



# **A Benchmarking of the South African Liquid Fuels Industry with that of the United States of America**

**By**

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**TO WHOM IT MAY CONCERN**

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**Due to the strategic importance of this research it would be appreciated if the contents remain confidential and not be circulated for a period of five years.**


**Sincerely**

Signed  \_\_\_\_\_  
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116028

## Declaration

**This research has not been previously accepted for any degree and is not being currently submitted in candidature for any degree. Furthermore, I hereby state that it is my original work.**

Signed  \_\_\_\_\_  
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## **Abstract**

The South African Liquid Fuels Industry is currently in a state of flux. A new fuel pricing mechanism has been rolled out and new legislation has been enacted within the past few years that have significantly impacted on the business environment. The Main Supply Agreement which governed the marketing and distribution of Sasol's liquid fuel products also came to an end on the 1<sup>st</sup> of January 2004. All these drivers have had a major impact on the business environment that the Sasol Liquid Fuels Business operated in. The government has also stated its policy to further deregulate the industry including the pricing structure of liquid fuel. The United States Liquid Fuels Industry is the largest in the world and is based on an unregulated fuel price thus leading to price competition among competing retailers. It therefore serves as a good basis with which to compare and evaluate the South African industry. A comprehensive industry analysis is performed in order to explore, understand and describe the nature of the liquid fuels business environments in the USA and South Africa. The Delphi technique was used to gather primary data on the state of the South African Liquid Fuels industry. Thereafter a benchmarking of the South African Liquid Fuels Industry is carried out using primary data from the Delphi study and secondary data from the literature review. The techniques used include PEST analysis and Porter's Five Forces. Aspects of the United States industry that are similar to the South African industry are identified. A scenario for a future deregulated South African Liquid Fuels Industry is described and a marketing and distribution strategy for Sasol is proposed.

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### 1.1 Introduction

The South African Liquid Fuels Industry is currently in a state of flux. A new fuel pricing mechanism has been rolled out and new legislation has been enacted within the past few years that have significantly impacted on the business environment. The Main Supply Agreement which governed the marketing and distribution of Sasol's liquid fuel products also came to an end on the 1<sup>st</sup> of January 2004. All these drivers have had a major impact on the business environment in which Sasol currently operates in. The need to secure and develop a distribution network in the absence of a Main Supply Agreement was the catalyst for the acquisition of Exel Petroleum and the formation of a new business entity, namely, the Sasol Liquid Fuels Business. Furthermore, in November 2004 Sasol announced that they had signed definitive agreements with Petronas International Corporations Limited to combine Sasol's Liquid Fuels Business and Engen Limited in a new liquid fuels joint venture, called Uhambo Oil Limited (Petronas, Sasol, Engen, Worldwide and Tshwarisano sign definitive agreements to create Southern Africa's largest liquid fuels business, 2004). The merger matched Engen's superior distribution network with Sasol's production overcapacity and distribution limitations. Subsequent to this however, the Competition Tribunal has prohibited the merger from continuing. Sasol thus needs to implement a strategy that will secure a distribution network and market for its liquid fuel products.

What also remains to be answered is how the business would be affected by changes to the industry in terms of a potential deregulation of the pricing structure as per the stated government intention. The United States Liquid Fuels Industry is the largest in the world and is based on an unregulated fuel price thus leading to price competition among competing retailers. It therefore serves as a good basis with which to compare and evaluate the South African industry. A comprehensive industry analysis will be performed in order to explore, understand and describe the nature of the liquid fuels business environments in the USA and South Africa.

The terms “gasoline” and “petrol” are used interchangeably in the text. Both refer to the same product. “Gasoline” is primarily used in the United States to describe petrol.

## **1.2 Background of the Research**

### **Background to Sasol**

Sasol is a South African based integrated oil and gas company with substantial chemical interests (Petronas, Sasol, Engen, Worldwide and Tshwarisano sign definitive agreements to create Southern Africa's largest liquid fuels business, 2004). The company has a market capitalisation of almost US\$12 billion and has operations in 23 other countries. Sasol uses proprietary Fischer-Tropsch technology for the production of synthetic fuels and chemicals from low grade coal. The company is the leading supplier of liquid fuels in South Africa. In future Sasol will use its Fischer-Tropsch technology for the commercial production of diesel and chemicals from natural gas. The company manufactures over 200 fuel and chemical products that are sold worldwide. It also operates coal mines to provide feedstock for its Coal-to-Liquids plants (Petronas, Sasol, Engen, Worldwide and Tshwarisano sign definitive agreements to create Southern Africa's largest liquid fuels business, 2004).

### **The United States Liquid Fuels Industry**

The American Liquid Fuels Industry is the largest in the world. In 2003, an estimated 185 billion gallons of motor fuel was sold in the USA. Roughly 70% of the fuel sold is gasoline and the remaining 30% is diesel. Some of the trends in the industry are industry consolidation, the emergence of new market entrants and supplier consolidation.

In the United States, the cost of refined products such as gasoline and distillate fuels is closely linked to the price refiners pay for crude oil, which is the principal cost component. For example, the price of crude oil increased from \$0-75 per gallon in October 2003 to \$1-30 per gallon in October 2004 resulting in an increase in the gasoline price from \$1-62 per gallon to \$2-04 per gallon during the same period (Refineries, crude oil and product prices, 2004).

