0	Exel	0	Exel	53
Sasol	19	Sasol	23	Sasol	61
Shell	794	Shell	839	Shell	832
Sonap*	143	Tepco	0	Tepco	3
Tepco	0	Total	677	Total	694
Total	633	Zenex	137	Zenex	134
Trek*	377				
Zenex	124				
<b>Total</b>	<b>4894</b>	<b>Total</b>	<b>4916</b>	<b>Total</b>	<b>4907</b>

NB: Sonap\* and Trek\* were absorbed by Engen in 1994. The Table is a presentation of figures as provided by the DME for 1990, 1995 and 2000.

Table 3 Market Share of Major Products of all Oil Companies

Company	1997		1998		1999		2000		2001	
	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
Afric Oil	0,70	0,18	0,67	0,07	0,05	0,55	0,02	0,19	0,04	0,19
BP	15,80	15,92	15,92	15,60	16,13	15,28	15,98	15,38	16,24	15,73
Caltex	17,67	18,23	17,71	18,19	18,05	16,50	17,89	15,82	17,43	16,69
Engen	24,20	24,60	24,10	24,07	24,17	23,33	26,78	27,95	27,02	27,25
Exel	0,26	0,69	0,80	2,40	1,38	3,80	1,86	4,98	2,23	4,84
Sasol	6,67	0,92	6,35	0,51	6,30	0,48	6,12	0,65	6,06	0,85
Shell	18,94	19,87	18,24	19,04	17,99	18,99	17,90	18,33	17,53	17,80
Tepco	0,08	0,34	0,23	0,85	0,40	2,36	0,38	2,90	0,33	2,22
Total	13,09	14,76	13,47	14,75	13,07	14,07	13,07	13,80	13,12	13,63
Zenex	2,59	4,49	2,51	4,52	2,46	4,64				
	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Source: Sapia Annual Report, 2002

NB: In 2000 Engen acquired Zenex

The market share of the BOC's has been growing, particularly Exel. For instance, in the period covering the years 1997 and 2000 its market share has grown from 0.26 to 1.86 for petrol and 0.69 for diesel to 4.98. The strength of Exel seems to be on diesel, even though it has also grown its market share for petrol. However, in 2001 its market share of diesel dropped by 0.14. In the same year the other oil companies also experienced a downturn in diesel share as can be seen in Table 3 except Sasol, Caltex, and BP which picked up at an average of 0.47 while the market share of Afric Oil remained the same as the previous year. This can be, among other things, the result of petroleum products price increases.

The other BOC's, Tepco and Afric Oil seems to vary their market shares increment even though all, including Exel seems to be strong on diesel, probably because the diesel price is not controlled. In terms of the diesel market share Tepco is second and Afric Oil third to Exel.

The market shares as shown in Table 3 reflect that BOC's or new entrants are strong on diesel, as can be seen with Zenex, which experienced market growth each an every year until it was acquired by Engen in 2000 increasing the latter's diesel market share from 23.33 to 27.98 percent. The increase of diesel share by Exel may be associated with the partnership sites that it owns with Sasol, hence Sasol also increased its diesel share when other companies were experiencing a downturn. This also may be accounted to customers who buy in bulk from Exel.

The BOC's are capturing market share in the retail sub-sector and seem to be increasingly becoming major players in a sub-sector which was characterized by racially divided retail associations. At the present moment the retail sub-sector has two "colour blind" industry associations, whose activities are confined to this sub-sector, namely: the Retail Motor Industry Organisation (RMI) and the South African Fuel Dealers Association (SAFDA).

The Retail Motor Industry Organisation (RMI) was launched in November 1999, encompassing the South African Motor Industry Employers' Association and the Motor Industries' Federation.

The RMI is the second largest employer body in South Africa comprising 12 associations each representing a specific sector of the retail motor industry ([www.autocluster.com](http://www.autocluster.com)).

The South African Fuel Dealers Association (SAFDA) comprise owners/operators of filling stations, convenience stores, car-wash centers. The main aim of SAFDA is to champion interests of dealers, improving and expanding relationship with RMI and government, using its independence to address the oil companies to improve the dealer/franchise agreements to the benefit of fuel dealers. SAFDA is one of the largest of the 12 associations that are part of RMI.

#### 2.4. Profitability of the Oil Industry

The refining, marketing and retailing sub-sectors are crucial for the economy and oil companies generate huge returns from it, particularly Sapia members as reflected in the value added statements of Sapia members in Table 4 below. Table 4 reflects the wealth of Sapia members which in practice translates to market power and dominance by Sapia member companies. This is buttressed by the profit margins framework (called the Marketing of Petroleum Activities Return) which regulates the returns of the oil companies in the marketing and retailing sub-sectors. Below this regulatory framework and the wealth of Sapia members are discussed.

##### 2.4.1. Marketing Petroleum Activities Return

The Marketing of Petroleum Activities Return (MPAR) regulates the profit margins of oil companies at marketing and retailing sub-sectors, excluding refining activities. This formula does not cover the refining sub-sector, since this sub-sector was deregulated in 1991 and its activities within the refinery are excluded from the MPAR formula. In other words, the MPAR involves petroleum related activities outside the refinery gate and other related activities, namely, storage, transportation, distribution, marketing and administration.

The profit margins of retaining and marketing sub-sectors' activities are controlled by government based on the MPAR formula determined to yield a benchmark industry average 15 % rate of return (10%-20% range with a one year lag) on the depreciated book value of assets. If the returns go above 20%, then a margin decrease is indicated and if it falls below the 10% floor, a margin increase is indicated (Industrial & Petrochemicals Consultants, 2001:26).

This also means that the MPAR calculation is actually based on a rate of return approach on capital employed to arrive at the margin which is allowed between a return of 15 percent before interest and tax on the fixed and current assets involved, valued at historic costs (Lambrecht, I.J. and J.J. Doppegieter, 1993). This is based on the certified financial performance of an oil company by auditors for the year ended December. The method followed involves a rate of return based on income adjusted for replacement values, which is related to the historical cost of depreciated assets with the exclusion of cash.

The formula is based in the main on the total assets. Table 4 below reflects the value of such total assets, although it includes a combined total results of all Sapia members in the year 2002. According to the Sapia 2002 annual report, the MPAR return was 3.8 percent and the margin increase was 6,93 cents per litre, amounting to 10,01 , which is within the 10-20 percent range. It should be emphasised that the MPAR will only be applied to an individual company's financial performance as opposed to combined assets of oil companies.

Table 4 Aggregate Financial Results of Sapia members

	YEARS ENDED 31 DECEMBER									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Operating profit (R/m)	1 307	2 108	1 877	1 649	2 402	2 229	1 987	2 965	5 704	5 687
Interest paid (R/m)	(53)	(173)	(250)	(323)	(447)	(454)	(683)	(389)	(789)	(673)
Income tax (R/m)	(503)	(596)	(582)	(402)	(568)	(474)	(419)	(667)	(1249)	(1 682)
Net income (R/m)	751	1 339	1 045	924	1 387	1 301	885	1 909	3 666	3 332
Total assets (R/m)	9 389	10 845	13 324	14 466	17 634	18 597	19 546	20 492	34 157	41 451
Capital Expenditure (R/m)	1 652	1 558	1 613	1 389	1 377	1 455	1 511	1 542	1 763	2 627
After tax return on assets (%)	8,1	12,3	7,8	6,4	7,9	7,0	4,5	9,3	10,7	8,0
Sales Volumes (bn litres)	21,1	23,6	24,7	28,7	29,4	33,8	31,0	26,6	26,7	26,9
Net income after tax (c/l)	3,6	5,7	4,2	3,3	4,7	3,8	2,9	7,2	13,7	12,4

Source : Sapia Report, 2002

The MPAR looks at the direct results and performance of each oil company, which include the audited statements of companies' performance by external auditors. This formula also covers the income from service stations, which according to the MPAR also forms part of marketing activities. The MPAR applies to service stations that are owned or leased by the oil companies. The lease and retail income from these service stations are included in the MPAR income and the assets employed as well as the capitalised assets are included in the asset base.

There are three fundamental problems that could easily be identified with this formula. Firstly, in terms of the formula activities in the retailing and marketing sub-sectors are fused and treated as petroleum activities of one sub-sector, namely marketing. This is a problem because activities in one sub-sector might be subsidising the activities in the other sub-sectors.

Secondly, in as much as this formula provides and regulates margins for the oil companies, a number of unclear facets are salient which demand that the formula needs to be reviewed. This include aspects such as, (i) the manner in which the depreciated assets are valued, (ii) the type of assets of the companies that are subject to valuation, and (iii) how the valuation is carried out. Thirdly, related to the latter problem is that, the value and valuation of company assets are known to and done by companies, and therefore leaves room for the oil companies to manipulate the formula to their benefit.

#### 2.4.2. Wealth of Sapia Members

The wealth of Sapia member companies are generated from the refining, marketing and retailing sub-sectors. The returns generated in their refining activities include petrochemicals and petroleum products. The profit from petrochemical products are excluded in the MPAR formula, and the value added statement provided by Sapia member companies.

The members of Sapia sold 2656 millions of litres of petrol and 1738 millions of litres of diesel in the fourth quarter of 2002 (Sapia, 2002 Report). According to Sapia, from January to December 2002 the major products volumes in millions of litres amounted to 10335 for petrol and 6831 for diesel which is a combined volume of 17166 million of litres. In the 10335 millions of litres an amount of about R2924.59 million went to Sapia member companies in the form of wholesale margin.

The retail margin generated out of the number of petrol volumes sold in 2003 amounted to about R3617.25 million. In 2001, with the price of petrol at R358,00 in Gauteng, the petrol sales volume of 10340 million litres at the same retail margin the industry generated an equivalent amount of the year 2002. The profit margins reflects the stability and profitability of the industry.

Table 5

## Value Added Statement of Sapia Members

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Turnover (R/bn)	21,9	25,3	27,4	30,3	37,5	40,7	39,6	45,5	80,0	92,6
Net cost of products and services (R/bn)	10,4	12,0	12,4	15,5	20,3	22,5	19,8	23,6	56,6	67,8
<b>Total value added(R/bn)</b>	<b>11,5</b>	<b>13,3</b>	<b>15,0</b>	<b>14,8</b>	<b>17,2</b>	<b>18,2</b>	<b>19,8</b>	<b>21,9</b>	<b>23,4</b>	<b>24,8</b>
To pay employees gross salaries, -wages and benefits (R/bn)	0,7	0,9	1,0	1,1	1,2	1,2	1,3	1,4	1,7	2,5
To pay the state tax in the form of -income Tax (R/bn) -duties and levies (R/bn)	9,2	10,6	11,8	11,9	13,6	14,2	16,1	17,3	17,8	17,3
To pay providers of capital -Net finance expenses(R/bn) -dividends (R/bn)	0,6	0,7	1,0	0,6	1,2	1,3	1,1	0,9	1,5	2,6
Retained for future growth -Depreciation (R/bn) -Retained income for the year (R/bn)	1,0	1,1	1,2	1,2	1,2	1,5	1,3	2,3	2,4	2,4
<b>Total value added (R/bn)</b>	<b>11,5</b>	<b>13,3</b>	<b>15,0</b>	<b>14,8</b>	<b>17,2</b>	<b>18,2</b>	<b>19,8</b>	<b>21,9</b>	<b>23,4</b>	<b>24,8</b>

Source: Sapia Annual Report, 2002

NB: *The value added statement is a summary of the wealth the Sapia members have created and its distribution. The Table is adapted from the 2002 Sapia report.*

In 2001, the turnover of Sapia member companies in the downstream petroleum industry was R92,6 billion, exceeding at least the previous years with more than R10 billion. In 2001, about R2,4 billion was retained by the oil companies for future investment, as shown in Table 5. The changes in the value added statement are also influenced by the inclusion of the statements of PetroSA and Sasol whose financial statements were previously excluded.

According to Sapia (2002), the figures for the years 2000 and 2001 are not comparable with the prior years as the petroleum and synfuel interests of Sasol were included for the first time, and in 2001 the results of PetroSA were also included for the first time. In terms of the Sapia report (2002) after the inclusion of Sasol in 2000, according to the aggregate financial results of Sapia members, the total asset base skyrocketed from 20 492 million to 34 157 million, bringing the total asset base difference to 13 665 million more than the total asset base of all the Sapia member companies combined together in 1994.

This raises curiosity when juxtaposed with the market share of Sasol of only 6.06 percent of petrol and 0.85 percent for diesel as shown in Table 3 above. Moreover, there was no skyrocketing on the after tax return on assets from 7.8 in 1994 to 10.7 in 2000. This also reaffirms the discrepancies of and brings to question the MPAR formula which is used to determine the marketing margin of oil companies based on their total asset base.

The income tax, duties and levies contributed by Sapia members decreased from R17,8 billion in 2000 to R17,3 billion in 2001 as shown in Table 5 above. The income tax alone amounted to R1,7 billion which was paid to the state, and R15,6 billion in the form of duties and levies was also paid to the state by Sapia member companies. These levies include the money collected through sales of petroleum products mainly at the retailing sub-sector. In June 2002 the government imposts were at 28,8 percent per litre, an equivalent of R120,5 cents charged in a litre of petrol which was collected by Sapia members to government. The taxes reflect to an extent that the government generate a large amount of money from the petroleum industry to spend on some of its major projects. These taxes serve as a crucial source of revenue for government.

The salaries, wages and benefits paid to employees, taxes, dividends to shareholders and retained income as reflected in Table 5, provided a total value added of R24,8 billion in 2001 an increase of R1,4 billion from the previous year. The taxes and levies constituted about one third of the pump price of petrol and diesel contributing almost ten percent of government's revenue.

Table 5 also shows growth of the industry over time and the extent to which the petroleum industry contributes to the country's economy. This also demonstrates the importance of the petroleum sector to the country's economy as shown in terms of its size which also translates to its contribution to the country's Growth Domestic Product (GDP). The profit generated by these oil companies goes to shareholders, another is retained. The other amount goes to the state in the form of taxes and levies, while another portion is paid to employees. It is important to note that the industry contributes twenty percent of the government's total tax, and 10 percent of government's total revenue, with about two percent to GDP.

## 2.5. Categories and Profiles of Oil Companies Operating in South Africa

There are three categories of oil companies that operate in the above three sub-sectors of the downstream petroleum industry of South Africa, namely the Multinational Oil Companies (MOC's), Black Oil Companies (BOC's) and what may be loosely termed Local Oil Companies (LOC). The profile of oil companies in these three categories differs in many respects, their investments in assets for example. They also differ with regard to their evolution and acquisition by other companies and their origin, ownership and control. The profile and categories of these oil companies are discussed below.

### (a) Multinational Oil Companies

The first category comprise of companies whose characteristics include, being a subsidiary of a holding company of a foreign controlled or owned company, having its origin in a foreign country and also having operations in other countries. This category includes, at least five companies that meet these criteria, namely; Engen, Shell, Total, Caltex and BP.

The first MOC is Engen Petroleum (Pty) Limited, which evolved from Mobil Corporation, created in 1989 after the selling of Mobil's Southern Africa operations to Gencor. Engen is 80% owned by Malaysia's state-owned Petronas, and is a major player in the South African oil industry.

The Malaysian company Petronas acquired an initial 30% stake in Engen and in 1998 purchased the remaining 70% of Engen shares. Engen is the largest player in the South African liquid fuels retail market with approximately 27% of the liquid fuels market([www.engenoil.com](http://www.engenoil.com)).

In 2000, Zenex Oil (Pty) Ltd was acquired by Engen. Engen also owns the Enref. The company has marketing operations in South Africa, Namibia, Botswana, Lesotho, Swaziland, Kenya and other countries of central and West Africa. Engen has bought a R100 million bulk oil terminal in Dar es Salaam, Tanzania, with the pre-emptive right to take over two service station networks and several inland depots.

Engen has also entered the Zimbabwe downstream oil business in a joint venture with subsidiary Ximex Holdings. The company is also active in the Shaba Province of the Democratic Republic of Congo. Engen has shares in Afric Oil (45%), Afric Energy Resources (Pty)Ltd (20%), Petroleum Nasional Bernhard (80%) in South Africa, and shares in Engen Botswana Ltd, Engen Ghana, Engen Namibia (Pty)Ltd, and Engen Swaziland (Pty)Ltd.

The second MOC is Shell South Africa, which is 100 percent owned by Shell group, with 40 percent owned by the British based "Shell" Transport and Trading Company, and 60 percent by the Netherlands based Royal Dutch Petroleum Company (N.V. Koninklijke Nederlandsche Petroleum Maatschappij).

Shell South Africa holding company is technically owned by Shell Petroleum Supply, registered in London. The close interlocking ties between the two parts of the Shell group meant that the responsibility for Shell South African operation lies squarely with both the British and Dutch companies ([www.shell.co.za](http://www.shell.co.za)). Shell S.A is a wholly owned Shell subsidiary company, with a market share of 17,8 % and with over 800 service stations.

The Third company is BP South Africa (Pty) Ltd, owned by BP Amoco the holding company. In other words, BP Oil South Africa is a wholly owned subsidiary of BP Amoco ([www.bp.co.za](http://www.bp.co.za)).

BP owns 50% of Sapref refinery and has about 780 service stations. BP shares are quoted on stock exchanges in the United Kingdom, United States of America, Japan, France, Germany and Switzerland. While BPSA is registered in South Africa, its head quarters are in London.

The fourth MOC is Caltex Oil, which is part of the ChevronTexaco Group. Caltex has a 15 % shareholding in the African Legend Investment Holdings Limited, a 75% shareholding in Caltex Corporation in Singapore, 2% shareholding belong to the Caltex Employee Participation, 5% belong to Lithemba Investments Limited, while 3% of the shares are held by the South African National Taxi Association ([www.mbendi.co.za](http://www.mbendi.co.za)).

The Africa Legend Investment Holdings Limited has 100% shares in Africa Legend Technologies (Pty)Ltd and Elgas Mozambique, the company that distributes and sells natural gas from the Pande gas field. Caltex has a 100 % ownership of Calref.

The last oil company which falls within the MOC category is Total South Africa (Pty)Ltd a subsidiary of the international group TotalFina South Africa founded in 1954, and combines French (54.56%) and South African (45.44%) shareholding with a strong refining activity at Natref (36%) and 17% shares in the lubricant base oil refinery South African Fuel Oils Refinery (Safor) which is managed by Engen ([www.mbendi.co.za](http://www.mbendi.co.za)). In 1999, Total merged with Fina and Elf to form TotalFinaElf. Total also has shares in TOTAL Renaissance (51%), Calulo Investments (25%), TotalFinaElf (57%), and VenFin Ltd (33.3%).

The shareholders of TOTAL include several South African companies including the Rembrandt Group (33.3%) and Old Mutual (9.6%) ([www.total.co.za](http://www.total.co.za)). In the retail sub-sector TOTAL has close to 12% of the market, while in the commercial and industrial sector the company has a 13.4% market share. TOTAL has a strong position in the agricultural sector with a market share of 18%. TOTAL's marketing assets includes 688 branded service stations, a network of depots and a fleet of road tankers.