In July 2004, the nationwide average tax on gasoline was 43.7 US cents/gallon, and on diesel the tax was 49.4 US cents/gallon. Both the federal government and the individual

US state (provincial) authorities tax gasoline. Taxes comprise 22.5% of the retail price of gasoline, and 28.7% of the retail price of diesel.

The US gasoline marketing sector exhibits a high degree of competition. The gasoline price in the US is a function of supply, demand and the level of competition. Refiners use a variety of distribution methods and channels in order to compete in the market place. For example, they can use company operated outlets, or they could franchise the outlet to an independent dealer and directly supply it with gasoline, or they can use a 'jobber' which refers to a person or firm who gains the right to franchise the brand in a particular area.

Independent marketers sell approximately 32% of the fuel in the US liquid fuels market. These companies do not own oil refineries and thus have to purchase their motor fuel on the open market. The presence of a competitive wholesale gasoline market is crucial to them.

### **1.3 Motivation for the Research**

The liquid fuels business is currently in a state of flux. Businesses have to re-evaluate their strategies in light of the dynamic nature of the business environment. Sasol Oil is faced with major challenges, specifically relating to the end of the Main Supply Agreement.

The South African Liquid Fuels Industry is also based on a controlled fuel price. The potential deregulation of the industry would result in changes to the industry drivers and business environment. This may require the revision of marketing strategies in order to cater for these changes and to adjust to new challenges and opportunities.

### **1.4 Value of the Project**

The value of the study is that it will help Sasol Oil position itself in the new environment, in particular if the fuel price regulations were removed. The study will consist of a detailed analysis of the business environment. Sasol is faced with a quandary in terms of how it should adapt its marketing strategy due to the termination of the Main Supply Agreement (which secured a market for Sasol Synfuel's products), the prohibition of the Engen merger and the potential deregulation of the fuel pricing system. The benchmarking of the South

African Liquid Fuels Industry against the US industry (which is the world's largest) will assist in identifying areas for improvement and opportunities for new marketing and distribution channels. Furthermore, the outcome of the study will be a valuable tool in planning future market strategies in a deregulated price environment.

## **1.5 Problem Statement**

### **Introduction**

The South African Liquid Fuels Industry is currently in a state of flux. During the last few years, the landscape of the industry has changed dramatically. A new fuel pricing mechanism has been rolled out and new legislation has been enacted within the past few years that significantly impacted on the business environment. The Main Supply Agreement which regulated the marketing and distribution of Sasol's liquid fuel products also came to an end on the 1<sup>st</sup> of January 2004. This agreement gave protection to Sasol in terms of a market for their liquid fuel products.

All these drivers have had a major impact on the business environment that the Sasol Liquid Fuels Business currently operates in. The need to secure and develop a distribution network in the absence of the Main Supply Agreement was the driver for the proposed merger between Sasol's Liquid Fuels Business and Engen Limited in a new liquid fuels joint venture, Uhambo Oil Limited. The merger matched Engen's superior distribution network with Sasol's production overcapacity and distribution limitations. Subsequent to this however the Competition Tribunal has prohibited the merger from continuing.

### **The Problem Statement**

The South African Liquid Fuel Industry is based on a controlled fuel price. The government has indicated that there is the potential for further deregulation of the industry. What remains to be answered is how the business would be affected by deregulation of the pricing structure. This may require revision of marketing strategies to cater for these changes and to adjust to new challenges and opportunities.

Thus faced with these challenges Sasol has to find an alternate means to secure a market for its liquid fuel products. A new marketing strategy is needed in light of the lack of a Main Supply Agreement and the potential deregulation of the liquid fuels industry.

## 1.6 Objectives of the Study

- **Objective 1:** To benchmark the regulated South African Liquid Fuels Industry against the deregulated United States industry using the relevant analytical tools.
- **Objective 2:** To analyse the changes to the business environment in terms of dissolution of the Main Supply Agreement and other newly enacted legislation.
- **Objective 3:** To propose a marketing and distribution strategy in a deregulated environment.

## 1.7 Research Methodology

A literature review was conducted based on a selection of key words from the problem statement. A concept matrix (see Appendix 1) was used to categorize the information in the literature search and to identify key themes. The following research questions were identified based on the problem statement and literature review: (1) What are the challenges and changes in the business environment that Sasol could face in the case of a deregulation of the liquid fuels industry in South Africa? (2) What are the fundamental differences and similarities between the South African industry and the US industry? (3) Which aspects may be implemented in a deregulated South African industry? (4) What marketing and distribution strategy should Sasol use in light of the dissolution of the Main Supply Agreement and the future deregulation of the liquid fuels industry?

Research question 1 was answered by conducting a Delphi study in order to collect primary data on the South African Liquid Fuels Industry from a panel of industry experts. Statistical techniques were then used to establish consensus on the raw data. Research question 2 was answered by conducting a benchmarking exercise using the primary data on the South African industry from question 1 and secondary data on the USA gleaned from the literature review. The analysis was conducted using relevant analytical tools such as PEST analysis and Porter's Five Forces. Research questions 3 and 4 were then answered based on the aforementioned analysis. A marketing and distribution model was proposed.

## **1.8 Structure of the Study**

### **1.8.1 Chapter 2 Literature Review**

This chapter contains information extracted from the literature review. The techniques used in conducting the review, the key words used, and the search engines used are discussed. Information on the theories of business and environmental analysis can be found. The chapter also contains information on the United States and South African Liquid Fuels Industries. Thereafter information pertaining to theories of marketing and distribution channels can be found.

### **1.8.2 Chapter 3 Methodology**

This chapter identifies the research questions that have to be answered. Theories on qualitative and quantitative data may be found. The difference between primary and secondary data is outlined. Thereafter theory on the Delphi technique is covered. The chapter also contains information on conducting interviews and the data collection method to be employed. A table showing the development of the research questionnaire can also be found.

### **1.8.3 Chapter 4 Analysis and Discussion**

In this chapter an analysis of the quantitative data collected in the Delphi study is carried out. Consensus is established using statistical techniques. Thereafter a benchmarking of the South African Liquid Fuels Industry is carried out using primary data from the Delphi study and secondary data from the literature review. The techniques used include PEST analysis and Porters Five Forces.

### **1.8.4 Chapter 5 Recommendations and Conclusions**

In this chapter research questions 3 and 4 are answered. The objectives of the study are completed. Aspects of the United States industry that are similar to the South African industry are identified. A scenario for a future deregulated South African liquid fuels industry is described and a marketing and distribution strategy for Sasol is proposed.

## Chapter 2

## Literature Review

### 2.1 Introduction

This literature review has been performed in order to find relevant information on the South African and United States liquid fuels industries. Information on the theory of business and industry analysis was also sought so that a proper analysis could be done. Information and secondary data from the analysis will be used to benchmark the South African industry against the United States industry.

The South African Liquid Fuels Industry is in a state of flux. The implementation of a new fuel pricing mechanism, as well as the new legislation which has been enacted in the past few years have had a significant impact on the business environment. The Main Supply Agreement which regulated the marketing and distribution of Sasol's liquid fuels products also came to an end on the 1<sup>st</sup> of January 2004. This agreement gave protection to Sasol in terms of a market for their liquid fuel products. In the absence of the Main Supply Agreement, Sasol needs a marketing strategy that would ensure demand for its product. The marketing strategy would also need to take into account the potential deregulation of the industry particularly in terms of the pricing mechanism.

A literature search was performed using the following key words: *Gasoline Retail, Five Forces Porter, Gasoline Marketing, Industry Analysis, Petroleum South Africa, Petroleum Product Pricing, South Africa Fuel, United States Fuel, Business Environment Analysis, and Petroleum Distribution*. The search engine used was EBSCO host and multiple databases were selected using a filter that only allowed peer reviewed content. The total number of articles relating to the topics obtained from the literature search numbered one hundred and seven.

In the following sections the contents of the literature are reviewed, starting with a discussion of business and industry environmental analysis. This is followed by a discussion on the US industry including information on liquid fuel product, the structure of the distribution and retail system, pricing of gasoline and diesel, marketing strategy and business models, the regulatory environment, supply and demand for liquid fuel products, the regulatory environment, and industry competition. The South African liquid fuel



industry is then covered including sections on liquid fuel product, industry structure, pricing, regulatory environment, and supply and demand for liquid fuel product.

## 2.2 Business and Industry Environmental Analysis

### 2.2.1 Competitive Analysis of the Business Environment

Competitive analysis is a term commonly used to refer to the assessment of the most strategically relevant aspects of a single business company's macro-environment (Thompson and Strickland, 2001). Judgements about what strategy to pursue should flow directly from a solid analysis of a company's external environment and internal situation.

According to Thompson and Strickland (2001), the two most important situational considerations are firstly industry and competitive conditions and secondly a company's own competitive capabilities, resources, internal strengths and weaknesses, and market position.

According to Thompson and Strickland (2001), competitive analysis aims to develop insightful answers to *seven questions*, which are:

*“Question 1: What are the industry's dominant economic features?”*

*Question 2: What is the competition like and how strong are each of the competitive forces?*

*Question 3: What is causing the industry's competitive structure and business environment to change?*

*Question 4: Which companies are in the strongest/weakest positions?*

*Question 5: What strategic moves are rivals likely to make next?*

*Question 6: What are the key factors for competitive success?*

*Question 7: Is the industry attractive and what are the prospects for above-average profitability?”*

According to Lynch (2000), understanding the environment is a crucial part in developing corporate strategy. Lynch also identifies eight basic stages in environmental analysis (some of which are analogous to Thompson and Strickland's seven questions):

*“Step 1: Consideration of the nature of the environment.*

*Step 2: Factors affecting many organisations.*

*Step 3: Analysis of growth.*

*Step 4: Factors specific to the industry.*

*Step 5: Factors specific to competitive balance of power in the industry.*

*Step 6: Factors specific to co-operation in the industry.*

*Step 7: Factors specific to immediate competitors.*

*Step 8: Customer analysis”.*

#### **2.2.1.1 Consideration of the Strategic Environment (Lynch, 2000, *Step 1*)**

Environmental forces external to the organisation can be assessed by the degree to which the environment is likely to change (termed *changeability* by Lynch (2000)) and the degree to which such changes can be predicted (*predictability*). Changeability depends on the *complexity* and *novelty* of an organisation's environment, whilst predictability depends on the *rate of change* of the environment and the *visibility of the future*.