#### (b) Local Oil Companies

The second category comprise of Sasol, and PetroSA which are referred to as LOC's because their headquarters are in South Africa. These two LOC's produce petroleum products from gas to liquid fuel products and from coal to liquid using the Fischer-Tropsch based Slurry Phase Distillate (SPD) a coal and gas to liquid technology in their plants.

##### (i) Sasol Oil (Pty) Ltd

The South African Coal, Oil and Gas Corporation (Sasol), which was latter to be known as Sasol, was a wholly owned subsidiary of the Industrial Development Corporation of South Africa, which in turn was owned by the South African Government.

The government owned Sasol prior to 1979, and was privatised later that year. It holds about 64 percent of shares in Natref. Sasol also owns the Sasol Synthetic Fuels (SSF) plant in Secunda, Mpumalanga Province.

The SSF uses the Fischer-Tropsch based Slurry Phase Distillate (SPD) a coal to liquid technology. It received government subsidy, through the synthetic levy and the subsidy was terminated in 1999. According to Reuters (16/03/2003) Sasol has about 100 petrol stations to date, but leases them to other companies.

#### (ii) PetroSA

The PetroSA's synfuel plant was commissioned in the late 1980's by the government which funded the project, and is also currently owned and controlled by the South African government, through PetroSA. It produces liquid fuels from gas through the use of the Fischer-Tropsch Gas to Liquid Technology (GLT). PetroSA does not own or operate service stations.

#### (c) Black Oil Companies

The third category include all those companies that were established in South Africa after 1994, owned and controlled by HDSA's. Such companies are regarded as new entrants in the South African downstream petroleum industry since they were established a few years ago. This category includes Exel Petroleum (Pty) Ltd, Tepco (Pty) Ltd, Afric Oil (Pty), and Worldwide Africa Investment Holdings.

#### (i) Tepco (Pty) Ltd.

The Thebe Petroleum Company (Tepco) was formed in 1995, initially as Bambanani Petroleum. It began in 1992 with Batho Batho Trust, which founded Thebe Investment Corporation with an aim of providing economic opportunities to blacks. Tepco is a subsidiary of Thebe Investment Corporation. Thebe Investment Corporation has 90 percent holding in Tepco. Tepco was distributing petrol, diesel, lubricants, illuminating paraffin, LPG, and propane. Tepco is now a subsidiary of Shell South Africa Marketing ([www.tepco.co.za](http://www.tepco.co.za)).

(ii) Afric Oil (Pty) Ltd.

Afric Oil (Pty) Ltd was founded in 1995 by the black empowerment company Worldwide Africa Investment Holdings (Pty) Ltd (WAIH) which has a 55 percent equity stake in Afric Oil, the remaining 45 percent is owned by Engen ([www.africoil.co.za](http://www.africoil.co.za)). Its formation was a product of negotiations between WAIH and Caltex aiming at providing blacks the opportunity to enter the petroleum industry. Afric Oil was the first empowerment firm in the oil industry, although it exited the real retail side several years ago and concentrated much on wholesale distribution. The services currently offered by Afric Oil are, among others, marketing a full range of petroleum products, sourcing and providing fuel dispensing and storage equipment, sourcing and providing transportation of fuel in bulk, and providing fuel management solutions.

(iii) Exel Petroleum (Pty) Ltd.

Exel Petroleum was formed in March 1997, by a number of organisations and businesspersons. Its shareholders, include the South African National Civic Organisation (SANCO), Siphumelele, African Renaissance and National Black Fuel Retailers Association (NBFRA), of which the latter has about four hundred service stations operators as members.

(iv) Worldwide Africa Investment Holding

The Worldwide Africa Investment Holding (WAIH) was Founded in 1994, and is a South African registered, privately owned and managed investment holding company. It was founded to establish a solid capital base for its entrepreneurial initiatives, while also nurturing powerful synergies between various organizations and key players, creating meaningful commercial participation for WAIH's chosen area of focus.

Sego Investments (Pty) Ltd, the founders and executive personnel of WAIH, hold 60% of the economical beneficial shares in WAIH, while a number of institutional investors hold the balance ([www.engenoil.com](http://www.engenoil.com)). The company is structured to develop a portfolio of profitable investments in certain key focus areas.

Their most significant exposure is in the liquid fuels and energy sector. It is different to the other BOC's because it does not market petroleum products in South Africa nor does it operate a refinery or service stations. Through its 100% interest in AER, WAIH has consolidated its involvement in this sector via its 55% interest in Afric Oil (Pty) Ltd the commercial dealer of liquid fuels.

## 2.6. Industry Associations and their Membership

There are two main industry associations in the petroleum industry of South Africa beside RMI and SAFDA which were discussed earlier. These associations are the South African Petroleum Industry Association (Sapia) and the African Minerals and Energy Forum (Amef).

The South African Petroleum Industry Association's (Sapia) founding members are the Multinational Oil Companies. Sasol Oil joined in 2000 followed by PetroSA, Mossgas then. The members of Sapia are the LOC's and MOC's namely; Shell, Total, BP, Engen, Caltex, Sasol Oil, and PetroSA. The main aim of Sapia, is to represent the common interests of the member companies in petroleum refining and marketing in South Africa and to promote understanding of the industry's contribution to economic and social progress with all stakeholders ([www.sapia.co.za](http://www.sapia.co.za)).

Moreover, Sapia was formed by the MOC's in 1994 to pursue objectives, which are to the best interest of the member companies. It has a director who is permanent and takes charge of the activities of the organisation. The members of Sapia have made several submissions on legislation and policies concerning the industry.

The most active and relatively powerful association in the industry when compared to the other associations, is Sapia. It is active and take part in legislative and public participation processes regarding matters of the industry. They made submission during the drafting and influenced the final outcomes of legislation. They have earned respect from policy makers because of the experience they have, their contribution to the economy and the role they play in the industry.

The other association is the African Minerals and Energy Forum, which represents the interests of HDSA's who are in the minerals and energy sector, although its main focus is on the petroleum industry. It is an organisation of individuals, mostly Blacks, who are involved in the minerals and energy business.

The main aims of AMEF, is to promote and protect the interests of previously disadvantaged stakeholders in the minerals and energy fields. The other aim is to influence policy formulation in the minerals and energy arena and to be a united voice on behalf of previously disadvantaged groups (AMEF, Constitution, 1998:2). In the petroleum sector, its membership comprise among others, the two Black Oil Companies (BOC's), Excel Petroleum (Pty) Ltd, and Afric Oil.

Most of the activities of AMEF are in the energy field, but specific focus is given to the petroleum industry activities. AMEF is the weakest link in the chain between the government, established companies and the BOC's. While one of its main aims is to influence policy formulation, it has hardly influenced policy in the energy sector. Secondly, it currently comprise two BOC's which are not as powerful and well established as their counterparts in Sapia.

## 2.7. Black Economic Empowerment Equity Deals

The petroleum industry players have committed themselves in the Empowerment Charter to place 25% of its assets in the hands of black-owned business within the next ten years, from 2000. According to the Sunday Times (28/04/2002), at the time of the charter, black companies owned about 5.2% of the assets of the industry and only 2.3% of the annual operating profit.

Historically Disadvantaged South Africans made up 33% of staff at director and management level, while at non- management level the proportion was 66% (www.shell.co.za). Since the signing of the Empowerment Charter in 2000 a number of empowerment deals or equity agreements have been entered into between the MOC's and BOC's and other empowerment companies. Below some of the empowerment deals are discussed.

(a) Engen and Worldwide Africa Investments

The first major and widely publicized shareholding and equity participation deal was the acquisition of a 20 percent stake in Engen in late 1999 by Worldwide African Investment Holding (WAIH). In 2000, as reported in the Sunday Times (2000) Engen acquired a 45% interest in Afric Oil, which is owned by Worldwide African Investment Holding (Sunday Times, 15/10/2000). Early in 2000 the Competition Tribunal approved Engen's 100% acquisition of Zenex, which was owned by WAIH, making Engen the largest oil company in the retail sub-sector.

(b) Shell and Empowerment Companies

(i) Shell and Thebe Investments Corporation Limited

In August 1998, Shell concluded a refining and processing agreement of its share at the refinery with Tepco, the petroleum subsidiary of Thebe Investments. In mid-April 2001, Shell sold between 17.5% and 25% of the new Shell SA Marketing (SSAM) arm to Thebe Investments.

Following on from the announcement of a Letter of Intent in July 2001, discussions were concluded in March 2002 between the two parties, resulting in Thebe acquiring full (minority) voting rights in the retail and commercial business of Shell. It was agreed that Thebe will have 25% Board representation in the company. As Tepco is now a subsidiary of SSAM, this arrangement has been superseded by new agreements. This deal resulted in Thebe subsidiary Tepco merging with Shell. Thebe petroleum marketing asset Tepco Petroleum was acquired by Shell as part of the agreement and has now become subsidiary of SSAM.

(ii) Shell and Southern Tankers

In November 2001, Shell and BP signed a deal with Southern Tankers, a joint venture between Dudula Shipping a Black maritime company and Unicorn Shipping, a subsidiary of the listed Grinrod shipping group.

Southern Tankers will charter a specialist oil and chemical products tanker to transport petroleum products from the Durban-based SAPREF refinery, jointly owned by Shell and BP to cover their entire coastal shipping requirements in a deal worth R600million.

(c) BP and Empowerment Partners.

In August 2001 BP sold 25% of its equity to the Women's Development Bank (7.5%) and Mineworkers' Investment Company (17.5%). The assets included BP's refinery. In August 2001, the Mineworkers' Investment Company (MIC) and WDB Investment Holdings (Pty) Ltd (WDBIH) accepted an equity stake in BP's South African operations, giving them an immediate three seats on the board of BP Southern Africa (Pty) Limited and 25% shareholder voting rights ([www.bp.co.za](http://www.bp.co.za)).

As part of the transaction, MIC and the WDBIH also secured an initial 25 per cent shareholding in a new BP marketing joint venture. The manner in which this deal is funded is, as BP states, "confidential but is structured to make it possible for MIC and WDBIH to self-finance the transaction and accomplish it entirely without external financiers" ([www.bp.co.za](http://www.bp.co.za)). The meaning and implication of the financing of the deal is a matter of speculation, to outside-parties to the agreement.

(d) TOTAL South Africa and Calulo Investment

Total announced a sales and marketing joint venture worth "hundreds of millions of rands" with the black empowerment firm Calulo Investments. In July 2001, Under the joint venture a new company, Total Renaissance, was formed. It is 51% owned by Calulo and 49% by Total SA, and will take over some of the activities of Total, including the wholesale marketing of fuel, but not retailing and service stations ([www.total.co.za](http://www.total.co.za)). Calulo is also one of several empowerment companies in negotiations with Total for an equity stake.

(e) SASOL Oil and Exel

Sasol has a strategic alliance with an empowerment company Exel. Sasol Oil acted as a catalyst in the establishment of Exel, which today is 77.5% black-owned with Sasol holding 22.5%.

(f) Exel and ExxonMobil

In March 2003 Exel Petroleum (Pty) Ltd and ExxonMobil entered into a deal which saw Exel start fuelling operations at Johannesburg International Airport from April 2003, supplying jet fuel to air lines flying out of the airport and operate the fuel facility, which is owned by the Airports Company of South Africa (ACSA) ([www.mbendi.co.za](http://www.mbendi.co.za)). Exel and ExxonMobil have also established a jet fuel marketing company Exelcm Aviation (Pty) Ltd. Exel is the majority owner in the company. It is projected that Exel will notch up a turnover of R3.7 billion this year, 2003. The group projects a R5-billion turnover by 2005.

(g) Africa Legend and Caltex

In December 2002 Caltex Oil (S.A.) (Pty) Limited announced a shareholders agreement with a consortium of black economic empowerment partners led by African Legend Investment Limited. It is planned that this should ultimately provide the Consortium a 25% interest in all aspects of Caltex's operations in South Africa, including supply, refining, distribution, retail and commercial marketing, aviation, lubricants and business support. The empowerment partners are African Legend Investment Limited (15%), Lithemba Investments Limited (5%), South African National Taxi Council (SANTACO) (3%) and the Caltex Employee Participation Plan (2%). Within this effective shareholding structure, Ditikeni Investment Company Limited has a beneficial interest (1%).

## 2.8. Politics Behind the Empowerment Deals: Who stands to Benefit?

The key objective of the White Paper (1998) is to achieve 25 percent of ownership, control and sustainable presence of HDSA's in the industry or plans to achieve this.

The HDSA's who suppose to benefit from empowerment deals belong to AMEF and own or control BOC's, which are both weak. It should be remembered that, prior to the signing of the empowerment charter in 2000, most of the MOC's fiercely resisted new competitors such as Afric Oil ([www.sundaytimes.co.za](http://www.sundaytimes.co.za)). At the present moment each of the black-owned oil companies now has a strategic alliance with an MOC.

The main solicitors of these deals are the MOC's because they are the ones who approach empowerment companies. The MOC's stand to benefit from the deals, since their image will be boosted when they appear to be complying with the Empowerment Charter by including HDSA's and BOC's. The inclusion of HDSA's works in favour of the established company, because this also helps the company appear to be committed to empowerment of HDSA's and to reflect the profile of South Africa's demographics in the industry. The image of a company has indirect benefits to the company, like advertising (media publicity during the signing of the deal), which would boost sales.

The HDSA's or BOC's also stands to benefits from the deals, since they will also enjoy the benefits arising out of the deals, more especially from dividends and/or joint ventures. The empowerment deals that are entered into by the MOC's and BOC's should be measured against what constitutes ownership and control, which according to the empowerment charter signed by all the oil companies refers to equity participation and the ability to exercise rights and obligations that accrue under such rights and ownership.

These include, among other things, majority shareholding position i.e. 50% + 1 share, effective controlling shareholding, a majority of a board of directors, and/or a shareholders agreement. Most of the deals that have been signed do not include all or most of the above key elements of ownership. For example, most deals that have been entered into have tended to exclude the refining sub-sector. By excluding a particular sub-sector from the deals, the above key elements of ownership are also being excluded, therefore raising empowerment questions about the deals.

The fundamental empowerment question that arises if the key elements of ownership and control are not included is, “what is the logic of entering into a deal that allow the BOC’s and empowerment companies less than 50 percent shareholding, which may lead a BOC to merge with or become acquired by an MOC, further buttressing their market power in the industry?”. From all the above deals, the Worldwide Africa Investment Holding seems to be the one that may become the major player in the SA oil industry, which will be a major breakthrough for empowerment efforts in the oil industry.

Furthermore, the deals that have been entered into include among other deals, “blank cheque” deals, which do not necessarily result or contribute towards control, and ownership by the HDSA’s. For example, in the August 2001 BP and Mineworkers Investment Company and Women Development Banking Investment Holding (Pty) Limited (WDBIH) equity agreement, “the equity stake gives the new partners strategic influence, but not operational engagement” ([www.bp.co.za](http://www.bp.co.za)).

The other results of blank cheque agreements is initial minority shares which are then followed by acquisition of the empowerment company. A good example is that of Shell which initially gave Tepco 25 percent in its board, less than 50 percent, hence it was easy for Shell to turn Tepco into a subsidiary off Shell, because it *inter alia*, had a minority voting rights.

Moreover, the deal do not give effective controlling shareholding rights which is important to achieve black economic empowerment. These blank cheque deals undermine the main objectives and spirit of the empowerment charter, to empower previously disadvantaged groups and help create a balanced business world that reflects the profile of South Africa’s population. It can therefore be concluded that, the deals will benefit the MOC’s since they are not aimed at giving majority shareholding and control to the HDSA’s.

The other implication of the deals is the strategic exclusion of the BOC’s from certain areas of the industry through the deal themselves, most notably in the refining sub-sector.

For example, the BOC's are confined to the retailing and marketing sub-sectors, while the MOC's are heavily involved in all the sub-sectors, including refining. They witting or unwittingly intend to continue enjoying returns from these sub-sectors while through an invisible hand control their MOC's businesses and eventually the petroleum industry.

## 2.9. Government's Institutional Structures

The institutional structures of the state lines down from parliament to bureaucrats who constitute the main administrative agents and implementers of government policy. It comprises of the following institutions and officials. The parliament, the department and government officials form a complete chain of the governance structure.

### (a) Parliament

According to the Constitution of the Republic of South Africa Act No 108 of 1996, parliament is the superior structure that can make any decision relating to any department. Parliament is responsible for passing general legislation and energy legislation.

### (b) Parliamentary Portfolio Committee on Minerals and Energy

In parliament there are a number of Parliamentary Portfolio Committees (PPC's) including, the Minerals and Energy committee. The Minerals and Energy PPC discusses and allows public to make presentation on any matter relating to the energy sector. The committee also serves two purposes. First, it ensures the efficiency and transparency of government.

Secondly, it allows the public to make an input into the law making and policy processes. The minerals and energy committee comprise members of parliament from different political parties. The committee is important for three reasons.

Firstly, it monitors the executive, DME and related structures, including their performance in policy implementation and funding.

It also investigates and makes recommendations about possible changes to legislation, budget, structures and functioning of the department. Secondly, the committee is involved in policy formulation and debate legislation.

Thirdly, it facilitates access to government by ensuring public participation in monitoring, discussions and debating draft legislation (debate bills) implementation issues through public hearings, public submissions, etc. In practice the PPC has not been effective with regard to its mandate, and relied on the industry players to provide researched information about the industry to make necessary policy and legislation. It also relied on the understaffed department for draft bills and policies, which also relied on the major industry players.

#### (c) Cabinet

The cabinet, besides parliament, is the superior body that can make decisions on any matter of any department, including the DME. Within cabinet there is a Ministers Committee on Minerals and Energy. The ministers' committee is a cabinet committee of ministers and senior government officials formed to assist the minister/department on issues that cut across several ministries. In case of the cabinet committee for minerals and energy, it has ministers whose other responsibilities include some of those areas of mineral and energy, such as public enterprises (eg: Eskom) which falls under the ministries of public enterprises and minerals and energy.

#### (d) Minister and Department of Minerals and Energy

The national ministry is responsible for policy formulation and final decisions concerning issues in the field of minerals and energy. The minister is the head of the ministry and is also responsible for several structures that are under the Department of Minerals and Energy. The DME has the energy branch, which has a number of directorates, including the Hydrocarbons directorate that accommodates the petroleum section of the energy branch. The department administers the regulatory dispensation in the petroleum industry and legislation governing the industry.

The DME is also responsible for the drafting of legislation, regulation, formulation and implementation of policy and monitoring. This includes regulations such as, price control, and import of petroleum products. It is also involved in the determination of wholesale margin of the oil industry and the margin of the fuel retailers. The Department of Minerals and Energy, in conjunction with the Department of Trade and Industry, ensures that the South African market is at all times supplied with quality petroleum products. But in practice, it relies on the industry, particularly Sapia member companies to ensure that quality petroleum products are supplied. The assurance of quality products lies with, and must be approved by the South African Bureau of Standards (SABS) whose main responsibility is to make sure that all products adhere to certain quality standards.

The DME, like the other departments, is headed by a Director General. The Director General, is the main administrative head of the department, assisted by Deputy Directors General who head each branch within the department. Each directorate also has a Chief Director. The chief director is the head of a directorate, and is charged with the responsibility of managing the directorate. The hydrocarbons directorate incorporate the petroleum section.