#### **2.2.1.2 Analysis of the General Environment (Lynch, 2000, *Step 2*)**

Lynch (2000) recommends two techniques for exploring the general environment namely, PEST analysis and scenarios. A PEST analysis is a checklist of Political, Economic, Socio-cultural and Technological aspects of the environment. Lynch (2000) defines a scenario, as a model of a possible future environment for the organisation. Scenarios are commonly understood to be used for predicting the future. A scenario analysis, on the other hand, takes different situations with alternative starting points and explores a set of possibilities. A combination of events is usually gathered together to form a scenario and this combination is then explored for its strategic significance.

#### **2.2.1.3 Analysing the Rate of Market Growth (Lynch, 2000, *Step 3*)**

The hypothesis of the industry life cycle is that an industry goes through four basic phases of development each of which has important implications for corporate strategy viz. introduction, growth, maturity and decline (Lynch, 2000). In the *introduction phase*, an organisation attempts to launch its product on the market and attract new interest and buyers. In the *growth* phase, competition increases as competitors recognise the potential of the product and enter the market. By the *mature* phase, all available customers have been satisfied and growth begins to slow down and stabilize. As more competitors enter, the market share fragments and sales begin to *decline*.

#### **2.2.1.4 Analysis of Factors Specific to the Industry** (Lynch, 2000, *Step 4*; Thompson and Strickland, 2001, *Question 6*)

Lynch (2000) defines the key factors for success as “those resources, skills and attributes of the organisations in the industry that are essential to deliver success in the market place”. An industry’s key success factors (KSFs) are those things that most affect an industry member’s ability to prosper in the marketplace i.e. particular strategy elements, product attributes, resources, competencies, competitive capabilities and business outcomes. These factors spell the difference between profit and loss, and ultimately between success and failure. The answers to three questions help to identify an industry’s key success factors (Thompson and Strickland, 2001). The questions are:

- On what basis do customers choose between the competing brands of sellers? What product attributes are essential?
- What resources and competitive capabilities does a seller need to have to be competitively successful?
- What does it take for sellers to achieve a sustainable competitive advantage?

#### **2.2.1.5 Analysis of the Competitive Industry Environment** (Lynch, 2000, *Step 5*; Thompson and Strickland, 2001, *Question 2*)

The Five Forces Model of analysing the competitive industry environment was developed by Professor Michael Porter (Porter, 1980; Lynch, 2000; Thompson and Strickland, 2001). This model identifies the five main forces that impact on an organisation:

**Force 1** - The bargaining power of suppliers - (The competitive pressures stemming from supplier-seller collaboration and bargaining.)

**Force 2** - The bargaining power of buyers/customers - The competitive pressures stemming from seller-buyer collaboration and bargaining.

**Force 3** - The threat of potential new entrants - new entrants bring new production capacity, the desire to establish a new place in the market and sometimes substantial resources with which to compete.

**Force 4** - The threat of substitutes - new innovations can occasionally substitute a product and render the original redundant. Often, substitutes do not replace the product but introduce new technology and innovations that reduce production costs.

**Force 5** - The extent of competitive rivalry.

#### **2.2.1.6 Analysis of the Co-operative Environment (Lynch, 2000, *Step 6*)**

Lynch (2000) proposes that analysis of co-operative linkages between the organisation and its environment be explored under four headings termed the *Four Links Model*:

1. Opportunities and threats from informal co-operative links and networks.
2. Opportunities and threats from formal co-operative linkages.
3. Opportunities and threats presented by complementors.
4. Opportunities and threats from government links and networks.

#### **2.2.1.7 Analysis of the Immediate Competitors (Lynch, 2000, *Step 7*; Thompson and Strickland, 2001, *Question 4*)**

This concerns studying the market positions of rival companies. One technique that may be used is *strategic group mapping*. This tool is useful for comparing the market positions of each firm individually or by grouping them into like positions (strategic groups) when an industry has so many competitors that it is not practical to examine each one in depth. A strategic group consists of those rival firms with similar competitive approaches and positions in the market (Thompson and Strickland, 2001).

*Competitor profiling* is another useful technique that consists of analysing a competitor's objectives, resources, market strength and current strategies. Typically, only one or two of the major or direct competitors are chosen. The following aspects may be considered (Lynch, 2000): 1. Objectives; 2. Resources; 3. Past record of performance; 4. Current products and services; 5. Links with other organisations; 6. Present strategies.

#### **2.2.1.8 Analysis of the Customer and of Market Segmentation (Lynch, 2000, *Step 8*)**

Lynch describes three dimensions to the analysis of the customer:

1. Identification of the customer and the market – the importance here lies in accurately defining strategies that identify customers and competitors. If the market environment is incorrectly identified, it is possible that competitors may creep up and steal customers or market share without the company realising it.
2. Market segmentation and its strategic implications – market segmentation is the identification of specific parts of a market and the development of market offerings that will be attractive to those segments. The strategic implications are that, some segments may be more profitable and attractive than others; some segments may have more competition than others and some segments may be growing faster and offer more development opportunities than others.

3. The role of customer service and quality – these two aspects have become increasingly more important as companies these days attempt to differentiate their products from competitor offerings.

#### **2.2.1.9 Analysis of the Industry's Dominant Economic Features** (Thompson and Strickland, 2001, *Question 1*)

The factors to consider here are market size, scope of rivalry, market growth rate, number of rivals and buyers, types of distribution channels, the pace of change, capital requirements and industry profitability.

#### **2.2.1.10 Analysis of Changes in the Industry's Competitive Structure and Business Environment** (Thompson and Strickland, 2001, *Question 3*)

All industries are characterised by trends and new developments that gradually or speedily produce changes important enough to require a strategic response from participating firms. A popular hypothesis that explains these changes is that the industry is merely going through its life cycle. The most dominant forces are called driving forces because they have the biggest influence on what kind of changes will take place in the industry's structure and competitive environment. The most common driving forces are: the internet and the new e-commerce opportunities and threats; increasing globalization of the industry; changes in the long term industry growth rate; changes in who buys the product and how they use it; product innovation; technological change; marketing innovation; entry/exit of major firms; diffusion of technical know how across more companies and countries; changes in cost and efficiency; growing buyer preference for differentiated products instead of a commodity product; regulatory influences and government policy changes; changing societal concerns, attitudes and lifestyles; and reductions in uncertainty and business risk (Thompson and Strickland, 2001).

#### **2.2.1.11 Analysis of Rivals' Strategic Moves**(Thompson and Strickland,2001,*Question 5*)

In order to overcome rivals a company has to monitor their activities, comprehend their strategies and predict their next moves. Competitive intelligence about the strategies rivals are deploying, their latest moves, their resource strengths and weaknesses, and the plans they have announced is essential to anticipating the actions they are likely to take next and what bearing their actions might have on a company's own best strategic moves (Thompson and Strickland, 2001).

#### **2.2.1.12 Analysis of Industry Attractiveness and Profitability** (Thompson and Strickland, 2001, *Question 7*)

The final step is to use the answers from the previous questions to draw conclusions about the relative attractiveness or unattractiveness of the industry, both short-term and long-term. The important factors on which to base such conclusions include (Thompson and Strickland, 2001):

- The industry's growth potential.
- Whether competition currently permits adequate profitability and whether competitive forces will become stronger or weaker.
- Whether industry profitability will be favourably or unfavourably affected by the prevailing driving forces.
- The company's competitive position in the industry and whether its position is likely to grow stronger or weaker.
- The ability of the company to capitalise on the vulnerabilities of weaker rivals.
- Whether the company is able to defend against or counteract the factors that make the industry unattractive.
- The degrees of risk and uncertainty in the industry's future.
- The severity of problems confronting the industry as a whole.
- Whether continued participation in this industry adds importantly to the firm's ability to be successful in other industries in which it may have business interests.

Thus, if an industry's overall profit prospects are above average, the industry can be considered attractive whilst if its profit prospects are below average, it is unattractive.

## **2.3 Gasoline and Diesel Product in the United States**

### **2.3.1 The Nature of Gasoline Product in the United States**

#### **2.3.1.1 Gasoline Grades**

The United States has three gasoline grades based on octane level viz. regular, mid-grade and premium (A Primer on Gasoline Prices, 2006). The higher the gasoline grade, the higher the price. Historically during the 1990s, premium grade and mid-grade gasoline each commanded about 15% of market share (Osborne, 2004, 2005 and 2006). These percentages decreased during times of price spikes to between 9 and 11%. Due to different regional environmental regulations, the gasoline market in the USA comprises many types of gasoline. All gasoline in the USA is lead-free.

#### **2.3.1.2 Reformulated Gasoline**

Certain states in the USA are required by regulations to use reformulated gasoline, which is specifically blended to meet strict emission requirements. The Clean Air Act Amendments of 1990 require that refineries produce oxygenated gasolines, lower sulphur diesels, and reformulated gasoline (RFG), (Perkins, 1999).

#### **2.3.1.3 Seasonal Changes**

There are also Reid Vapour Pressure (RVP) requirements that are dependent on summer/winter conditions. RVP is a measure of the volatility of gasoline, which is a measure of the tendency of a particular gasoline to evaporate. The higher the RVP, the easier a gasoline will evaporate. Gasoline evaporation is also a function of temperature, thus during summer time the RVP allowance is reduced to prevent product loss and emissions. Summer grade gasoline requirements begin in March and continue for the duration of the season (2003 California Gasoline Pricing Study: Preliminary Findings, 2003).

### **2.3.2 Diesel Product in the USA**

“On-highway” US diesel specifications require a sulphur content of no more than 500 parts per million (A Primer on Diesel Fuel Prices, 2006). The US Environmental Protection Agency’s (EPA) ultra low sulphur diesel (ULSD) specifications were due for implementation in mid 2006. This entails a reduction in sulphur content to 15 parts per million by weight.

## **2.4 The Structure of the United States Distribution and Retail System**

Bucklin, quoted in Ingene and Brown (1987), defines the structure of retailing as “*the manner by which the sale of some commodity is organised by the firms engaged in trading it*”.

### **2.4.1 The Structure of the Distribution System**

According to the Energy Information Administration (A Primer on Gasoline Prices, 2006), most of the United States’ gasoline is distributed from oil refineries via pipelines to over 168 000 retail outlets in the country.

#### **2.4.1.1 Distribution Channels**

The US gasoline marketing sector is marked by a high degree of competition and refiners use a variety of distribution techniques to supply gasoline. From the refinery fuel is transported typically by pipeline to a network of marketing terminals, from where it is delivered via truck to retail outlets (Anderson and Johnson, 1999).