The hydrocarbons directorate has about four deputy directors within the petroleum section and about two energy officers, who assist in the administration of the section. When compared to the other directorate, the petroleum section of the energy branch is highly understaffed. For this reason, it is not surprising that in practice it does not follow up what the industry through Sapia has promised to deliver. It is also unable to monitor and measure delivery of what is contained in the empowerment charter, leaving this to the oil companies themselves.

#### 2.10. Petroleum Products Agreements

The other instruments that assist in the regulation and governance of the industry are the petroleum products agreements reached between the oil companies and Sasol, namely; the Blue Pump Agreement (BPA) (1982) and Main Supply Agreement (MSA) (1988).

The first agreement is the BPA which was signed by the MOC's. However, the other new oil companies also apply the BPA. The oil companies in respect of whom Sasol at present implements the agreements are: BP, Shell, Caltex, Engen, Total, Exel, Tepco, and Afric Oil (Pty) Ltd.

The BPA restricts and simultaneously entitles Sasol to a 9,23 percent maximum market share. In other words Sasol will be in breach of the agreement if its market share can exceed the 9.23 percent maximum share of market. The second restriction is that which preclude Sasol from selling petroleum products other than petrol, Liquefied Petroleum Gas, for example.

The second agreement is the Main Supply Agreement. The MSA, like the BPA, was entered into between Sasol and the oil companies, which included Zenex. The MSA, despite the fact that Sasol and the oil companies negotiated it for a long time, it was actually implemented since 1988 (by both Sasol and the oil companies). The MSA contains at least three restrictions.

The first restriction precludes Sasol from selling petroleum products other than petrol (e.g.: LPG, IP, jet fuel, power paraffin, and propane) in the retail market and is limited to a given volume in respect of diesel.

The second restriction limit Sasol to sell petrol of the same octane rating and specification as the host service station. The third restriction relates to the production of certain volume, which the oil companies are obliged to purchase, but are not obliged to purchase the excess production from Sasol.

In 1995, Hengeveld and Rodenburg (1995) summarized the regulatory system of South Africa correctly when they argued that, "the key ingredients which regulate the industry are the supply agreements between Sasol, price and import control, and the oil companies which market its fuel, the wholesale and retail margin formulas, the Sasol tariff protection or subsidy (this has now being removed)".

The above restrictions are linked to the up-liftment of the synthetic fuels by the oil companies to Sasol. In terms of the law, specifically the Competition Act of 1998, they are restrictive practices and therefore falls foul with the Act. The MSA and BPA transgress sections four and five of the Competition Act of 1998. They also fall foul to some of the sub-sections of the Act.

Consequently, Sasol has applied for exemption to the Competition Commission of South Africa, in terms of the aforementioned Act and has also given notice to the oil companies. These agreements will no longer be applicable after the 31 of December 2003.

In addition to all the above agreements or regulatory instruments, the government promulgates regulations to give effect to some of the matters in legislation and regulatory frameworks. The regulations get published by government in the Government Gazette.

#### 2.11. Pricing Mechanism

The South African pricing structure of petroleum products comprises both domestic and international components. The domestic component include profit margins, government imposts, transport and industry costs, while the international component include the Basic Fuels Price.

The international component was based on the In-Bond Landed Cost (IBLC) which was the price of petroleum products at the refinery gate. Following the State of the Nation address by the President on the 14 February 2003, this has been replaced by the Basic Fuels Price (BFP) since from April 2003.

The BFP is the ex-refinery gate price of petroleum products, an international component which is based on spot prices that are reported daily by international fuel price reporting agencies, particularly Platt's which the government has chosen to rely on for its price calculation.

The local cost component includes the government imposts such as the customs and excise duties, fuel levy, road accident fund levy, equalization fund levy. It also include the transport and industry costs such as, retail and wholesale margins.

The transport cost to the different pricing zones are determined by using the transport tariffs of Transnet subsidiary (Petronet, Spoornet, and Autonct) for transporting the product from the coastal refineries to inland depots serving the area or zone. The tariffs are based on the dominant or most economical transport modes whether it is pipeline, road or rail transport.

The delivery cost element compensates marketers for actual depot related costs and distribution costs from the depot to service stations. The element is calculated on actual historical costs (one year previously) averaged over the country. The marketing margin aims at granting marketers a bench mark return of 15 percent on depreciated book values of assets with allowance for additional depreciation, but before tax and payment of interest. The profitability of the wholesale is calculated on the previous year's results and does not take into account the inflationary increases in the current year.

The retail margin is determined on the basis of the actual costs incurred by the service station operator in selling petrol. In this cost structure account is taken of all proportionate driveway related costs such as rental, interest, labour, overheads and entrepreneurial compensation.

The government imposts included the equalisation Fund Levy, a fixed monetary levy, determined in terms of the Central Energy Fund Act N 38 of 1977 by the Minister of Minerals and Energy in consultation with the Minister of Finance. Moneys in the fund can be employed for the purposes set out in the Act.

The Road Accidents Fund levy is determined by the Minister of Transport in conjunction with the Minister of Finance and is used to finance road accident third party claims. A fuel tax and customs and excise levy is imposed on petrol and diesel. Other liquid fuel products are only subject to Value Added Tax (VAT). These imposts are determined by the Minister of Finance.

The fuel price is controlled by government and is adjusted on the first Wednesday of every month and is publicly announced by the Central Energy Fund (CEF) (Pty) Ltd on the previous Friday or Monday. The BFP make up about 51.13 percent of the fuel price, while government imposts make up about 29.69 percent, with transport and industry costs amounting to about 20.38 percent. The breakdown of the price components is illustrated and shown in Tables 6 and 7 below, when the price of petrol in Gauteng was R426, 00 in April 2003.

(i) Local Component

Table 6 Local Price Component in April 2003

Component	South African cents per litre
Wholesale Margin	28,298
Service Cost Recoveries	5,100
Storage, Handling, and Delivery Costs	5,100
Distribution Costs	0
Dealer Margin	35,000
Zone Differential	12,300
Fuel Levy	101,000
Customs and Excise	4,000
Road Accident Fund Levy	21,500
Slate Recovery	1,000
<b>Sub-Total</b>	<b>208,198</b>
Basic Fuels Price	217,802
Retail Price of Petrol	R426,00

Source: Mbendi Website ([www.mbendi.co.za](http://www.mbendi.co.za))

## (ii) International Component

The international component on the price of petrol is the basic fuels price. The BFP incorporates, *inter alia*, FOB, Insurance, and Freight, which when combined together constitute CIF, Ocean Leakage, and Wharfage. In April 2003 the BFP of petrol was R217.802 as shown in Table 7 below.

Table 7 International Price Component in April 2003

Component	Amount
Basic Fuel Price	217,802
Total	217,802

Source. Mbendi Website ([www.mbendi.co.za](http://www.mbendi.co.za))

It should be stated that the local price composition of the price includes transportation cost to the different pricing zones, since South Africa is divided into a number of Magisterial Districts and pricing zones.

### 2.12. Legislation Governing the Petroleum Industry

The South African downstream petroleum industry is governed by a number of legislation, of which some extend to cover the entire value chain of the petroleum industry, from upstream industry's exploration for and production of , to the downstream industry's refining, marketing and retailing sub-sectors. The two key Acts relevant to the downstream petroleum industry are discussed below.

(a) Petroleum Products Amendment Bill 2001

The Petroleum Products Act No 120 of 1977 was enacted, “to provide measures for the saving of petroleum products and an economy in the cost of the distribution, for control of the furnishing of certain information regarding petroleum products, and for the rendering of services of a particular standard, in connection with motor vehicles, and to provide for matters incidental thereto”. The Act gave the Minister power to serve any person by notice, *inter alia*, “ for the purposes of ensuring an economy in the cost of distribution of petroleum products”.

However, a draft Petroleum Products Amendment Bill 2001 was introduced to amend the Petroleum Products Act in order to provide for the licensing of persons involved in the sale of certain petroleum products, to establish a licensing authority to issue licences” (Petroleum Amendment Bill (Act) 2001). This amendment bill also delete the above section, section 4A which prohibits the publication and release of information regarding petroleum products. The bill deletes the above quoted section of the Act to allow for transparency in the industry.

(b) Competition Act No 89 of 1998

The Minister of trade and industry administers the Act. Its purpose is, “to provide for the establishment of a competition commission responsible for the investigation, control and evaluation of restrictive practices, abuse of dominant position, and mergers, and for the establishment of a Competition Tribunal responsible to adjudicate such matters, and for the establishment of a Competition Appeal Court, and for related matters”.

The key objectives of the Act are among others to promote and maintain competition in the Republic in order;

a. To ensure that small and medium sized enterprises have equitable opportunity to participate in the economy; and

b. To promote a greater spread of ownership, in particular to increase the ownership stakes of historically disadvantaged persons.

The other Acts of parliament applicable to the downstream petroleum industry are the Central Energy Fund Act No 38 of 1977, Customs and Excise Duties Act No 91 of 1964, Petroleum Pipelines Bill 2001, and the Preferential Procurement Act No 5 of 2000.

### 2.13. Conclusion

The petroleum products agreements will no longer be applicable to the industry in 2004. The petroleum amendment bill has made the Ratplan redundant and will see the institution of the licensing authority. These changes take place within the current institutional structures and legislation governing the industry. They also occur at a time when the oil companies are engaging in black empowerment initiatives, and entering into empowerment deals. It remains to be seen whether all these developments will lead to black economic empowerment. All these aspects have been highlighted in this chapter.

The chapter also reviewed aspects of the industry and highlighted the market power that Sapia member companies have in the industry. It has been noted that the LOC's and the MOC's are well entrenched in the industry and are Sapia member companies. It was also noted that the government is not effective in the monitoring and measuring of deliverables against the background of the empowerment charter.

## Chapter Three

### 3. Discussion of the Investigation into the Downstream Industry

#### 3.1. Introduction

The previous chapter presented an overview of the South African downstream petroleum industry. It flagged out a number of problems facing the industry and more specifically the HDSA's and BOC's. In this chapter the investigation into the impediments to entry in the downstream petroleum industry is discussed. Chapter three is divided into three parts.

Part One begins in section 3.2 and deals with the conceptual framework and research methodology. It describes the research methods used in collecting data and explains the relevant concepts that will be applied during data analysis and discussion.

Part Two presents a summary of the data that was collected, relating to the refining, marketing and retailing sub-sectors. It presents the outlet shares and market shares of both the MOC's and the BOC's.

Part Three deals with empirical results and theoretical analysis of entry barriers. It identifies and discusses the economic, non-economic, and cross-sectoral barriers and applies theoretical and normative analysis to the three categories of entry barriers, without analysing them quantitatively.

The last section of this chapter concludes by providing a summation of this chapter, synthesizing the key main points. This will be preceded by a brief interpretation and comment on the results of the investigation.

## Part One

### 3.2. Conceptual Framework and Research Methodology

#### 3.2.1. Conceptual Framework

The framework for analysis, which is used to investigate barriers, determine the extent to which BOC's struggle to increase their market share, and factors that contribute to less entry by HDSA's is discussed. It must be stated that determining the extent to which BOC's struggle to increase their market share and entry by HDSA's is a difficult task. But since there is conformity in the usage of basic terms and indices that will be used as part of the conceptual framework, the difficulty has been lessened. These terms and indices are market shares, the Market Efficiency Ratio (MER), forms of business operation, Characteristics of BOC's and outlet shares.

##### (a) Market Share

The Market share of a company is calculated by combining the total volume of a product sold by all the oil marketing companies and dividing it by the total volume sold by an oil company. The market share is therefore the share of a market that a company holds, resulting from its sale volumes. For example, if BP sold 20 000 kiloliters of petrol in 2002, and all the oil companies operating in South Africa, including BP, sold a combined volume of 650 000. The calculation will be, 20 000 divide by 650 000, multiplied by a hundred, and the answer will be 3.1 % market share of BP in 2002. It is generally recognized as axiomatic that the more the market share, the more the outlet share of a company, but this is not the case. The market share may be high because it is calculated on volumes sold while the outlet share may be low. This means that the higher the outlet share does not correspondingly mean the higher the market share.

## (b) Outlet Share

The outlet share of an oil company is calculated by taking the total number of service stations that all the oil companies have in South Africa, and dividing the number by the total number of service stations an oil company has and multiplying it by a hundred. In this case, the outlet share is the number of service stations that a company has, compared to all the oil companies combined. For example, assuming that BP is having 100 service stations and the total number of service stations in South Africa is 4900, BP will have 2.0 % outlet share. The outlet share or the market share does not translate into a good MER, which is explained below.

## (c) Market Efficiency Ratio

The Market Efficiency Ratio (MER) is calculated by dividing the market share of an oil company by the outlet share. If the MER is above one (1) it means that the MER for that specific oil company is good. But if it is below one, it means the MER of that company is bad. In the above example of BP, the calculation for its MER will be, Market Share (which is 3.1 %) divided by Outlet Share (which is 2.0%), and the MER in this instance is 1.5, which means the MER of BP is desirable. In other words, the MER is said to be good when the company's performance is above one (1) on the scale. The advantage of determining the efficiency of the company is that it tells what the market share and outlet share do not reveal, that is, the efficiency of a company in the market.

This MER index, like the market share formula, does not assume that larger means good or larger service stations are efficient. It takes into consideration the sales volume of both small and large service stations. The service station may be large while its sales volume is low, and vice versa, a service station might be small while its sales volume is high. However, the MER index is limited in its applicability and should be buttressed by instruments such as a correlation graph.

#### (d) Forms of Business Operation

The other important index to analysing the downstream petroleum industry is the form of operating a service station. There are four main forms of operating a service station, which are found in the South African petroleum industry, namely; Oil Company Leased (OCL), Oil Company Owned (OCO), Dealer Owned (DO), and Dealer Leased (DL). The first form means that the Oil Company leases from an individual and operates the service station. The second form means that the Oil Company owns the service station but leases to an operator. The third form of operation means that an individual owns the outlet with the day-to-day management vested in the owner.

The fourth form of operation involves the leasing of the property by a lessor who is the owner of the property and the lessee being any individual who runs the business for his own benefit, and paying rent to the lessor. The analyses of the different forms of operation will show how many persons of a particular racial group are involved in a specific form of operation in the province, per company. This will also reveal the extent to which a particular racial group is adequately or inadequately represented in the operation of stations branded by a specific oil company, at retail level.

#### (e) Characteristics of BOC's

The last concept or index is the characteristics of Black Oil Companies (BOC's), which are new entrants. The new entrants are those oil companies that came into the industry after 1994 elections in South Africa. Most of these companies belong or are owned by the Historically Disadvantaged South Africans (HDSA's) or Blacks. The term HDSA refers to all persons and groups who have been discriminated against on the basis of race, gender and disability (Empowerment Charter, 2000). It therefore follows that BOC's are those companies that are owned or controlled by HDSA's or Blacks as defined above. At the present moment these BOC's or new entrants are few, small in size and lack experience and the necessary expertise. The BOC's are companies operating in a multibillion rands industry dominated by the MOC's and are dealing in mostly with imported product that is refined locally.

Secondly, they are registered as companies and will grow but due to certain factors they are still small, nevertheless they should be considered according to their legal standing. These means they should be regarded as and are companies. Thirdly, because they are formed, owned and controlled by HDSA's as explained in chapter two, they qualify to be regarded as BOC's.

In the following sections the above terms and indices will be applied to measure the strength of the oil companies in the industry. with an aim of determining why BOC's struggle to increase their market share. They will also be used to ascertain whether a factor is a barrier or not, and to determine the extent to which a factor deters HDSA's from entering the industry. The indices and terms remain part of the approach to analysing the data, and will avoid quantitative analysis of findings of this investigation.

This forms the conceptual framework albeit limited in its applicability, but can provide some explanation why BOC's struggle to increase their market share and why there is less entry by HDSA's. The reasons for this limitation is, firstly; the result of the paucity of available information resulting from the secretiveness of the South African petroleum industry during the apartheid era, which is a major impediment in this regard. Secondly, certain indices are inappropriate to analyse certain data and other sub-sectors, forms of operation in the refining sub-sector for instance.

### 3.2.2. Research Methodology

The study sourced its data from both primary and secondary literature sources, which were supported by interviews. Approximately fifteen interviews were conducted with individuals in oil companies and service stations, DME and industry associations. The primary literature sources included *inter alia*, reports, minutes of meetings, Acts of parliament, government commissioned studies, and documents submitted to government by oil companies. The secondary literature sources included among others newspapers, journals, books, and policy documents. The acquisition of these literature sources also involved a visit to the Department of Minerals and Energy library in Pretoria.

A survey method involving sending out a questionnaire to a few oil companies, five out of nine oil companies was also used to gather information. In the questionnaire a few simple and straightforward closed-ended and open-ended questions were asked. This was aimed at three things. Firstly, the questionnaire survey was used to ascertain the economic and political challenges and constraints facing new entrants from the perspective of the MOC's. Secondly, to solicit their views on the constraints and barriers to entry in the South African petroleum industry. Lastly, and most importantly, the purpose of the questionnaire was to source additional information from oil companies, mainly the MOC's on issues that relate to market structure and policies on black economic empowerment, hence there is no statistical analysis of the questionnaire.

The reason for using the above methods of collecting information is that, there has been significant theoretical and methodological advances in these methods among many social sciences disciplines which have developed them into fully fleshed research methodologies. In addition to being fully fleshed researched methodologies they are turning to be frequently used (applied) because they were found to be effective methods of data gathering. For these reasons, it was then decided to combine the three methods, which are discussed below.

#### (a) Literature

Although much has been written in the international downstream petroleum industry about incumbents, little has been documented about entry of previously disadvantaged individuals in the downstream industry. Much of the literature therefore has little relevance to entry by indigenous people in the downstream petroleum industry, particularly of South Africa. It is for this reason that, while much literature was read for this research project, only a limited number of references have been quoted, since most of the literature was immaterial for the study. This largely relies on the primary and secondary literature sources, such as policy documents, Acts of parliament, government commissioned studies, reports, newspapers, websites, and documents submitted to government by oil companies. This was supported by the other methods discussed below.

## (b) Interviews

A number of interviews were conducted with people who are involved in the downstream industry. This included a few randomly selected HDSA's service stations owners and operators, Sapia, Amef, and the DME representatives. Some senior managers from established oil companies were also interviewed. The interviewees were selected to acquire information about the political and economic challenges and barriers in the downstream industry. The notes from these interviews form part of the data that is presented and discussed in this thesis.

## (c) Questionnaires Survey

The survey method involves the collection of data through questionnaire, either self-administered or sent to respondents by post or electronic mail. In this case an electronic mail was used. The officials who completed the questionnaires did so irrespective of the years in which they have been in the service of the company, and the respondents were from the established oil companies. In addition, each oil company was given one questionnaire, but in some instances three people in the same company completed the questionnaire, and sent more than one.

However, there is one established oil company, that did not participate in the survey, because of so called "confidentiality" of certain information, which will have to be supplied through the questionnaire. This included the question such as whether the company has a black economic empowerment policy.