Anderson and Johnson (1999) describe two main channels for supplying retail outlets, viz. “direct supply” and “jobber distributed”. In the direct supply system, fuel is supplied to retail outlets directly by the refiner or the contractor for the refiner. These retail outlets may be owned and operated by the refiner or by an independent dealer. In jobber distributed channels, the product is purchased at the terminal by an independent business in order to supply its own stations or for reselling to other dealers. Stations supplied in this way may be owned by the refiner, the jobber, or another independent dealer who sells that



brand name. Furthermore, jobbers may also purchase unbranded fuel for distribution to independent stations operating under a non-refiner name.

In addition to the channels referred to in Anderson and Johnson (1999), Kleit (2003) includes a third channel, namely, hypermarkets. He gives the following outline of the three channels:

1. Company-owned and company franchisees - Gasoline and diesel product is sent by pipeline to bulk storage facilities and terminals from where it is trucked to company owned & operated outlets or to franchised dealers. Franchisees may own the outlet themselves, may lease the outlet from the refiner, or they may lease the outlet from a third party.
2. Distributors (also known as “jobbers”) - A jobber may own and operate retail outlets themselves or they may sell the fuel to independent dealers.
3. Hypermarkets - Hypermarkets are new entrants to the market. They source their fuel typically using spot and contract sales from refineries.

Kleit (2003) also states that a jobber may gain the right to franchise a brand in a particular area. Anderson and Johnson (1999) state that direct supply and jobber distributed each account for roughly half of the total distributed volume. Kleit (2003) gives the following breakdown with respect to market share among the respective distribution outlets:

- Jobbers: 44%
- Lessee (franchisees) and open dealers: 27%
- Company owned operations: 12%
- Independent, unbranded and hypermarkets: 17%

#### **2.4.1.2 The Jobber Distribution Channel (Jobber Operated or Jobber Franchised Outlets)**

A “distributor” commonly referred to in the industry as a “jobber”, is an independent operator who owns and operates a number of retail outlets, or may even have franchisees operating a portion of those outlets (Kleit, 2003). Typically a jobber has a contractual agreement to display a particular refiner’s brand and to sell gasoline from that refinery.

The jobber is responsible for developing local facilities and for local promotions. The jobber would have the advantage of knowledge of local conditions and may thus be better able to perform these tasks. There are also incentives for entrepreneurship, which may result in more efficient stations than would occur otherwise. In rural areas, a jobber

may be able to perform tasks such as market research, identifying potential outlet sites, and finding outlet operators easier than a refiner's employees.

There are certain disadvantages for the refiner in using jobber distribution channels. It is difficult for the refiner to monitor the jobber's marketing and promotional tactics, and jobbers could theoretically "free-ride" on the refiner's brand name. Some distributors also have contractual agreements with more than one brand refiner and could switch brands with their portion of the value chain with relative ease. Kleit (2003) also reports that a jobber could also abandon a territory, leaving the refiner without distribution in an area.

Jobbers usually receive gasoline at a lower price than franchised dealers as they perform additional services such as arranging delivery of product to the retail outlet. Theoretically this creates the potential for a jobber to resell gasoline to the refiner's franchised dealers at a lower price than the refiner. Refiners would probably use non-price vertical restraints to stop this type of economic arbitrage as it eliminates compensation they receive for developing and promoting franchised dealer operations.

Jobbers also supply gasoline to both branded stations and unbranded stations.

#### **2.4.1.3 Integrated Refiners**

An integrated refiner is one that owns and operates a refinery and is vertically integrated downstream such that it has company-owned or franchised retail outlets. According to Kleit (2003) in 2002 integrated refiners accounted for about 78% of all refineries in the United States, which is in fact a decrease from 79.3% in 1992.

#### **2.4.1.4 Company Operated Retail Outlet**

In a company-owned retail outlet the site and all capital is owned by the refiner. The outlet is run by employees of the refiner (Shepard, 1993). The refiner owns the gasoline in the station and sets the retail price. The manager may be party to an incentive scheme tied to the volume of sales.

Kleit (2003) reports that most integrated refiners own and operate some of their own gasoline outlets with their own employees. In this way, the refining company has the advantage of managing the entire customer offering, including the retail price of gasoline. The refiner can also ensure that its gasoline is the only one sold at the outlet and that the outlet takes part in company-wide promotional activities.

Refiners also choose to have company-operated stations for strategic marketing reasons, which could entail controlled product or service experimentations. Company

owned outlets also provide the refiner with direct access to customer information and needs and other trends in the market place. Borenstein et al., (1997) report that 17% of US gasoline is sold through refiner-operated outlets.

#### **2.4.1.5 Franchised Dealer Outlet**

In a franchised dealer outlet, the dealer either owns the retail outlet outright, or more commonly, leases it from the refiner. The dealer is bound to purchase gasoline entirely from the refiner whilst the refiner arranges for gasoline to be delivered to the outlet. According to Borenstein et al., (1997) franchisees purchase the delivered gasoline at a 'dealer tankwagon' price.

The major advantage to the refiner is that the operator has incentives to engage in entrepreneurship, which may directly result in increased product volumes. However, the refiner gives up control of the retail price of gasoline as well as control of the service offering to the consumer.