The respondents completed the questionnaire, providing answers without the influence of the researcher. The questionnaire had fifteen questions, of which ten were closed-ended and five open-ended as shown in Appendix A. There are three crucial questions that were asked which are central to the study, namely questions two, five, and nine. Table 8 shows the responses to these three questions and reflects that many of the companies have a policy on black economic empowerment. It also reflects that, many of the respondents hold the view that price control should not be removed or lifted.

Table 8 Responses to Questions 2, 5, and 9

Question Number	Responses	
	Yes	No
Q2	4	1
Q5	5	0
Q9	2	3

The responses for closed questions were sorted and for the open-ended responses were summarized, analysed and conclusion was drawn from the analysed data to form part of the discussion of the thesis.

It needs to be emphasized that, this survey method was used for the purpose of sourcing additional information on barriers to entry, and for this reason, information acquired through it is analysed qualitatively, as opposed to quantitatively.

Some of the issues that were also addressed in the questionnaire were the market structure of the South African downstream petroleum industry, competitiveness and representativity. As a response to the limited usefulness of some of the information in the questionnaire, it was decided (a) to utilize the data that were available from the survey undertaken in 2001 and to supplement these with qualitative data gained from (b) interviews, direct observations and personal experience through working in the Department of Minerals and Energy (DME) as an Energy Officer: Petroleum and at Sasol Oil as an Assistant Marketing Officer until February 2002. The respondents' views from the questionnaires can be summarized as follows:

The participants to the survey unanimously concur that the downstream petroleum industry of South Africa is not a monopolistic market, albeit differing on whether it is competitive or oligopolistic. Moreover, all oil companies have a BEE policy for their respective companies and agree that there are barriers to entry and/or challenges and constraints that face new entrants in the South African downstream petroleum industry.

All the participants have identified a number of challenges and constraints that face new entrants, which *inter alia* include, lack of logistical infrastructure, (such as depots, tankage, and access to refinery) site allocation, massive investment of incumbents, lack of brand awareness. In addition, they also identified some of the aspects of the South African laws, government regulation, power of petroleum products suppliers, lack of skills and knowledge, and storage facilities which are limited and mostly owned and controlled by the MOC's and fierce advertising and marketing by the MOC's.

#### (d) Study Area or Field

The research report has selected Gauteng province, which is a highly urbanised province where the oil companies contest the market for customers mainly due to its economies of density. It is also a province where all the oil companies have their largest number of service stations. This province was also chosen because all the BOC's and the three largest MOC's have (many) service stations.

Even though the analysis will be on the entire South African downstream petroleum industry, this province serves as a yardstick. The three largest MOC's, Caltex, Engen, and Shell, were chosen because they have high market share and outlet share, against BP and Total, which are smaller than the three that were chosen. The three Black Oil Companies that were chosen are Exel, Afric Oil and Tepco that have a share of the market within the Province of Gauteng.

## Part Two

### 3.3. Presentation of Data

#### 3.3.1. Outlet shares of BOC's and MOC's

The BOC's namely; Afric Oil, Exel, and Tepco, have a combined outlet share of 4.0 percent in the Gauteng Province as shown in Figure 1. The Gauteng province has about 1654 service stations in 23 magisterial districts, with Johannesburg having 393, making it the district with the highest number of service stations. From the figures as shown in Figure 1, the three new entrants do have a sizeable outlet share in the Gauteng Province compared to other provinces in the seven years of their existence. They have a small outlets share when compared to their MOC's counterparts as shown in Figure 2 below.

Figure 1 Outlet Share of BOC's in 2000, Gauteng Province

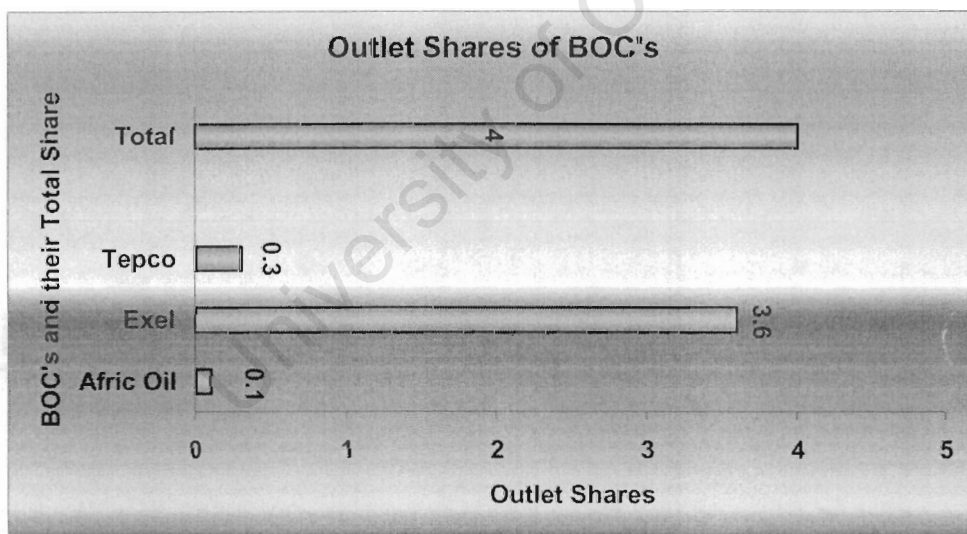
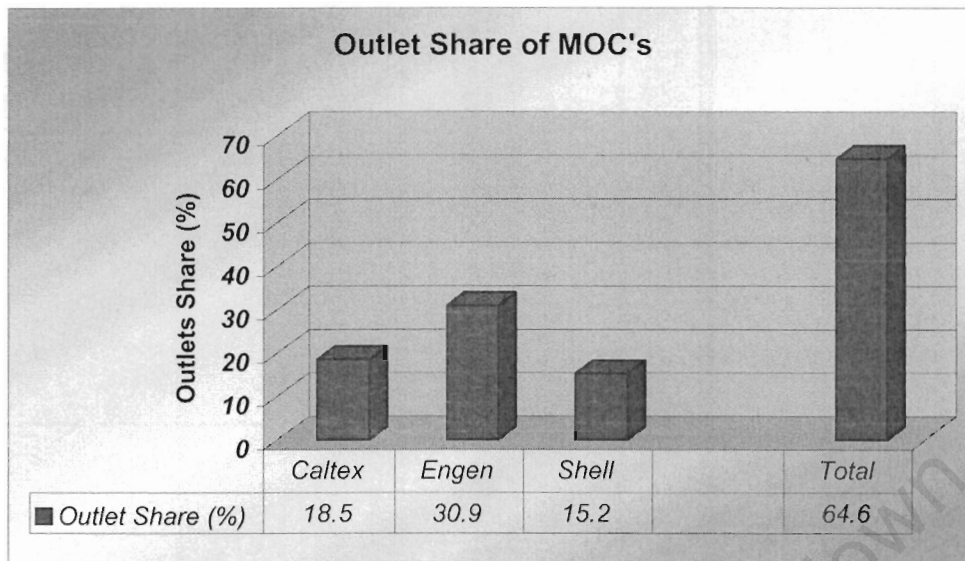


Figure 2 Outlet Shares of MOC's in 2000, Gauteng Province.



NB: Outlet Share of Engen includes Zenex

Figure 1 and Figure 2 reflect a huge gap in the shares of the oil companies, with less than five percent of combined outlet share that is accounted for to all the three BOC's in Gauteng compared to above sixty percent outlet share of the three MOC's. The remaining 31.4 percent is held by the other two MOC's, namely; Total and BP, and Sasol. The huge gap in the outlet share of the oil companies is also reflected in the market shares of the oil companies. This huge disparity in the outlet shares reflect upon the strength of the companies in the market, which actually mean that the BOC's have been and are still weak and smaller than the MOC's.

### 3.3.2. Forms of Operations

The three Multinational Oil Companies (MOC's) discussed are Engen, Caltex, and Shell and the forms of operation for these MOC's are presented. The forms of operation for BOC's will be presented and discussed in the same way as the MOC's.

(a) Multinational Oil Companies

(i) Engen

Table 9 shows Engen sites, excluding Zenex service stations. This disregards the fact that Engen later acquired Zenex, since there is no change in position within the market for Engen and the collected information at the time excluded Zenex. Nevertheless, even if the number of Zenex stations were added to the number of Engen branded stations this would not change the fact that Engen is the leading oil marketing company in the downstream petroleum industry, in terms of outlet share and market share. Table 9 also reflects that Whites outnumber Africans, Coloureds and Indians collectively, in all forms of operations. Moreover, as shown in Table 9 Engen is second to none in terms of the number of retail outlets.

Table 9 Forms of Operation of Engen Outlets in Gauteng Province in 2000.

Company	No Of S.S	Province	Form of Operation *	Race *			
Engen	417	Gauteng	OCL 81	A17	C2	I 2	W60
			OCO 194	A25	C0	I 21	W148
			DO 110	A23	C1	I 10	W76
			DL 32	A15	C1	I 1	W15
Total	417			A80	C4	I 34	W299

Source: Soris (Sasol Oil Retail Information System), 2002

NB: \* See Key at the end of this Section

(ii) Caltex

Table 10 shows the racial representation of Caltex operators at retail level in terms of its outlet share and their distribution regarding operational forms. Table 10 below also reflects the same situation as Engen in terms of demographic representation of Blacks.

There are a few Africans, Coloureds and Indians in all the four forms of operations. Additionally, as reflected in Table 10 Caltex has the second highest number of retail outlets after Engen.

Table 10 Forms of Operation of Caltex Outlets in Gauteng Province in 2000

Company	No Of S.S	Province	Forms of Operation *	Race *			
				A	C	I	W
Caltex	275	Gauteng	OCL 38	A2	C0	I 3	W33
			OCO 154	A8	C1	I 14	W131
			DO 67	A13	C1	I 13	W40
			DL 16	A2	C0	I 1	W13
Total	275	1		A25	C2	I 31	W217

Source: Soris (Sasol Oil Retail Information System), 2002

NB: \*See Key at the end of this Section

(iii) Shell

Table 11 below reflects the forms of operation, total number of outlets and racial representation of operators in Shell branded stations in the Gauteng province. Shell is the third largest oil marketing company in the Gauteng province. In spite of being the third largest among the three MOC's, it still has the highest number of Whites retail outlet operators. This places Shell on the same position as Caltex and Engen in terms of demographic representativity as shown in Table 11 below.

Table 11 Forms of Operation of Shell Outlets in Gauteng Province in 2000

Company	No Of S.S	Province	Forms of Operation *	Race *			
Shell	227	Gauteng	OCL 41	A16	C0	I 5	W29
			OCO 119	A7	C2	I 18	W83
			DO 49	A7	C1	I 9	W32
			DL 18	A6	C0	I 2	W10
Total	227	1		A36	C3	I 34	W154

Source: Soris (Sasol Oil Retail Information System), 2002

NB: \*See Key at the end of this Section

(b) Black Oil Companies

(i) Afric Oil

The demographic representation of population groups that operate service stations that are branded Afric Oil are shown in Table 12. Afric Oil has the second highest number of service stations to the other two BOC's. It is striking to note that the majority of operators of Afric Oil service stations are White as reflected in Table 12 below, while it is regarded as a BOC.

Table 12 Forms of Operation of Afric Oil Outlets in Gauteng Province in 2000.

Company	No of S.S	Province	Forms of Operation *	Race *			
Afric Oil	5	Gauteng	OCL 0	A 0	C 0	I 0	W0
			OCO 2	A 1	C 0	I 0	W1
			DO 1	A 0	C 0	I 1	W0
			DL 2	A 0	C 0	I 0	W2
Total	5	1		A 1	C 0	I 1	W3

Source: Soris (Sasol Oil Retail Information System), 2002

NB: \*See Key at the end of this Section

(ii) Tepco

In Table 13 below, the number of oil company leased, oil company owned, dealer owned and/or dealer leased service stations of Tepco branded service stations are reflected. Tepco has equal number of service stations as Afric Oil. Tepco also has a high number of Whites compared to Blacks in the combined forms of operations.

Table 13 Forms of Operation of Tepco Outlets in Gauteng Province in 2000.

Company	No of S.S	Province	Forms of Operation *	Race *			
				A0	C0	I0	W0
Tepco	5	Gauteng	OCL 0	A0	C0	I0	W0
			OCO2	A1	C0	I0	W1
			DO1	A0	C0	I1	W0
			DL2	A0	C0	I0	W2
Total	5	1		A1	C0	I1	W3

Source: Soris (Sasol Oil Retail Information System), 2002

NB: \* See Key at the end of this Section

(iii) Exel

The number of individuals and their respective race groups who own and/or operate Exel branded stations, and according to forms of business operation is reflected in Table 14 below. Exel has the highest number of service stations compared to the other BOC's. Table 14 also shows that the total number of the operators or owners in terms of all the forms of operation are White. putting it in the same position as the other two BOC's viz; Afric Oil and Tepco.

Table 14 Forms of Operation of Exel Outlets in Gauteng Province in 2000.

Company	No of S.S	Province	Forms of Operation *	Race *			
Exel	56	Gauteng	OCL 22	A4	C0	I1	W17
			OCO 17	A7	C0	I0	W10
			DO 11	A4	C0	I2	W5
			DL 6	A3	C0	I0	W3
Total	56	1		A18	C0	I3	W35

Source: Soris (Sasol Oil Retail Information System), 2002

NB:\* See key at the end of this Section

**Comment:** The three Black Oil Companies have the highest number of Whites as operators in all combined forms of operations. The number of White operators in the MOC's is also very high. While it is not extremely surprising to have a high number of White operators in MOC's branded service stations, it is striking that the same situation is prevalent in oil companies that are classified as Black Owned Companies. This then brings to question the status of the BOC's whether they are Black owned or White Owned Companies (WOC's). The BOC's also brings to question the empowerment charter's (2000) main objective of attaining sustainable presence of and control by the HDSA's in the industry.

#### Keys

OCL	:	Oil Company Leased	A	:	Africans
OCO	:	Oil Company Owned	C	:	Coloureds
DO	:	Dealer Owned	I	:	Indians
DL	:	Dealer Leased	W	:	Whites

Nota Bene: The above Keys apply to Tables 9,10, 11, 12,13, and 14 above and Tables 18 and 19 below.

### 3.3.3. Transport and Distribution

#### (a) Transportation

The different modes of transport used in the downstream include rail, road, sea, and pipeline. The rail transport is operated by Spoornet, the subsidiary company of Transnet. The road transport is mainly the trucks that belong to the different oil companies. Petronet, another subsidiary of Transnet, owns the pipeline that transports petroleum products from the coast refineries to inland. It charges the oil companies for the use of the pipelines to transport their crude oil and refined products. Other MOC's own the Single Buoy Mooring System (SBMS) facility in Durban to discharge their crude from tankers without entering the harbour. The BOC's currently lack the storage facilities, do not own any tankers nor do they operate an SBMS facility.

#### (b) Distribution

The MOC's have their own depots and storage facilities. These depots are scattered throughout the country and are used to aid the distribution of the refined petroleum products of the different oil companies. It should be mentioned that the BOC's do not have their own depots at the moment. However, since the refining companies own the depots and the marketing companies uplift from them, the oil companies have therefore made an arrangement in which the MOC's pick up products from the closest depots other than their own.

## Part Three

### 3.4. Empirical Results and Theoretical Analyses of Entry Barriers

#### 3.4.1. Approaches of Downstream Industry Regulation

There are three approaches in the downstream petroleum industry of South Africa. The first approach was full-scale self-regulation. This approach was characterised by the MOC's playing a major role in the regulation of the industry, while the state limited its role to ensuring security of supply. This self-regulation was done through mechanisms such as the Petroleum Products Agreements (MSA and BPA). These intra-industry agreements entered into between the oil companies are the ones that led to self-regulation. This happened during the apartheid era, prior to the 1994 democratic breakthrough. The phase of this form of regulation has passed.

The second approach is industry re-regulation. After the 1994 democratic elections, there has been a shift towards "re-regulation". This process is characterised by government re-regulating the industry in consultation with stakeholders to achieve the objectives contained in the White Paper. This re-regulation process seems to be aiming at removing certain barriers to allow for new entry by HDSA's and to increase their share in the industry, before deregulation. This is currently taking place.

The third approach is deregulation, which will be characterized by industry players carrying on their business with less government intervention. The White Paper envisages a deregulated industry after the achievement of, among other things, ownership, control and sustainable presence of approximately a quarter of HDSA's in all facets of the industry.

This key objective has not yet been achieved. For this reason, we have endeavoured to ascertain the factors that deter HDSA's from entering in order to achieve sustainable presence, and the factors that make new entrants fail to increase their market share significantly, in order to achieve ownership and control of approximately a quarter.

### 3.4.2. Discussion of Barriers in the Petroleum Industry

The re-regulation is taking place in the sub-sectors of the downstream petroleum industry, which all seem to be having entry barriers. A barrier to entry in the context of the South African downstream industry may be viewed as, “a socially undesirable limitation to entry of resources, which are due to protection of resource owners already in the market” (Waizsacker, C.1980:13). This may, for example, include the cost that new entrants or BOC’s in the South African petroleum industry incur such as start up capital, and the disadvantage of competing with well established companies that have created brand loyalists.

The absence of socially undesirable limitations to entry will allow indigenous people or HDSA’s “easy entry”, “a situation in which there is no impediment to entry of new firms, or in which established firms possess no advantages over potential entrants” (Bain, 1962: 11). In this thesis, the barriers to entry are categorised into three, namely; economic barriers, non-economic barriers, and cross-sectoral barriers.

#### 3.4.2.1. Economic Barriers

The economic barriers are those barriers that are in an entry condition, in which financial requirements are placed above any other requirement for entry to be possible. According to Bain cited by Else and Curwen (1990) the entry conditions of any industry would fall into one of four categories:

(1) *easy entry*: this is where there are no barriers to entry whatsoever.

(2) *ineffectively impeded entry*: this is where there are partial barriers to entry that allow an established firm to operate at a slightly lower level of average cost than potential entrants.

(3) *effectively impeded entry*: this is where there are substantial barriers to entry that allow an established firm to operate at a considerably lower level of average cost than potential entrants.

(4) *blockaded entry*: this is where there are such substantial barriers to entry, and average cost differentials between an established firm's profit-maximizing price is below the average cost of potential entrants.

The downstream industry of South Africa has a mixture of two categories, that is, ineffectively impeded entry and effectively impeded entry, for brevity, they can be categorised as impeded entry a collective term for both categories. The investigation has revealed that the insignificant entry by and presence of HDSA's and the small market share of BOC's is accounted for, largely by the following economic entry barriers in the retailing, marketing and refining sub-sector:

(a) Retailing Sub-Sector

(i) Access to Finance

This refers to access to funds to finance projects and run businesses effectively. This also include access to the means of financing projects and providing collateral to lending institutions such as the Banks and bridging institutions such as Khula Finance. The inaccessibility of finance is a barrier for potential entrants and BOC's to pursue projects that require large capital.