A new refining outlet may require an investment of more than two million dollars in the site (Kleit, 2003). In a dealer-owned site, the refiner may also have an investment in the site, either by paying for improvements to the site or by loaning money to the dealer on favourable terms. Furthermore, some refiners may be responsible for securing the site and arranging for brand promotions in the area. Refiners may also arrange for the delivery of product to the station.

Shepard (1993) reports that, in general, the refiner makes the initial investment, has initial control of the asset and therefore designs the contract. Decisions such as station location, sales capacity and supplementary services on offer are made by the refiner based on the local conditions. Refiners would consider factors such as local supply and demand conditions, traffic volume, and the presence of competitors. A "take-it-or-leave-it" offer is then made to potential managers (franchisees/dealers).

Kleit (2003) reports that if refiners own or lease the station property, they may also take responsibility for environmental liability, building and equipment maintenance. The cost of these activities is reflected in the wholesale price charged to the franchised dealer.

Refiners using franchised dealers strive to increase volumes of product sold for two reasons. Firstly, inducing increased gasoline sales generates a more certain market for their refined product. Secondly, refiners do not want franchised outlets that carry their brand name, to price uncompetitively since this would harm the brand name and also impact

negatively on other brand outlets in the area. Refiners may therefore use volume related contractual provisions in order to drive product volume. This may entail incentives to sell more gasoline in the form of price discounts on the wholesale price above a certain volume. Refiners may also place clauses in the franchising contract that require the dealer to sell a certain minimum volume of gasoline per unit of time or face the loss of the franchise.

In a “lessee-dealer” contract the retail site and outlet is owned by the refining company whilst the manager is self-employed (Shepard, 1993). The refiner sets the wholesale price of gasoline and charges an annual rental fee. Rental fees are normally proportional to the net income the station can generate and are set using an agreed formula. In order to ensure that the service offering is of a standard that is acceptable to the refiner, the contract may include clauses that specify hours of operation, cleanliness and landscaping standards, ancillary services, define what type of non-gasoline items may be on sale, and require the lessee to be on-site for a certain amount of time. Typically, there is also a clause stipulating the minimum amount of gasoline the retail outlet must purchase.

Refiners use the threat of lease termination to enforce the stipulations of the contract. The Petroleum Marketing Practices Act of 1978 was enacted to protect lessee-dealers from unfair termination of contract (Petroleum Marketing Practices Act, 1978).

#### **2.4.1.6 Independent Dealers**

In an “open-dealer” account the refiner has no investment in the station which is wholly owned by the retailer. The refiner sets the wholesale price but there is no rental or franchise fee. The station manager makes decisions on service quality and retail price. Shepard (1993) reports that in this case, the only meaningful constraints placed on the retailer pertain to product quality and labelling. That is, retailers cannot sell gasoline supplied by another refiner from pumps labelled with the contracting refiner’s brand. Minimum purchase volume clauses may be included in the contract again with the threat of contract termination. However, a dealer whose contract has been terminated is free to sign a supply agreement with another refining company.

#### **2.4.1.7 Hypermarkets**

In theory, customers purchasing gasoline from a hypermarket would then come inside the store to buy products and the retailer would thus achieve an increase in merchandise and

grocery (in store) sales for each customer (The Emergence of Hypermarket Gasoline Retailing, 2001).

The rise of hypermarkets in the US gasoline market has been made possible by the inaction of federal regulation in the mid-1990s that required refiners to produce gasoline that met uniform environmental standards. According to Kleit (2003) this made the “base” gasoline sold by unbranded firms more competitive, as the gasoline they sold would be comparable to that sold in branded outlets.

Hypermarkets actually promote the refiners’ interests since their sale of low cost gasoline increases the volume of gasoline sold and therefore increases the demand for the refiner’s gasoline. As a result of low retail and marketing margins they therefore offer an extremely efficient method of distributing gasoline.

In 2001 the number of hypermarkets selling gasoline was forecast to grow from 1240 sites in 2000 to 3027 sites in 2002 and 5360 sites in 2005. The overall hypermarket gasoline marketing business is forecast to increase to sales of 11 billion US dollars in 2002 and 22.7 billion in 2005 (The Emergence of Hypermarket Gasoline Retailing, 2001). The same source forecasts gasoline market share to grow 8.1 % in 2002 and 16.1% in 2005.

#### **2.4.1.8 Independent Marketers**

The Society of Independent Gasoline Marketers of America (SIGMA) represents 247 members who undertake a diverse range of activities in the petroleum marketing industry (Osborne, 2004). Unlike integrated refiners, independent marketers must purchase motor fuel on the open market.

Of the member-supplied outlets, 60% are directly operated by members themselves, while 21% are lessee-dealers and another 18% are open-dealer accounts. The remaining 1% consists of commission, consignee, licensee, franchisee, contract, profit sharing, fee manager, joint venture, sub-jobber and non-dealer operators (Osborne, 2004).

#### **2.4.2 Types of Retail Fuel Outlets**

The convenience-store/gasoline combination is the dominant type of outlet (Osborne, 2006). Stations with service bays are now virtually non-existent, while hypermarket gasoline retailing continues to rise. In the sampling population of SIGMA member supplied outlets (Osborne, 2006):

- 69% (74%, 88%) of the retail outlets consisted of a convenience store with gasoline.
- 8% (12%, 9%) of the retail outlets sell gasoline and at most incidentals.
- 7% (8%, 5%) of the retail outlets sell gasoline and have a service bay or car wash.
- 14% (4%, 4%) of the retail outlets are truck stops/travel centres.
- 2% (2%, 2%) of the retail outlets offer gasoline at a supermarket or warehouse club.