**Test and Empirical Evidence:** The would be entrants cannot acquire finance even though they have access to financial institutions, but due to lack of collateral this becomes a barrier to accessing funds. Many banks require security before they can give loan to a person. In most of the cases the prospective entrants do not have the necessary amount or capital to be used for this purpose, thus they are precluded from entering the market. For instance, to build a service station, BP requires that the prospective operator should make an appropriate capital investment of approximately R2 million for working capital and start up costs (Sunday Times, 14 July 2002). If prospective entrant do not have the money, it therefore follows that the would be entrant will not enter into the industry. Related to this, is lack of knowledge about the industry which lead to poor business plans, being submitted to financial institutions, and are rejected by the banks and thus no funding is provided. A good business plan must show how much the business would generate, and should be presented in the manner that reflects an understanding of the intended business.

Due to lack of access to finance, Khula Finance is considering retail banking to give loan directly to entrepreneurs. The Pension Investment Commissioner is also planning to make R100 billion available for BEE due to lack of access to finance by BEE companies (Financial Mail, 30 May 2003). In other words, finance is available but it is inaccessible, and this is a barrier to entry.

(b) Marketing Sub-Sector

(i) Transport Costs

The marketing sub-sector, also requires huge capital costs, which is a serious barrier to entry for HDSA's that want to enter this sub-sector. The modes for transporting petroleum products are expensive. The cheapest mode of transport that would be entrants might consider for the distribution of their products to outlets would be road transport.

**Test and Empirical Evidence:** The cost of transporting petroleum products through the Petronet pipeline from Durban to Sasolburg is R0.11 per litre (Industrial and Petrochemicals Consultants, 2001:20). This means that to transport a hundred thousand litres would cost the company about R11 000,00. Building a new pipeline is more expensive. For instance, according to the Industrial and Petrochemicals Consultants (2001) the expansion cost planned by Petronet for its pipeline will cost about R200 million and a new pipeline would cost R1 billion.

The cost for pipeline transport alone is far above the affordability of the BOC's when considering the other costs, relating to the barriers discussed above and offsite costs (insurance, salaries and tax). Additionally, to purchase a truck with a tanker the company would spend an estimated R500 000, while renting it would cost about R4000 a day an estimated R1.5 million per annum as per EuroCar quotes in 2003. To make matters more difficult for HDSA's would be entrants and BOC's, is that access to depots and storage facilities, which are currently owned by the refiners are at a cost.

## (ii) Extensive Advertising and Associated Costs

In order to make consumers aware of the products that the BOC's offer, advertising and marketing on both print and electronic media is of paramount importance. Advertising is a means of persuading consumers to believe that one product is better and the other is not, thus also attracting customers of the other company to another. Advertising serves as a barrier to entry, because it affords incumbents to further increase profits, while entrants cannot increase their profit from their products.

**Test and Empirical Evidence:** According to Bain (1959) buyers' preferences for certain products are developed or shaped by the persuasive sales-promotion activities of sellers, and particularly by advertising. Inextricably, interconnected with brands, trademarks, or company names, advertising and other sales promotion may impede entry since the costs are high.

Stead *et al* (1996) asks a question whether brand proliferation, supported by advertising, directly prevents new firms from entering a market. Intuition suggests that it might in that, *ceteris paribus*, (everything remaining unchanged) entrants would have to bear heavier advertising costs in order to acquire market share. For this to be effective it should be supported by customers' brand loyalty and ignorance.

The BOC's do not advertise their products on the national television, and the result is insignificant market share when compared to all the MOC's, which advertise their product on the media. Moreover, the BOC's have not extensively marketed their brand names to attract customers to BOC's branded service stations.

The BOC's have a recognisable market share in the retailing sub-sector, extensive advertising is therefore important in both marketing and retailing sub-sectors. But this is expensive and adds to the financial difficulties that the BOC's and would be entrants in the marketing sub-sector face. For example, airtime for eighteen seconds cost R28 000 for a commercial advertisement on the South African Broadcasting Corporation (SABC) television channel ([www.sabc.co.za](http://www.sabc.co.za)). It means that an airtime of one minute will cost the business or company about R93 000 for a television (TV) commercial advertisement.

The cost, for a full-page advertisement on a newspaper is estimated at about R250 000 (Sunday Times, 16 February 2003). The cost of setting up and running a newsletter package for one year on Mbendi website is US\$ 3000 or, for South African companies, R32. 000 plus VAT (www.mbendi.co.za). The combined costs of marketing and advertising are enormous for the BOC's. For example, with one article on a weekend newspaper per week at R250 K (R1 m p/m x 12 = R12m p.a), plus Mbendi website at R32 K p/a, plus electronic media (TV) advert at R425 K for five minutes p/d (R2,975m p/w X 4 = R11,9m p/m X 12 = R142.8m p/a). The combined costs in all these forms and means of advertising amount to R154.832m. It is therefore not surprising that the BOC's do not place commercial advertisements on both print and electronic media, because the costs involved are too high.

Furthermore, the BOC's have not been able to effectively utilize the electronic and print media as a way of marketing their products and to woo customers, while at the same time elevating the brand name of the company, except advertising their products on their retail outlets. The thesis therefore asserts that advertising and related costs are barriers, which are buttressed by the lack of knowledge of the industry by HDSA's.

### (iii) Lack of Depot and Storage Facilities

There are about 200 Depots mostly owned by the MOC's and storage facilities owned by the government and some by the MOC's. The BOC's have access to most of these facilities, but are required to pay handling fees to the refiners who own these facilities.

**Test and Empirical Evidence:** According to information acquired from Sapia through interview, the BOC's do not have depots or storage facilities. They are compelled to use the facilities of the MOC's at an agreed handling price. This is disadvantageous to the BOC's because they have to pay for the storage to their competitors.

Moreover, the BOC's purchase petroleum products from these owners of depots, that are marketing arms of some of the MOC's, while they (the MOC's) have hospitality agreements with each other, Engen uses the closest Caltex depots for example.

## (c) Refining Sub-Sector

### (i) Large Capital Requirements

This sub-sector requires billions for the construction of a simple refinery and many more billions for the upgrading and/or construction of a complex refinery. The capital to put up a new refinery cannot be secured by HDSA's from banks. This is closely related to lack of knowledge about the industry, which will enable the BOC's to produce good business plan, reflecting the profitability of the business and projected cash flows.

**Test and Empirical Evidence:** To erect a simple refinery with conventional conversion units which include catalytic crackers, or an ultra complex refinery will cost the new entrant not less than two billion of US dollars. For instance, the cost of a refinery with a throughput of about 160 000 barrels per day, equipped with a catalytic cracker, visbreaker and gasoline upgrading units would cost about \$1.5 billion (Howard, M. 2000:12).

A simple refinery with an atmospheric distillation column, a catalytic reformer and distillate hydrodesulphurisation facilities, and a slightly smaller throughput of about 100 000 barrels per day would cost about \$0.70 billion, nearly half the cost of a refinery with a throughput of 160 000 barrels per day. This is what many South African prospective entrants in the refining sub-sector will approximately spend to build a refinery of about the same distillation capacity to the MOC's.

### (ii) Multi- Products

The economies of scope arise when a firm produces different kinds of products for the market and its own consumption.

Many of the MOC's provide different goods to the market, such as petrol, diesel, and lubricants and they also consume a portion of the produced products. This is a barrier to entry and growth for the BOC's.

**Test and Empirical Evidence:** The refiners produce lubricants, petrol and diesel from their own refineries for two purposes.

Firstly, to fill up and lubricate their tanker trucks to transport petrol and diesel to service stations and they also use it in other company vehicles. Secondly, they produce the products to sell it to buyers. In other words, the refiners do not purchase the products from other sellers for this purpose. This means that, the money the MOC's were supposed to spend on diesel is used for other purposes.

On the other hand, the BOC's have to purchase lubricants, diesel and petrol from the MOC's. We can therefore conclude that, the BOC's do not enjoy the benefit of economies of scope, saving money to use for other purposes because they have to purchase all their petroleum products from the refiners, mainly the MOC's. We can further conclude that multi-production allows the MOC's to buttress other barriers from the money saved from purchasing lubricants, petrol, and diesel, by investing it in other projects of the business such as increasing refining capacity.

(iii) Sunk Costs.

Sunk costs are generally defined as the capital or costs that the investor can not recover upon exit from the market, and are in many instances part of the initial costs.

We regard sunk costs as a barrier to entry because (a) would-be HDSA's entrants would take sunk costs into consideration if they decide to enter; (b) BOC's that are already in the industry would consider them if they decide to exit the market (c) and above all the money invested is irrecoverable after entry and upon exit. It should be stated that if sunk costs or the invested resources can be used for other alternative purpose or the money invested can be recovered in another way, then sunk costs falls away as an entry barrier. However, goodwill can be an asset, if it can be used to recover sunk costs on exit.

**Test and Empirical Evidence:** The incumbents have invested a lot of money on research and development (R&D) for new products such as duel fuel, or Vortex and incurred irrecoverable cost.

These sunk costs deter entry for potential entrants in the South African petroleum industry who find it difficult to enter the industry because of the incumbents' massive sunk costs, which serve as barrier to keep out HDSA's (Radebe, M.1999: 5).

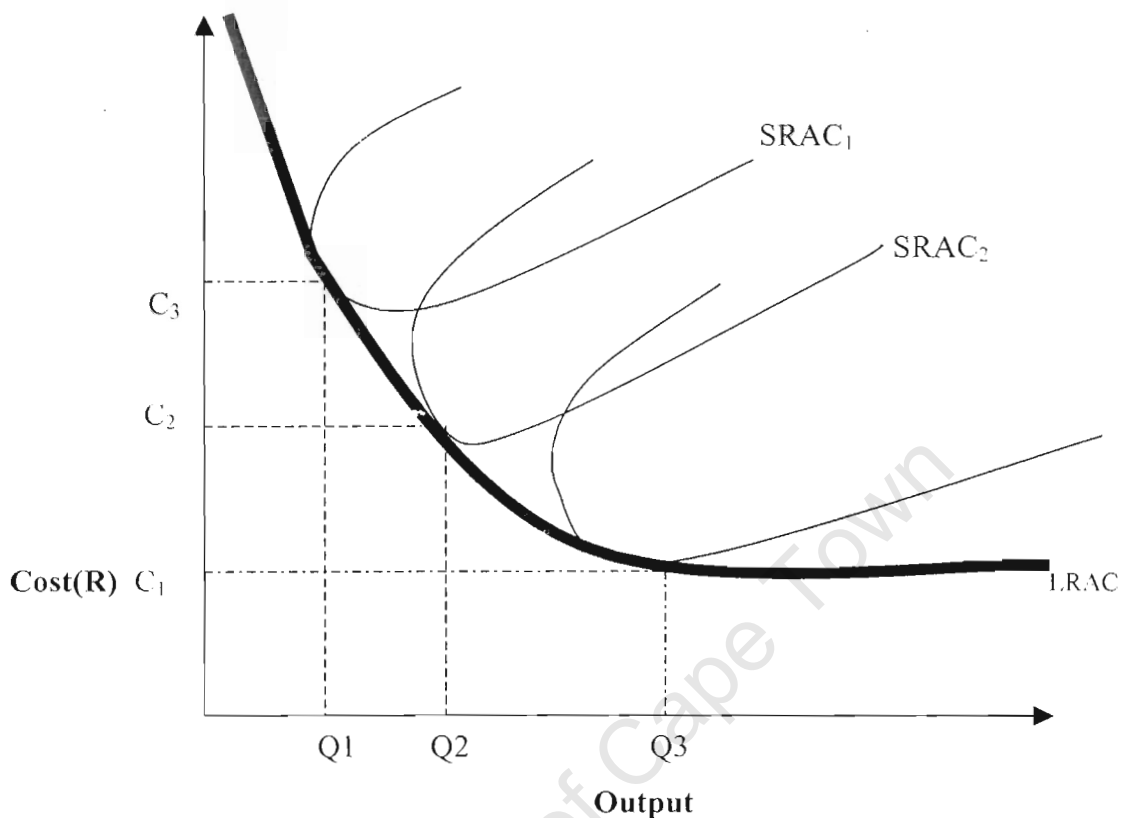
Even though the cost that is incurred on R&D is irrecoverable, the established companies are able to take risks, because they have enough money and know that the benefits of the risk upon success are huge, and the incurred costs would be recovered.

#### (v) Economies of Scale

According to Pratten "economies of scale are reductions in average costs attributable to increase in scale" (Pratten, C.F.1971: 3). Put in another way, economies of scale describes the downward sloping segment of the long-run average cost (LRAC) curve as shown in Figure 1 below. As Stiglitz (1985) puts it, a company has economies of scale, what is at times referred to as returns to scale, if increases in production create decreases in average cost, making it less expensive to have larger firms than smaller firms. The costs are made up of, capital expenditure, which varies at about 0.7 power of scale, with labour productivity generally improving with scale at about 0.9 power. The additional advantages are buying materials in bulk, but limited above a certain scale and with invariant services. In other words, costs of production always falls with increasing scale. However, there is a constraint which will arise as a result of what the market will take, which may result from oversupply and prices fall, margins shrink and profitability disappear. On entry this risk and/or barrier is taken into consideration particularly in the refining sub-sector.

**Test and Empirical Evidence:** The MOC's who have high refining capacity produce more, their cost becomes less as can be seen in the downward slopping curve in Figure 3, making it impossible for entry, consequently those that enters should do so on a larger scale. As Stead *et al* (1996) argue, economies of scale compel a would-be entrant to enter either on a large scale or not at all (any one entering on a small scale will face cost penalties). Thus, economies of scale reduce the number of potential entrants to those with access to large amounts of capital to finance entry and to bear the risks (Stead *et al*, 1996:61).

Figure 3 LRAC Downward Sloping Curve as Production Increases



The short run average cost (SRAC) curves show how costs change with output at some given level. Figure 3 also shows that the lowest cost of producing output  $Q_1$  is  $C_1$ . Up to  $Q_3$  the LRAC is falling and this is economies of scale. But beyond  $Q_3$  there will be diseconomies of scale, the opposite of economies of scale and the LRAC will begin to rise. In general this means that for an oil company to enjoy the benefits of economies of scale it should be big and able to produce large output up to  $Q_3$ .

In other words, the production costs of those established companies that have invested large capital fall as production output increases as shown in Figure 3 above. Because new entrants are not yet established or have not reached a level in which they can strongly compete with their MOC's counterparts, entry is impeded by this barrier.

#### (vi) Vertical Integration

The vertical integration of a company arises when a company gets involved in the entire value chain of the industry or stages of production, from refining, marketing, and retailing. The integration of a company vertically, sometimes called economies of sequence, in the downstream petroleum industry would mean that a company engages in refining, marketing sub-sectors as well as the retailing sub-sector. The company involved in these sub-sectors will be enjoying the benefits of economies of sequence. Vertical Integration impedes entry because only those who are fit survives, that is, those who have resources to get involved in the three sub-sectors.

**Test and Empirical Evidence:** The Ratplan prohibited vertical integration, but the MOC's operating in South Africa are involved in the refining, marketing and retailing through their marketing companies. However, in the latter sub-sector the oil companies are limited to owning a service station for training purposes. Notwithstanding this limitation, it can be argued that the MOC's are enjoying the benefits of economies of sequence, precisely because marketing oil companies lease stations and in some instances the dealers lease to oil companies and the oil companies sub-lease the outlets. Consequently, the new entrants are faced with a strong competitor that has all the necessary resources to buttress the other entry barriers through its involvement in the marketing and retail sub-sectors.

#### 3.4.2.2. Non-economic Barriers

The non-economic barriers are those barriers that are not financial in nature, which can be removed not necessarily by those, that have money.

##### (a) Retailing Sub-Sector

###### (i) Geographic Location of Outlet

A number of HDSA's who are in the industry raised serious concern regarding site locations. They argued that they, as new entrants are at a disadvantage position since their service stations are built at un-strategic places, and this affects performance of the site. Subsidiary to this is the fact that the strategic sites are already having service stations, of which a majority of them belong to the MOC's.

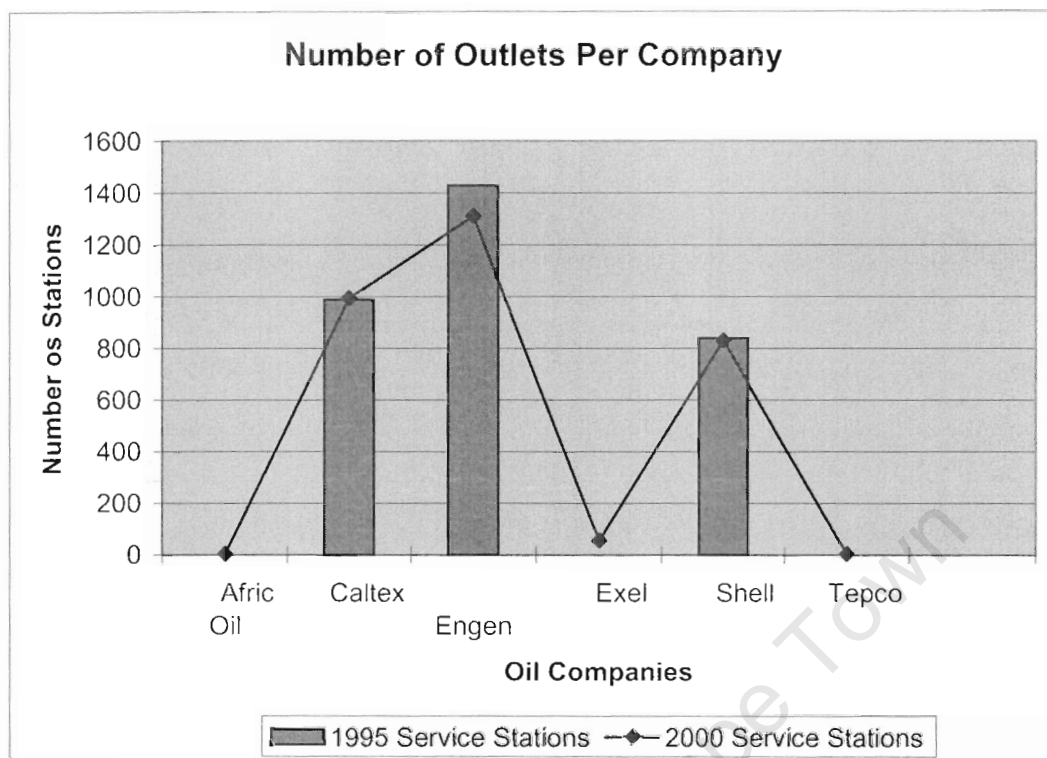
However, certain locations might be attractive or strategic in future when the areas where they are located develop. It should be stated that service stations in un-strategic sites under-perform.

**Test and Empirical Evidence:** The problem of unstrategic location of outlets is buttressed by lack of visibility of the sites of BOC's that are located in areas obstructed by buildings. Visibility is important because it serves to inform motorists or customers in advance that there is a service station, so that they can accordingly keep the right lane to prepare to fill up their vehicles. For example, a BOC branded service station in Sunnyside, Pretoria that is obstructed by a building had one of its attendants wave a flag with the logo of a BOC brand of that station alerting motorists from the positive traffic flow lane about the service station.

The operator asserted that poor visibility from the obstructive building, which has been erected adjacent to the service stations, has to be overcome by attendant alerting motorist. The result has been a little increase in sales volumes. Some of the operators argued that such sites end up relying mostly on the economies of density from local residents of surrounding areas who know of the existence of the station. The above barrier affects throughput of the service station leading to small market share of BOC's since a few motorists will fill their cars at that station. This allows the MOC's to continue to enjoy locational advantage and increases their market share.

It can be seen from Figure 4 that, since BOC's have a small number of stations, which means that there has been less entry to increase the BOC's share of the market in the retail sub-sector. This is worsened by lack of strategic sites. Figure 4 further shows that the number of service stations in each of the three largest MOC's have, since 1995 through to 2000, remained stable although a small fraction of Engen sites closed down.

Figure 4 Number of Service Stations in 1995 and 2000



Moreover, there is an argument by established oil companies that the retail sub-sector is overtraded, that is, there are too many service stations with a fixed margin on fuel, and low turnover stations cannot compete.

(ii) Service Stations Rationalization Plan

The number of new service stations was regulated by the Service Station Rationalisation Plan (Ratplan), which determined the number of new stations that can be built in a year. According to this voluntary agreement the other purpose of limiting the number of service stations was to promote throughput at service stations and thereby economies of scale (White paper 1998).

**Test and Empirical Evidence:** Since the Ratplan determined the number of new stations that could be built, it served as a barrier to entry into the retail sub-sector. It is this reason that the number of new entrants including HDSA's, has not increased to more than five thousand, nationally in the past ten years as reflected in Table 2.

It is also for this reason that the majority of the service stations are still operated by, predominately Whites in all combined forms of operations. However, the outlet share as reflected in Table 15 or the number of service stations as reflected in Figure 4 shows a little improvement in the number of new sites accounted to the BOC's.

Table 15 Outlet Share of Oil Companies in 1995 and 2000

Company	1995	2000
	Outlet Share	Outlet Share
Afric Oil	0	0.12
Caltex	20.2	20.3
Engen	29.0	29.4
Exel	0	1.8
Shell	17.0	16.9
Tepco	0	0.08

NB: The 2000 outlet share of Engen include Zenex

These increases from the surface might mean that there is continuous entry by HDSA's, hence the number of outlets increases. But closer introspection and the investigation of the outlet share reveal contradictory empirical results for this outlet increment.

Firstly, as reflected in Tables 12,13, and 14 above the number of Whites exceeds the number of Blacks. This means that the increment is accounted to whites. Secondly, as reflected in Table 12, Table 13, and Table 14 above the number of HDSA's (Coloureds, Indians, and Africans) in the three BOC's is 25, far less than the 41 for Whites. This means that entry into the retail sub-sector is by Whites as opposed to the HDSA's. Lastly, the increment in outlet share does not automatically translate into an increase in the market share as reflected in Table 3 above.

(ii) Price Control

In terms of the Petroleum Products Act No 120 of 1997 the government regulates and determine the price of petrol through the Retail Price Maintenance. Price control was introduced during the apartheid era with a view of ensuring security of supply of petroleum products by encouraging firms to cut costs in order to raise profits. This does not allow for the setting of competitive prices by BOC's in which strides can be made to increase their share. This is a barrier both to entry of HDSA's and growth of the BOC's.

**Test and Empirical Evidence:** The diesel market share of BOC's is always higher compared to petrol as reflected in Table 16, for the years 1999, 2000, and 2001, a success which is the result of competitive diesel price, and because diesel can be discounted. If the BOC's sell petrol they cannot earn more profit, because the price is not competitive, but sold at same price by all oil companies. If prices were competitive they would generate more profit than they would otherwise do in a price-controlled environment.

Table 16 Market Shares of Petrol and Diesel

Company	1999		2000		2001	
	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
Afric Oil	0,05	0,55	0,02	0,19	0,04	0,19
Caltex	18,05	16,50	17,89	15,82	17,43	16,69
Engen	24,17	23,33	26,78	27,95	27,02	27,25
Exel	1,38	3,80	1,86	4,98	2,23	4,84
Shell	17,99	18,99	17,90	18,33	17,53	17,80
Tepco	0,40	2,36	0,38	2,90	0,33	2,22

(b) Marketing Sub-Sector

(i) Import Control

In terms of the Petroleum Products Act of 1977 refined petroleum products could only be imported only if there is domestic shortage. This deters entry for a few reasons.

**Explanation and Empirical Evidence:** Firstly, import control creates a “tight knit” market in which entry is possible during a shortage period. After the consumption demand has been satisfied, import is not allowed and thus the entrant would have or would be forced by competitors to exit the market since the demand would shrink and/or the market contract.

Secondly, import control restricts prospective entrants who wish to enter the market in order to import and sell refined petroleum products, because of import related obstacles, such as import permits. This import control deters potential entrants from entering the market, even though the government gives preference to the BOC’s for import licenses.

Importing petroleum products is economically good for new entrants because the only costs they will incur are only limited to or associated with the transportation and storage of the products. In other words, there is no need for them to worry about acquiring crude oil or its price volatility or finance to erect a refinery. Notwithstanding, the storage and transport costs relating to the imported products, they will still enjoy the benefits of secured profit. However, this will no longer be applied in the same way as it is applied at refinery gate since the import parity pricing falls away in the case of imported refined petroleum products.

(ii) Lack of free Access to Infrastructure

The BOC’s or new entrants do not have free access to facilities owned by the MOC’s and government such as depots, storage, port facilities, rail and pipeline transport.

**Explanation and Empirical Evidence:** Access to these facilities is charged on a pay and use basis. As alluded to above, Petronet charges about R0.11 cents per litre to transport petroleum products from Durban to Sasolburg. In this way access to use the facility is for those who can afford and this affect the new entrants who thus far do not have ample financial resources compared to the MOC's.

Secondly, the MOC's uses the facilities jointly in areas close to the distribution points in order to avoid incurring storage costs. For example, the MOC's have entered into "hospitality agreement" to use the Laanglaagte depot, in Johannesburg, which is big in size, for distribution of the products to most of the service stations within the jurisdiction of the Johannesburg Magisterial district. On the other hand, the BOC's have to pay a handling fee for the use of the Laanglaagte depot and other depots at an average fee of R0.3 cents a litre.

### (iii) Profit Margins

The Marketing of Petroleum Activities Return (MPAR) regulates the profit margins of oil companies at marketing and retailing sub-sectors, excluding refining activities. This formula is a barrier for both would be entrants and the BOC's.

**Test and Empirical Evidence:** The profit of a company is limited within the benchmark industry average of 15 % rate of return (10%-20% range with a one year lag) on the depreciated book value of assets. This does not allow new entrants to grow because it limits their profitability within the 10% to 20 % range. This formula is also unjust because it allows those who have massive assets to benefit more than those with small or little assets, the BOC's. However, a guaranteed 15 percent return (on average) is risk free in the market, good if the money is "borrowed" from shareholders at a certain (perhaps five) percent dividend.

### (c) Refining Sub-Sector

#### (i) Refining Capacity

The other barrier is surplus refining capacity in refineries that are owned by the refiners. It is impossible for HDSA's to enter the sub-sector through building a new refinery and compete with the refiners, since these refiners satisfy the local market demand.

**Test and Empirical Evidence:** The refineries are currently operating below their full distillation capacity, Calref for example. Secondly, when demand grows the refiners increase their capacity and/or upgrade their distillation capacity. This therefore gives the established oil companies an opportunity to generate enormous rate of returns and enjoy the benefits of economies of scale. Moreover, due to surplus actual in 2001 the refiners exported about 1473 million litres of petrol and 1130 million litres of diesel (Sapia, 2002 Annual Report). In 2001 their actual refining capacity assumed a 92 percent capacity availability. According to the 2002 Sapia report, certain expansions in refining capacity are expected by 2005. This would certainly block any form of entry into the refining sub-sector.

#### (ii) Lack of Access to Refining Facilities

The BOC's do not have access to refining facilities that are currently owned by the established companies and are excluded from the sub-sector, except Calref, which has an equity partner in its refining activities, albeit not actively involved in operational management of the refinery.

#### 3.4.2.3. Cross-Sectoral Barriers

The Cross-sectoral barriers are those economic or non-economic barriers that are found in two or all sub-sectors of the industry. There are three cross-sectoral barriers in the downstream petroleum industry.

## (a) Lack of Government Support

### (i) Regulatory Support

The government has not provided enough regulatory framework to allow prospective entrants easy entry into the industry, such as measures to limit refining capacity of refiners. It is also difficult for BOC's in such a situation where there is little regulatory support framework for them to capture the market and to penetrate beyond the areas dominated by the MOC's. This might be the result of government's lack of qualified human resources and skills, to developing such regulatory measures to support new entrants, except the empowerment charter, which was initiated by the oil companies themselves.

### (ii) Material Support

The government owns the transport Network Company, Petronet the subsidiary of Transnet, which owns the pipelines from the port in Durban to the in-land. The tariffs of transporting petroleum products are exorbitant, and Petronet and Portnet require bulk transportation of products. The government do not provide material support such as allowing the BOC's to make use of its facilities at differentiated tariffs to facilitate or encourage entry by HDSA's. Consequently, the HDSA's do not enter and BOC's are unable to develop and capture market share because of the costs related to the lack of material support from the government. According to the Business Day (12 June 2003) the government has been subsidising Sasol and Total for their Petronet pipeline transport costs, and this will be taken away. The government did not improvise a subsidy method for BOC's or new entrants similar to that which was provided to Sasol.

## (b) Environmental Regulation

The Department of Environmental Affairs and Tourism has developed environmental regulation with an aim of reducing greenhouse gas (GHG) emissions from refineries, such as Carbon Dioxide (CO<sub>2</sub>), Sulphur Oxide (SO<sub>x</sub>) and Small Particulate Matter (SPM).

This means that the refiners are legally bound by the government regulations to reduce emissions coming from the refineries, to lower the effects of climate change and health risks to the nearby communities.

**Test and Empirical Evidence:** According to the National Environmental Management: Air Quality Bill 2003, in order to maintain local standards for emissions a municipality may in terms of a by-law, identify substances or mixtures of substances in ambient air which in any other way, present or is likely to present a threat to health or the environment in the municipality. The emission standards establish the maximum permissible amount or concentration of any specified pollutants that may be emitted from the controlled emitter. A person operating a controlled emitter is guilty of an offence if specified pollutants at concentrations above the standards for such pollutants are emitted from that controlled emitter.

The penalty of a person convicted of an offence referred to above is liable to a fine, or to imprisonment for a period not exceeding ten years, or to both such fine and such imprisonment. The reduction of this GHG's or pollutants means that the refineries have to lower production output per day to comply with the required standards or use expensive technology to remove pollutants from the raw products. This might pose a problem for the refiner who wants to increase production and profit, and the local community, which needs to protect themselves from health risks. The case in point is the Calref and the Table Bay community in Cape Town, Milnerton, in which the community complained about the amount of GHG's emitted from the Caltex refinery. However, it must be acknowledged that weak planning allowed unforeseen development around the refinery. This environmental regulation contributes to reducing the number of prospective and potential entrants to the sub-sector.

#### (c) Lack Of Skills and Industry Knowledge

There is lack of skills and industry knowledge among HDSA's, which leads to less entry by HDSA's and affects performance of those who are already in the industry. The Lack of management skills lead to poor management of a company or station and thus, will result also in the lack of devolution of powers since there is a lack of skilled personnel in the higher echelons of the business.

**Test and Empirical Evidence:** There are only 47.8 % of Blacks, who either own or operate filling stations, or carry out business in one of the four forms above, in the combined BOC's operating in South Africa. In the MOC's, discussed above, Blacks have a share of 26.9 percent in all the forms of operation. In both cases, this is contrary to popular belief that Africans are in a majority at the retail sub-sector level.

Industry knowledge and management skills are pivotal since the petroleum industry require skilled personnel and the established companies have an advantage of absorbing largely skilled graduates who are rewarded with market related salaries drawn from the few HDSA graduates. This puts the BOC's on the disadvantage since they cannot afford to remunerate graduates market related salaries while they possess qualifications that are in high demand.

The BOC's have a few staff members, some of whom overlap to execute other duties and as a result become ineffective. For example, Exel had about forty five (45) employees and Afric Oil had about fifteen employees (see profile of BOC's sent to DME in 2000), compared to more than a thousand employees in the payroll of Shell. Additionally, Shell has highly skilled and specialised employees than any of the BOC's.

### 3.5. Interpretation and Comment on the Results

#### (a) Market Efficiency Ratio

The oil companies with Market Efficiency Ratio that is above one (1) are efficient in the market, although this should be further supported by certain variables and correlation graph. The BOC's have good MER which means that, the barriers to entry relating to location and visibility has little relevance to their efficiency. However, if these barriers are considered separate from the MER it would mean that they can only deter entry for would-be entrants.

Furthermore, the outlet share and market share do not translate into a good MER, as explained earlier. The outlet share of a company can be higher while the market share is lower and vice versa.

The reason for this is that the market share is calculated based on the volume of petroleum products sold, while the outlet share is calculated based on the actual number of service stations that are owned by an oil company.

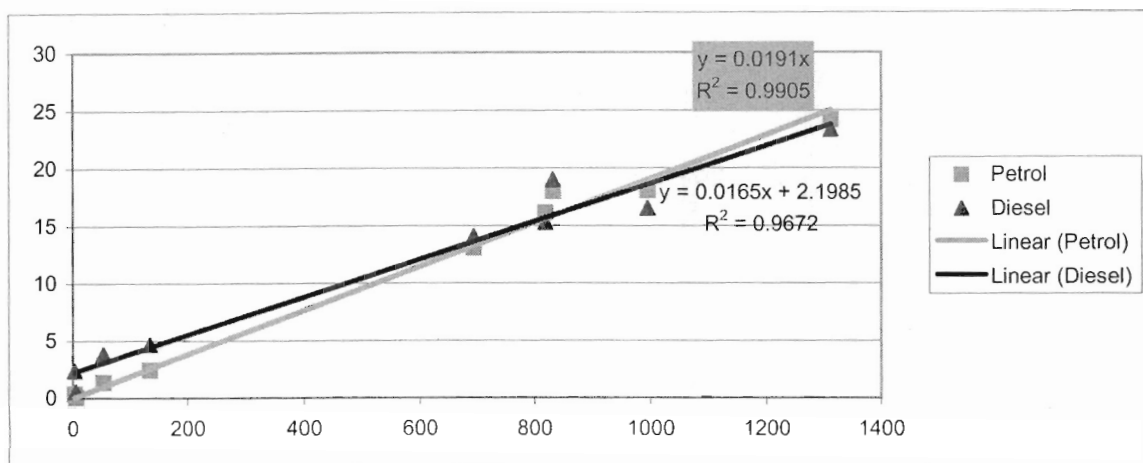
In other words, the larger the number of service station an oil company has, does not mean the higher the market share. The current number of service stations as shown in Figure 4 or the outlet share shown in Table 15 and the market share of all the oil companies as shown in Table 3, reflect on this point and/or correlation. This means that, an oil company may have many sites, but the sales volumes may be low. For example, in 2000 as reflected in Table 15 the outlet share of Caltex exceeded that of Shell by 3.4 but the market share of Shell for major products was higher exceeding Caltex by 0.6 percent, as shown in Table 3 above.

The difference in the outlet share and the market share means that the oil company is either efficient in the market or not. In the above example it means that the Market Efficiency Ratio (MER) of Shell is above 1, thus it is efficient in the market as reflected in Table 17. when compared with Caltex, which has many service stations than Shell. In Table 17 the MER of Shell also exceed that of Engen even though both Caltex and Engen have the highest number of service stations. But, when comparing the MER of the MOC's and the BOC's it shows that the BOC's are efficient in the market as shown in Table 17, although they have few sites.

Table 17 MER of Three BOC and Three MOC's in 2000

Oil Company	MER
Afric Oil	6.6
Caltex	0.8
Engen	0.8
Exel	1.1
Shell	1.1
Tepco	15.0

Figure 5 Market Share in 1999 and Number of Outlets in 2000



The MER, however, is limited in its applicability since it does not clearly show the relationship between the two variables, that is, the market share and number of outlets. But the MER needs to be supported and explained further by other efficiency calculation instruments such as the linear correlation graph in Figure 5 above. Figure 5 shows the correlation between the market share and the number of service stations at 0.96, which means there is a close relationship between the variables, confirming that the variables used in the calculation of the MER are closely related. Figure 5 further reveals that a service station will pump on average 165 kilolitres of diesel per month and about 2 megalitres per annum irrespective of the outlet location. In terms of the petrol equation, as reflected in Figure 5 a service station will pump about 191 kilolitres of petrol per month on average. The essential point of Table 17 is that BOC's are efficient in the market and Figure 5 confirms the degree of relationship between the variables in the application of the MER index to qualify the results.

(b) Demographic Representativity vis-à-vis Sustainable Presence

Table 18 below reflects that Whites have a 72.9 percent share of the outlet portion of all the MOC's. More striking is the frequency distribution Table 19 below which reflects that, Whites constitute about 62.1 percent in the retail sub-sector, in the magisterial districts of the Gauteng province.

Also reflected in Table 19 is that, there is a combined total of 37.8 % of non-Whites, who either own or operate filling stations, or carry out business in one of the four forms explained above, in the combined BOC's operating in South Africa.

Table 18 Relative Frequencies of MOC's in Gauteng Province in 2000

Company	Province	Relative Frequency (%)			
Caltex	Gauteng	A9.0	C 0.7	I 11.2	W78.9
Engen	Gauteng	A19.1	C 0.9	I 8.1	W71.7
Shell	Gauteng	A15.8	C1.3	I 14.9	W67.8
3 MOC's	1	A15.3	C 0.9	I 10.7	W72.9

**Note:** In order to arrive at a single relative frequency according racial group in an oil company, for instance, the A9.0 in Caltex, the combined total number of forms of operation in an oil company, is divided by the combined total number of service stations of that company, and multiplied by hundred. In order to arrive at the combined total of the relative frequencies of a racial group, for instance, A9.0, A19.1, and A15.8, equals A15.3, the combined total numbers of forms of operation in all oil companies by racial group, is divided by the combined total number of service stations of all the three MOC's. The answer will be the combined relative frequency per racial group.

Table 19 Relative Frequencies of BOC's in Gauteng Province in 2000

Company	Province	Relative Frequency (%)			
Afric Oil	Gauteng	A20.0	C0.0	I20.0	W60.0
Exel	Gauteng	A32.1	C0.0	I5.3	W62.5
Tepeco	Gauteng	A20.0	C0.0	I20.0	W60.0
Total	1	A30.3	C0.0	I7.5	W62.1

The fundamental point in Table 18 and Table 19 is that Whites who operate service stations are in a majority in both the MOC's and the BOC's. In both cases, this is contrary to popular belief that Africans are in a majority at the retail sub-sector level. The frequencies in Tables 18 and 19, specifically Table 19, reveal six critical points.

Firstly, the extent to which a particular racial group has penetrated or has adequate representation in an oil company and/or the extent to which a particular racial group has adequate representation or presence in the province's retail sub-sector.

Secondly, the calculated frequencies in Table 19 above further reveal empirical points that are linked to sustainable presence, control, and ownership by HDSA's in the MOC's and BOC's operating in the industry.

Thirdly, they reflect the strength of each of the three MOC's in terms of their outlet share, more so, according to racial breakdown, in the province.

Fourthly, they show that Whites hold more than two third (2/3) of the outlet share of MOC's in the Gauteng province alone.

Fifthly, they also show that, black dealers, that is, Africans, Coloureds, and Indians, together; hold less than fifty percent (50%) of the outlet share.

Lastly, they reflect that in each of the MOC's, HDSA's hold less than two third of the outlet share. The results outlined above should also be understood within the context of the government's policy objective of achieving control, ownership and sustainable presence by a 25 percent of HDSA's. It should also be understood within the context of the strength which the BOC's have and with which it would have to compete with the MOC's or established oil companies operating in South Africa, Gauteng province in particular.

The White Paper's policy objective is the achievement of sustainable presence, Control and Ownership of about 25 percent of Historically Disadvantaged South Africans in all the facets of the Industry.

The question of whether this policy objective is being achieved in the retailing sub-sector by the BOC's is questionable as Table 19 shows. Furthermore, it could be deducted from, Table 19 above in terms of the forms of operation in racial groups that BOC's are not placing the achievement of sustainable presence by HDSA's above profit. Consequently, this seems that the BOC's are not helping to achieve one aspect of the policy objective, that is sustainable presence of HDSA's.

It could also be deducted from Tables 12, 13, and 14 that, in terms of the forms of operation in racial groups that, HDSA's have entered the industry, but their number is insignificant when compared with that of Whites in both the MOC's and BOC's. The conclusion that can be drawn from the above information is that the BOC's struggle to increase their outlet share and market share because of the above barriers and not necessarily from the efficiency of MOC's. In Table 17 it can be seen that the BOC's are efficient. In the same vain, the less entry by HDSA's is largely accounted for to the above three categories of barriers to entry.

### (c) Policy Problems

The information gathered points to the three categories of barriers to entry as the main problems that result in less entry by HDSA's and lead to insignificant market share of BOC's. This indicates that the conditions in the industry is not conducive for HDSA's to enter because of *inter alia* the following:

(i) The government's regulatory framework seems not to allow for paradigm shifts that will lead to a climate conducive for entry by HDSA's. This regulatory framework indirectly perpetuates the dominance of the industry by Whites and the MOC's by not adopting radical policy changes that are transformational, such as placing a moratorium on increasing refining capacity.

(ii) The problem of government is over reliance on the industry associations or Sapia on industry issues, a problem which further weakens the government. This problem manifests itself during policy making and promulgation of legislation that relates to the industry, vis-à-vis entry by historically disadvantaged persons.

(iii) The current pace of change in the industry seem to be influenced much by the established oil companies, particularly Sapia, with little policy input by the intended beneficiaries of the process. The BOC's operate in an industry that is loose oligopolistic, which permits established oil companies to continue to enjoy the benefits of economies of scale, locational advantage, and brand loyalty by customers among other things.

(iv) In addition to the above policy problems, the MOC's have many outlets. In 2000 they had about 4091 of the 4899 service stations, from 4756 in 1995 as reflected in Table 2 above. Six years after the democratic elections there was a decrease totalling 665 outlets. Strange enough, the BOC's that were formed mostly in 1995 did not have the 665 service stations (combined) in the year in question. This might have resulted in closures and a small increase to the BOC's. Currently, as Figure 2 above shows, the outlet share of the three MOC's in Gauteng stood at 64 %, which further confirms that the industry is still in the hands of just about all the MOC or White hands even after the formation of the BOC's.

It has been shown that the MOC's are the main players in all the sub-sectors of the industry and their market shares and outlet shares are high above the BOC's as reflected in Figures 1 and 4 above and Tables 15, 16, 18 and 19. The market shares of the MOC's can be linked to a number of factors such as advertising and brand loyalty, among other things.

In conclusion, the petroleum industry of South Africa is not deregulated or liberalized, since there is government intervention through regulatory instruments, which also include voluntary agreements entered into between oil companies. The intra-industry agreement that affected entry was among other instruments the Ratplan, which limited the number of new entrants at the retail-sub-sector level. This undoubtedly acted as an entry barrier since only a limited number of entrants were allowed to enter the sub-sector. The BOC's are increasing their market share of diesel due to competitive prices.

### 3.6. Conclusion

The outlet share of the different oil companies, shows that the BOC's have the least outlet shares. With regard to market shares, it is clear from all the above Tables that deals with market shares that the MOC's have the largest market share in the three five years cycle, 1990, 1996, and 2000 and in the three sub-sectors.

It is clear that there are economic, non-economic and cross-sectoral barriers that affect entry of HDSA's into the industry. In spite of these barriers, the BOC's have been able to steadily increase their diesel market share and operated efficiently. In order to alleviate most of these barriers to entry, economic, non-economic and cross-sectoral barriers, and in order to achieve the twenty five percent target a business model or plan should be developed.

University of Cape Town

## Chapter Four

### 4. Business Model for Black Economic Empowerment

#### 4.1. Introduction

The discussion of the investigation into the downstream industry in the previous chapter has highlighted economic, non-economic, and cross-sectoral barriers to entry in the downstream petroleum industry. In order to circumvent some of these barriers, an unconventional and dynamic virtual business model aimed at achieving black economic empowerment is developed. The main business activity of this model is to import refined petrol and diesel under the umbrella project concept: Petroleum Products Importation (PPI).

The model seeks to provide a strategic entry into the industry by HDSA's, through importing petroleum products, distributing, and selling the products directly to some retailers and oil marketing companies. The model seeks to achieve the following four objectives:

- (a) To make entry to the downstream petroleum industry easy for the HDSA's.
- (b) To create a business environment that will allow the BOC's to increase their market share in the downstream industry.
- (c) To alleviate the identified barriers to entry in order to achieve approximately twenty five percent sustainable presence, control and ownership of the industry by HDSA's.
- (d) To capture five percent (5%) of the market share of the refiners without significantly harming the established oil companies.

The model has two pillars or component plans, namely Products Cost and Revenue Generating Plan and a Business Development Plan.

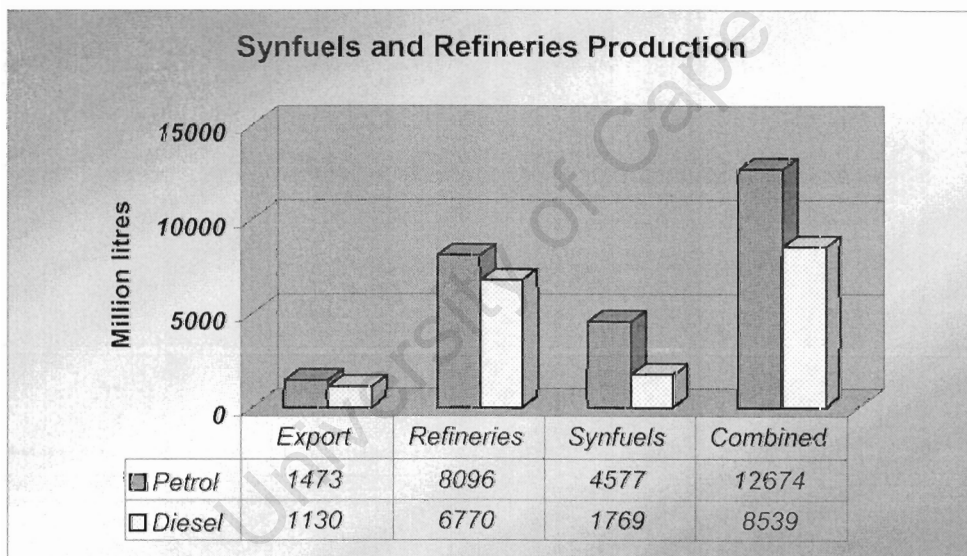
In order to understand the model and how the above objectives would be achieved it is important to discuss the first pillar or component plan of the model.

#### 4.2. Products Cost and Revenue Generating Plan

##### 4.2.1. Industry Outlook

At the present moment there is no oil company that imports refined products. Most of the petroleum products are refined locally. The total production in 2001 was of the order of 12674 million litres of petrol and 8539 million litres of diesel as can be seen in Figure 6 below. As shown in Figure 6 the synfuel producers contributed 4577 million litres of petrol and 1769 million litres of diesel to the combined total production.

Figure 6 Petrol and Diesel Production and Export in 2001



In 2001, the refiners contributed 8096 million litres of petrol and 6770 million litres of diesel to the combined total volume of petroleum products for the year. The refiners sold their products locally and exported their surplus to Botswana, Lesotho, Swaziland and Namibia ([www.mbendi.co.za](http://www.mbendi.co.za)). Vitol, which had a processing agreement with Caltex, Jovenna, Addax and Petronas have been active in exporting fuel products into the East African, Indian Ocean and Atlantic markets ([www.sapia.co.za](http://www.sapia.co.za)). In 2001 the export surplus for petrol was 1473 million litres and diesel was 1130 million litres as shown in Figure 6 above and Table 20 below.

This means that in 2001 the conventional refineries exported about 11.6 percent of petrol and 13.2 percent of diesel. Table 20 also shows that the high growth surplus/shortfall is projected to increase by 861 and 880 million litres of petrol and diesel in 2005, respectively. This means that in 2005 about 861 million litres of petrol and 880 million litres of diesel may be exported.

Table 20 \*Inland Demand /Refining Capacity Balance

Products	Millions of Litres							
	2001 Refining Capacity Actual	2001 Demand Actual	2001 Surplus/ (Shortfall) Actual	2005 Refining Capacity	2005 Low Growth Demand	2005 Low Growth Surplus/ (Shortfall)	2005 High Growth Demand	2005 High Growth Surplus/ (Shortfall)
<b>Petrol</b>	<b>12674</b>	11201	<b>1473</b>	13190	11239	1951	12 329	861
<b>Diesel</b>	<b>8539</b>	7409	<b>1130</b>	9543	7926	1617	8663	880

Source: Sapia 2002 Report

NB: \* "Inland" means all sales in South Africa, but excludes sales of bunker fuels to ocean going ships.

**Comment:** *The refining capacity includes synfuel production. The figures for the year 2005 show the expected range of demand for key petroleum products, and indicate the surplus/shortfalls in low and high demand scenarios (forecasts) against anticipated 2005 refining capacity.*

It should be mentioned that the refiners sell their products at an Export Parity Price (EPP) which is much lower than the import parity pricing. For example, if the refiners were to export their petrol to Singapore, they would sell at 133.61 average as shown in Table 21 below, while the Singapore EPP is 157.50 and would sell diesel at 118.10 being the average EPP as shown in Table 22. These prices are lower when compared to the BFP.

Table 21 Average EPP of 95 Unleaded for Singapore, June 2003

In US Dollars	
Singapore Unleaded (\$/Bbl)	31.80
In South African Cents Per Litre	
Singapore Price	157.50
Wharfage	1.84
Sea Freight	20.70
Demurrage	1.08
Insurance	0.27
C.I.F	178.89
Ocean Leakage	0.54
<b>Export Parity Price</b>	<b>133.61</b>

Table 22 Average EPP of Diesel 0.3% for Singapore, June 2003

In US Dollars	
Singapore (\$/Bbl)	29.67
In South African Cents Per Litre	
Singapore Price	143.89
Wharfage	1.84
Sea Freight	22.49
Demurrage	1.21
Insurance	0.25
C.I.F	168.94
Ocean Leakage	0.57
<b>Export Parity Price</b>	<b>118.10</b>

#### 4.2.2. Basic Fuels Price Calculation

The Basic Fuels Price (BFP) of petrol is based on fifty percent spot price assessment by Platts in the Mediterranean refining area and 50 percent Platts spot price assessment in Singapore. The price of diesel and paraffin is based on 50 per cent Platt's spot price assessment in the Arab Gulf and 50 percent Platt's assessment in the Mediterranean refining area. The international component of BFP also include Free On Board (FOB), demurrage, ocean loss, stock financing and coastal storage. The standard international freight tariffs from the Worldscale publication for voyages from the Mediterranean to South African ports are used as a base.

In order to determine the freight cost of the voyages from one area to another, the market rate is applied to the standard international freight tariffs. The insurance tariffs for the different voyages and different products (for different areas) are determined by Lloyds of London. In addition, the evaporation loss and/or leakage and clingage of 0,3 per cent for products is accepted as normal by the petroleum transport industry and is not insurable. This means that the buyer has a financial loss of 0,3 percent on the petroleum products imported.

In order to arrive at the BFP, the above elements, namely, demurrage, stock financing, coastal storage, landing and wharfage, FOB and CIF are added to constitute the product price. After the product price has been constituted the BFP is converted into cents per litre by applying the applicable rand/ dollar exchange rate. The BFP calculations use the average R/US dollar selling rate of exchange of First National Bank, Standard Bank, ABSA Bank and Nedbank as at eleven o'clock each business day. On the 25 June 2003, for instance, the Free On Board (FOB) Postings for Mogas 95 Unleaded was \$/Ton 276.000 FOB mean for Mediterranean and the FOB barrel mean for Mediterranean was \$/Bbl 33.054 (Platts, Pg 6,9,449:2003). Furthermore, these calculation are based on the information published in Platts which also include the 50 % of Mediterranean and 50% for Singapore which amounted to \$32.527, based on the average exchange rate of R7.7850 against the US dollar on the 25 June 2003 as sold by the above South African banks ([www.xe.com](http://www.xe.com)).

Moreover, on the 25 June 2003 the freight rate was \$10.640 as published by Worldscale and \$276.700 as published by AFRA. The demurrage for MR Vessel per ton per day was \$0.185 on the 25 June 2003. Therefore, the FOB in South African cents per litre was 158.33. The other elements influencing the BFP are as shown in Table 23 below and constitute the import parity price to the value of 185.18 cents per litre of 95 Unleaded on average.

The BFP calculation as explained above then serves as a transfer price from the refining sub-sector to the marketing sub-sector or to the marketing divisions of the different oil companies operating in the marketing sub-sector. The profit margin for the refiners is represented by the difference between the BFP income, total crude oil and operational costs. This determines and allows return on refining assets and further capital investment in the refining sub-sector, respectively. Below some of the cost values of petrol and diesel in relation to BFP are discussed.

(a) BFP for 95 Unleaded

The costs values of petrol (95 Unleaded) are calculated based on Platts quoted price and include cost values at 50% of the FOB Mediterranean mean value and 50% of the Singapore FOB mean value for 95 Unleaded as shown in Table 23 below. The other components are freight, demurrage, insurance, ocean leakage, landed cost at an average of South African ports, wharfage, financing costs. All the combined costs of these elements would constitute the Basic Fuels Price. The average BFP for 95 Unleaded in June 2003 was 185.18, as also shown in Table 23.

Table 23 Average BFP for 95 Unleaded in June 2003 (according to DME formula)

Platts FOB Med Mean (\$/T)	263.013
Platts FOB Med Mean (\$/Bbl)	31.498
Platts Singapore Mean (\$/Bbl)	30.590
50 % Med and 50% Singapore	31.045
In South African Cents Per Litre	
FOB	156.837
Sea Freight	20.701
Demurrage	1.080
Insurance	0.268
C.I.F	178.886
Ocean Leakage	0.537
Wharfage	1.836
Landed Cost at average of SA Ports	181.259
Coastal Storage	2.083
Financing Cost	1.840
<b>Basic Fuels Price</b>	<b>185.181</b>

(b) BFP for Diesel 0.3%

The Diesel (Gasoil) 0.3% sulphur is calculated based on 50% of the Med FOB mean value for Gasoil 0.2% (\$/ton) and 50% of the FOB Arab Gulf mean value for Gasoil 0.25% (\$/Bbl) plus the quoted Arab Gulf spot premium for this grade. Table 24 shows the average for Diesel 0.3% in June 2003.

Table 24 Average BFP for Diesel 0.3% in June 2003 (according to DME formula)

Platts FOB Med Mean (\$/ton)	221.304
Platts FOB Med Mean (\$/Bbl)	29.665
Platts FOB Arab Gulf Mean (\$/Bbl)	26.356
50 % Med and 50 % Arab Gulf	28.663
In South African Cents Per Litre	
FOB	144.986
Freight	22.488
Demurrage	1.209
Insurance	0.253
C.I.F	168.936
Ocean Leakage	0.507
Landing & Wharfage	1.836
Landed Cost at average of SA Ports	171.279
Coastal Storage	2.083
Financing Cost	1.738
<b>Basic Fuels Price</b>	<b>175.100</b>

#### 4.2.3.Import Parity Price Principle

The prices of products in South Africa are charged on an Import Parity Price (IPP) principle, which assumes that there is no refining industry in South Africa and all products are imported as refined from the Mediterranean, Arab Gulf and Singapore. The Basic Fuels Price in the price of petroleum products is the international component which is based on this assumption. The IPP is based on wrong assumption since South Africa has a refining industry and could import a small quantities of products without upsetting the industry and if we did, the IPP would be lower than the BFP as can be seen in Tables 25 and 26 below.

(a) IPP for 95 Unleaded, Ex Arab Gulf

The Import Parity Price for 95 Unleaded ex Arab Gulf would be cheaper than the BFP. The average IPP of 95 Unleaded from the Gulf was 162.64 as shown in Table 25, which is cheaper than 95 Unleaded calculated at BFP in the same month, June 2003.

Table 25 IPP for 95 Unleaded, Ex Arab Gulf (on Average in June 2003)

In US Dollars	
FOB Jebel Ali Premium Unleaded (\$/Bbl)	28.225
In South African Cents Per Litre	
FOB	140.07
Sea Freight	15.36
Demurrage	1.05
Insurance	0.23
C.I.F	157.71
Ocean Leakage	0.47
Wharfage	1.84
Landed Cost	159.02
Coastal Storage	2.08
Financing Cost	1.54
<b>Import Parity Price Equivalent</b>	<b>162.64</b>

(b) IPP for Diesel 0.3% Ex Arab Gulf

The price of Diesel from the Arab Gulf is 164.99 as shown in Table 26 below, which is 10.11 cents per litre cheaper than the diesel that is calculated based on the BFP in June 2003.

Table 26 IPP for Diesel 0.3%, Ex Arab Gulf (on Average in June 2003)

In US Dollars	
Platts Arab Gulf Gasoil 0.25% Mean (\$/Bbl)	26.850
Platts Arab Gulf Premium Mean (\$/Bbl)	1.33
In South African Cents Per Litre	
FOB	140.20
Sea Freight	17.42
Demurrage	1.118
Insurance	0.24
C.I.F	159.03
Ocean Leakage	0.48
Wharfage	1.84
Landed Cost	161.34
Coastal Storage	2.08
Financing Cost	1.56
<b>Import Parity Price Equivalent</b>	<b>164.99</b>

As can be seen in Table 23 and Table 25 there is 22.47 cents per litre(c/l) difference between the BFP and the Ex Arab Gulf import parity price equivalent for petrol. This brings to question the methodology applied to determine the BFP. This also raises questions about the underpinning philosophy of the DME formula, which assumes that South Africa does not have a refinery, whereas there is a refining industry.

#### 4.2.4. Source of Profit for the Business (PPI)

The source of profit for the petroleum products importation business (PPI project) would be the difference between the Ex Arab Gulf prices of refined petrol and diesel and the BFP as calculated in terms of the DME formula. The source of generating profit is premised on reducing the market share of the refiners by five percent (5%) as shown in Table 27 and Table 28, which will be the market share of PPI.

The refiners will be left with ninety five percent (95 %) of the market share as shown in both Tables 27 and 28 below, but would increase their export.

Table 27 Refiners and New Entrant (PPI) Revenue and Market Share for Petrol

Refiners										
Sales in b/l		Market Share (%)		Parity Price (c/l)		Revenue (R/m)				
Local	Export	Local	Export	BFP	EPP	Local	Export	Total	Loss (%)	Gain (%)
7.32	1.47	100	100	185.18	133.61	13555.18	1964.1	15519.28	0	100
Share of New Entrant (PPI Project)										
Sales in b/l		Market Share (%)		Import Price (c/l) Arab Gulf		Revenue (R/m)				
Local	Export	Local	Export	IPP	EPP	Local	Export	Total	Loss (%)	Gain (%)
0.37	-	5	0	162.64	-	602	-	602	0	1.23
Share of Refiners after Entry of PPI										
Sales in b/l		Market Share (%)		Parity Price (c/l)		Revenue (R/m)				
Local	Export	Local	Export	BFP	EPP	Local	Export	Total	Loss (%)	Gain (%)
6.95	1.84	95	100	185.18	133.61	12870	2458.42	15328.42	1.23	0

Table 28 Refiners and New Entrant (PPI) Revenue and Market Share for Diesel

Refiners										
Sales in b/l		Market Share (%)		Parity Price (c/l)		Revenue (R/m)				
Local	Export	Local	Export	BFP	EPP	Local	Export	Total	Loss (%)	Gain (%)
7.04	1.13	100	100	175.10	118.10	123270	1334.53	13661.53	0	100
Share of New Entrant (PPI Project)										
Sales in b/l		Market Share (%)		Import Price (c/l) Arab Gulf		Revenue (R/m)				
Local	Export	Local	Export	IPP	EPP	Local	Export	Total	Loss (%)	Gain (%)
0.35	-	5	-	164.99	-	577	-	577	0	1.46
Share of Refiners after Entry of PPI										
Sales in b/l		Market Share (%)		Parity Price (c/l)		Revenue (R/m)				
Local	Export	Local	Export	BFP	EPP	Local	Export	Total	Loss (%)	Gain (%)
6.69	1.48	95	100	175.10	118.10	11714.19	1747.88	13462.07	1.46	0

The market share and revenue figures exclude the products and revenue of the local oil companies, namely Sasol and PetroSA. Tables 27 and 28 also shows that PPI project revenue which would be generated from the sale of petrol would be R602 million and R577 million for diesel, the turnover would be R1179 million. Table 27 and Table 28 also show that PPI project would capture only five percent of the market, with a gain of 1.23% of petrol revenue and 1.46% gain of diesel revenue.

This is not significant when compared to the ninety five percent market share of the refiners and the R15328.42 million revenue that would be generated from the sale of petrol and R13462.07 million from the sale of diesel, which amount to R28790.49 million as turnover. The refiners would only experience a loss of 5% market share of diesel and 5% for petrol and a loss of 1.23% revenue of petrol and 1.46% of revenue for diesel. As can be seen in Table 27 and Table 28 above the refiners would continue to generate profit from exporting both diesel and petrol without a share taken by PPI as a new entrant. Therefore, the profit of IPP business would be limited to the difference between the BFP and the Arab Gulf (AG) in c/l as shown in Table 29 below for products sold inside the country .

Table 29 BFP and Arab Gulf IPP Difference as Profit

<b>PPI Business Profit</b>					
Product	Sales (b/l)	BFP (c/l)	AG IPP (c/l)	Difference (c/l)	Total (R/m)
Petrol	0.37	185.18	162.64	22.47	83.14
Diesel	0.35	175.10	164.99	10.11	35.4
Grand Total	0.72			32.57	118.54

As shown in Table 29 above, importing refined petrol from the Arab Gulf would cost about R162.64 cents per litre of petrol with a 22.47 c/l difference to the BFP. The price of diesel from the Arab Gulf would cost 164.99 c/l with a 10.11 c/l difference to the BFP. The profit for petrol is therefore R83.14 million of the total sales of 0.37 billion litres and R35.4 million of the total sales of 0.35 billion litres of diesel. The gross profit for the business is R118.54 million of the total sales of 0.72 billion litres of both petrol and diesel.

The PPI business could alternatively purchase products that would be exported by local refiners at an EPP shown in Tables 21 and 22. The EPP is far lower than the IPP since wharfage, sea freight, insurance, demurrage and ocean leakage are excluded. For example, in June 2003 the average price of Unleaded Mogas 95 at the refinery gate in Singapore was 157.50 SA c/l.

If the local refiners were to export their petrol to Singapore, their FOB export price would have to be 133.61 c/l. The same also applies to diesel at the June average Med price of Gasoil 0.25% sulphur which was 175.100 c/l. The local refiners would sell their diesel at FOB export price of 118.10 c/l. It therefore makes business sense for the refiners to sell their products that they were to export at EPP than at an IPP which would be higher than the EPP.

However, it is highly unlikely for the MOC's to sell at EPP for three possible reasons. Firstly, while reducing the potential volume of export, the difference between the BFP c/l and EPP would mean huge return for the new entrant, and this may, in the passage of time, give the PPI a lions share of the market. Flowing from this argument, the PPI business project would significantly increase its revenue by adding 29.10 c/l to petrol and 46.89 c/l to diesel which is the difference of EPP to the IPP. The difference of EPP to the BFP would be 51.57 c/l for petrol and 57.00 c/l for diesel. The total profit for the business based on the BFP difference would therefore be R190.8 million of the total sales of 0.37 billion litres of petrol and 199.5 million of the total sales of 0.35 billion litres of diesel. It would therefore follow that, the gross profit for the business would increase to R390.3 million of the total sales of 0.72 billion litres of both petrol and diesel. Secondly, they would realise that it is below the cost of importing the product. Thirdly, new entrant's bargaining power is constraint by the market power and influence of the refiners that have to make the final decision on the sale price.

Consequently, the refiners may sell the products at an IPP. This would mean that the revenue of PPI would remain as shown in Table 29. The corollary is that; (a) the impact on the revenue of the refiners would change from the 1.23% and 1.46 as shown in Tables 27 and 28, to 0.54% and 0.26% respectively; as shown in Table 30 (b) the export of products would remain as in Tables 27 and 28 since the PPI project would only acquire 5% of the local market share.

Table 30 Revenue Loss to refiners at IPP

Petrol										
Sale in b/l			Parity Price			Revenue (R/m)				
Local	Export	New Entrant	BFP	EPP	IPP	Local	Export	New Entrant	Total	Loss (%)
6.95	1.47	0.37	185.18	133.61	162.64	12870	1964.1	602	15436.1	0.54
Diesel										
Sale in b/l			Parity Price			Revenue (R/m)				
Local	Export	New Entrant	BFP	EPP	IPP	Local	Export	New Entrant	Total	Loss (%)
6.69	1.13	0.35	175.1	118.1	164.99	11714.19	1334.53	577	13625.72	0.26

It should be stated that, the MOC's would also gain from this transaction in that they would sell their products at slightly more than the EPP generating significant profit than they would have otherwise generated if they exported their products. This means that, selling the products at IPP would benefit both the PPI business and the refiners.

#### 4.2.5. Import Permit and the *Status Quo*

The crucial impediment to entry for the PPI project will be import permit, which the government should grant. The model advocates for less government involvement in the downstream petroleum industry. However, the government should issue an import permit for the business (PPI project) and also allow the business to sell at a similar margin with the established oil companies or MOC's. The MOC's should not be allowed to sell products at any other price but at BFP that is set and regulated, which in essence means that the *status quo* must be maintained for the MOC's. This would allow the business (PPI project) to build up the five percent market share.

The model would circumvent the barriers to entry identified in the previous chapter. For example, economies of scale would be discounted since there is no similar PPI project in the downstream petroleum industry. Same applies to other entry barriers such as, environmental regulations (PPI do not refine products), geographic location of outlets (PPI business sell to some of the wholesale/supermarkets outlets), extensive advertising (no competitors, therefore advertising would be average) and sunk costs.

### 4.3. Business Development Plan

The business development plan explains the description of business and values and the future project expansion.

#### 4.3.1. Description of Business and Values

The description of the business covers the target market and the location of the business. The business values are the orientation of the business that would assist in achieving PPI objectives. The target market, location and values of the business are discussed below.

##### (a) Target Market

**First Market for the Products :** The primary target group will be established BOC's and some service stations owned by supermarkets such as Pick'n Pay stations.

**Second Market for the Products:** The second target group is the government departments at the local, provincial and national levels.

##### (b) Business Location

The PPI project would be located at the Island View in Durban where products would be stored at the Island View storage tanks and some products would be transported to Gauteng through Petronet pipelines. This should also involve negotiating with the oil marketing companies that own the Laanglaagte depot, Gauteng in order to enter into hospitality agreement with them.

The offices of the PPI would be in Gauteng where products consumption is high and where most of the BOC's have many outlets and where many government departments are situated. The products could easily be distributed to the other provinces from Gauteng.

The business location, that is the boundary or market is determined in terms of the customers and target market and take cognisance of future competitors. The boundary of the PPI market in respect of competition also take cognisance of potential entrants.

#### (c) Business Values

In striving to achieve the objectives as set out above, the PPI project would have to espouse the following values:

##### (i) Profit orientation

Obtaining an acceptable yield on the utilization of resources requires that the PPI project should lend a high priority to the following:

- ❖ A long-term perspective on the value we add to business profit
- ❖ The willingness to take calculated risks
- ❖ The achievement of the project objectives at the lowest possible cost
- ❖ The practical value of project contribution

##### (ii) Customer orientation

The contribution must be in the customer's interest and to its advantage. This requires that the project should be guided by:

- ❖ Pro-active understanding of the needs, requirements and expectations of the clients
- ❖ A commitment to make the customer feel that they are receiving special service

#### 4.3.2.Competition Analysis: Internal and External Environment

Competition analysis involves an audit of the business' internal and external environment, within its area of business activity.

Internally, competition analysis of the PPI project looks at resources that the project would have, such as the workforce, volume of products, financial assets, and ancillary issues such as business' distinctive competencies. Externally, it mainly looks at competitors, both present and future, against its core competencies.

The analysis of competition is also based on the customer market, the industry in which the project competes, and the microenvironment. At the present moment there is no competitor in the importation of petroleum products. This therefore means that the model could achieve its objectives, both in the short term and long term. The main success will be on employing the correct strategy and attaining a sustainable competitive advantage. The business also has to match the core competencies to the key success factors, all against the backdrop of the strengths and weaknesses, opportunities and threats listed below:

(i) Strengths

- ❖ Good and strategic business location
- ❖ Soft competitors (refiners are restricted by BFP)
- ❖ HDSA's owned company
- ❖ Entrepreneurial Spirit based on BEE
- ❖ No similar PPI business

(ii) Weaknesses

- ❖ Management team without proven business and financial skills
- ❖ Lack of ample start-up capital
- ❖ Lack of human resources
- ❖ Poor historic service record
- ❖ Low awareness of the products sold and existence of PPI

(iii) Opportunities

- ❖ No competitors
- ❖ Unique business opportunity

- ❖ Reap benefits out of the import parity pricing
- ❖ Low initial capital requirements
- ❖ Digital or technological link with large technological corporate
- ❖ Operations in all the provinces
- ❖ Competitive pricing of products
- ❖ Buying into a local refinery

(iv) Threats

- ❖ Deregulation: it may lead to market entrenchment by MOC's
- ❖ Liquidation of Island View
- ❖ Potential HDSA's entrants
- ❖ Refusal to grant Import Permit
- ❖ Removal of Import parity pricing by government

The above SWOT (Strength, Weaknesses, Opportunities and Threats) analysis of the business should also take into consideration sales promotion, which is an ongoing activity aimed at attracting new customers to the business, and increasing sales by creating a strong customer base. There are three kinds of methods that PPI would have to use to promote the products, namely: advertising on local newspapers, internet, and television.

#### 4.3.3. Future Project Expansion

It is projected that in the passage of time, the PPI project would expand to and may invest in storage and distribution facilities such as pipelines and depots, to get products delivered to customers. The projections in Tables 20 show that there is growth in the production capacity, and consumption of major petroleum products. Therefore, the need for expansion and investment in these facilities arises and would assist to grow the business. The expansion and investment into the marketing and retailing sub-sectors, would logically mean there would be a need to invest in the refining sub-sector when the need for a new refinery arises.

In terms of Tables 20 it can be projected that in 2010 the demand for petroleum products would increase and an additional refining capacity would be required. The government should allow BOC's or any group of HDSA's to build such a refinery. The refinery should be able to process about 100 thousand barrels per day, five million tones per annum which equals to about 16 percent of the market share.

The refinery should be erected at West Coast next to Saldhana Bay, in the Western Cape province, for three reasons. Firstly, there is ample land which is far away from residential areas, and would likely not fuel tension between community campaigners for clean air, as it has happened for Calref, Sapref, and Enref (Sunday Times, 22 June 2003). Secondly, it will be close to African crude oil producing countries, viz; Angola and Nigeria. Thirdly, it will be able to service the provinces of Eastern, Northern and Western Cape. It is economically viable to erect a new refinery when there is demand, but at the present moment there is no demand nor is there a need to erect a new refinery. Currently BOC's should enter into active operational deals at refineries of the refiners.

#### 4.4. Conclusion

The model advocates for less government involvement in the downstream petroleum industry, but should approve IPP permits and maintain the *status quo*. The model propounds an idea in which the HDSA's play a crucial role and spearhead economic empowerment for themselves. The model envisages a situation where the South African downstream petroleum industry would have a new refinery in about 2010. The success of the model is on its two component plans, namely; Product Cost and Revenue Generating Plan, and a Business Development Plan. It is believed that this model provide a strategic entry for IIDSA's and circumvent most of the identified barriers, without significantly harming the MOC's that will continue to enjoy a ninety five percent market share and would continue to export products and generate huge returns.

## Chapter Five

### 5. Conclusion

This chapter seeks to summarize what has been presented in the previous chapters. It assesses whether the objectives of the thesis were achieved. The objectives of the thesis were three-fold:

- (a) The first objective was to investigate barriers to entry into the downstream petroleum industry.
- (b) The second objective was to examine the constraints and barriers to entry with reference to the downstream industry.
- (c) The third objective was to contribute knowledge in the field on barriers to entry into the petroleum industry and provide suggestion that is intended to alleviate the identified barriers to entry by developing a model for black economic empowerment.

The above three objectives were achieved. The first objective was carried in the form of an overview of the downstream petroleum industry of South Africa. This was carried out to ascertain whether there are facets of the industry which have entry barriers and a number of problems were flagged out.

The second objective was achieved and dealt with in Chapter three in which barriers to entry are discussed. This was aided by the use of the indices which were explained in Chapter three part one as part of the conceptual framework. These indices were utilised throughout the thesis primarily in the retailing and marketing sub-sectors. The indices which were useful were the description or characteristics of BOC's outlet share, market share, forms of operation, and the MER. These indices helped to achieve the above objectives. The barriers to entry has been identified in the refining, marketing and retailing sub-sectors. Additional information on entry barriers in the downstream petroleum industry of South Africa has been augmented, in the main from secondary sources through desk research and the empirical results.

It should be noted that the entry barriers discussed in this chapter do not apply across the industry, but some apply in all the sub-sectors, while others are limited to a particular sub-sector. It is suggested that a further study should be carried out in the next seven years in respect of entry barriers to ascertain the extent to which BOC's would have penetrated the market and to ascertain whether HDSA's have entered the industry to achieve the objective of the White Paper.

The third objective was to add to literature and provide a suggestion. This was done through the presentation of a business model for black economic empowerment in which refined petroleum products would be imported. This model also addresses the barriers to entry discussed in Chapter three of this thesis.

The thrust of the thesis is that barriers to entry are present in the industry and lead to insignificant entry by historically disadvantaged South Africans. These entry barriers also deter Black Oil Companies that are already in the industry from increasing their market share. However, little attempt to remove the barriers to entry has been done through, *inter alia*, the empowerment charter and empowerment deals entered into between the BOC's and the MOC's.

These MOC's seem to be lacking the will to support or accelerate black economic empowerment as demonstrated by the exclusion of the refining sub-sector from the empowerment deals entered into between the BOC's and many of the MOC's. It seems most of the implementation of the measures to achieve the policy objective is left to Sapia and its member companies who seemingly engage in equity deals because it is politically correct to do so.

We believe that by increasing the HDSA's share in the industry, the model would balance Sapia's contribution to the industry and its political correctness on the one hand, and government and Amef's contribution to the industry policy making processes on the other. The model would also go a long way in addressing the issues of sustainable presence, ownership, and control of approximately a quarter of all the facets in the industry. It is after the achievement of these key issues that are contained in the Empowerment Charter and the White Paper (1998) on the Energy Policy of South Africa that the government should consider deregulating the industry.

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# Appendix

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## Appendix A

### Questionnaire

Note: *The purpose of the questionnaire was to source additional information to support the other sources. That is why no statistical analysis was conducted. It also asked loose/general questions about market structure.*

#### SECTION ONE

##### 1.1. BIOGRAPHICAL DETAILS

- (a) Personal Name
- (b) Family Name
- (c) Race
- (d) Nationality
- (e) Gender

##### 1.2. COMPANY DETAILS

- (a) Company Name
- (b) Position in Company
- (c) Company Head Office
- (d) Number of Years Operating in S.A.

## SECTION TWO

### CLOSED ENDED QUESTIONS

2.1. Do you think the market of South African downstream industry is oligopolistic?

Yes	No
-----	----

2.2. Are there barriers to entry that face new entrants in the downstream industry?

Yes	No
-----	----

2.3. Is your company registered in South Africa?

Yes	No
-----	----

2.4. Are your company shares held by South Africans?

>10%	10-50%	50-90%	90%>
------	--------	--------	------

2.5. In your opinion, is the South African oil market monopolistic?

Yes	No
-----	----

2.5. Does your company have a policy on Black Economic Empowerment ?

Yes	No
-----	----

2.6. Do you think the market of South African downstream industry is competitive?

Yes	No
-----	----

2.7. In your opinion, is the South African downstream oil market concentrated?

Yes	No
-----	----

2.8. Is deregulation best for South African downstream petroleum industry now?

Yes	No
-----	----

2.9. Should price control, specifically, be removed?

Yes	No
-----	----

2.10. In your opinion, is the price build up of petroleum products good?

Yes	No
-----	----

## SECTION THREE

### OPEN ENDED QUESTIONS

3.1. What is your view on the Service Station Rationalisation Plan *vis-à-vis* the political and economic challenges and constraints that face new entrants?

3.2. If your answer, to question 2.2. of section two is yes, please list all possible barriers to entry.

3.3. Express your own opinion, on whether some of the laws governing the downstream industry serves as barriers to entry and mention those laws.

3.4. Express your opinion on the pricing mechanism of South Africa.

3.5. Provide any recommendations that you have on all the above issues. In other words, what do you think should be done on all the above issues?

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END



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