2005 and 2004 figures are shown in brackets (Osborne, 2005, 2004).

National Petroleum News gives the following breakdown for share of US gasoline retail in 1998 (Retail Market, 1999):

(A) Stations: 29.3% of outlets, 26.0% of volume, 78 352 gallons/month on average

(B) Pumpers: 45.0% of outlets, 64.1% of volume, 125 635 gallons/month on average

(C) Convenience food stores: 17.9% of outlets, 8.1% of volume, 39 627 gallons/month on average

(D) Others: 7.8% of outlets, 1.8% by volume, 20 657 gallons/month on average

(E) Total: 88 184 average monthly gallonage.

National Petroleum News defines Category (A) “station” as a retail outlet with at least one bay that pumps a volume greater than 20000 US gallons (75708 litres) per month (Retail market, 1999). Category (B) “pumper” is a retail outlet with more than six nozzles and with a volume exceeding 50000 US gallons (189 271 litres) per month. Pumpers may have ancillary services such as convenience stores and car washes. Category (C) “convenience store” is a facility with a retail space of at least 600 square feet, the primary business of which is the sale of food items with one or two pump islands and fewer than six nozzles. Category (D) “others” refers to outlets with gasoline volumes below 20000 US gallons (75708 litres) per month. This facility may or may not have convenience stores or wash bays.

## 2.5 Pricing of Gasoline and Diesel in the United States

The retail prices of gasoline and diesel at the pump includes the cost of delivery of crude oil to the refiners, the cost of refinery processing, marketing and delivery costs, retail outlet costs and taxes. The pump prices also include profits and losses of refiners, marketers, distributors and retailers (A Primer on Gasoline Prices, 2006). Prices therefore fluctuate in response to these factors.

### 2.5.1 The Impact of Crude Oil on US Gasoline Prices

From 2004 to 2005, the price of crude oil increased from US \$50 per barrel on average (composing 53% of the cost of a retail gasoline) to US \$37 per barrel on average (composing 47% of the cost of a retail gasoline) (A Primer on Gasoline Prices, 2006). The fraction of the gasoline retail price that is due to crude oil cost varies over time and among regions. In 2005 the factor that most influenced gasoline prices was the increase in crude oil prices. Crude oil prices rose in 2004 and 2005 due to an increase in global oil demand, which put pressure on supply capacity in the world oil market (A Primer on Gasoline Prices, 2006).

### 2.5.2 Structuring of US Gasoline Prices

According to the Energy Information Administration (A Primer on Gasoline Prices, 2006) taxes (at federal, local and state levels) constitute a significant component of the retail gasoline price, that is, taxes account for approximately 19 % of the cost of a gasoline. A further 19 % is due to refining costs. The combination of distribution, marketing and retail dealer costs and profits constitute 9 percent of the cost. The majority of the gasoline is distributed via pipeline to terminals situated near high consumption areas and then loaded into road tankers for delivery to retail outlets.

According to data published by the Energy Information Administration (A Primer on Gasoline Prices, 2006) the average retail gasoline prices are higher in certain states or regions than others. Aside from the taxes the other factors contributing to regional and local differences are (A Primer on Gasoline Prices, 2006):

- ***Proximity of supply*** – areas that are the furthest away from the Gulf Coast tend to have higher prices.
- ***Supply disruptions*** – from planned or unplanned maintenance at production facilities, natural disasters or disruptions to the product logistic train.
- ***Competition in the local market*** – the lack of competition in remote rural areas contributes to higher prices.

- ***Environmental programs*** – there are some areas in the U.S that are required to use special gasolines that have a carbon monoxide reduction and do not emit any air toxins or smog.
- ***Operating costs*** – this varies from one station to another. Each retail outlet may have a different location, traffic pattern, and supplier which would influence retail gasoline price.

According to Anderson and Johnson (1999), independently operated stations that are supplied directly by the refiner are charged the “dealer tankwagon price”. This price would include delivery to the retail outlet. These prices are also frequently subject to discounts and varying contractual terms. This appears to be in contrast to the prices paid by jobbers for gasoline and diesel. According to Anderson and Johnson (1999), jobbers are charged a posted, fob price that is commonly referred to as the “terminal or rack price”. The rack prices closely follow spot market prices, unlike the dealer tankwagon prices. It is for this reason that the rack price appears to better reflect the opportunity cost of gasoline faced by refiners and dealers, thereby making it a better measure of the wholesale price for computing the retail margin.

### **2.5.3 Zone Pricing**

“Zone pricing” is the practice whereby refiners set uniform wholesale prices and supply branded gasoline directly to their company-operated and franchised dealer stations within a small but distinct geographic area called a “price zone” (Kleit, 2003). The differences in the wholesale prices among the price zones in a particular region *can* reach up to several cents per gallon, though most price differences appear to be much smaller and minimal between neighbouring states. However, despite the limited differential between competing stations, various proposals have been put forward by franchised dealers, jobbers and their organizations to require refiners to offer the same prices on a product to all customers in a geographic area. Each refiner decides the nature of its price zone and the wholesale price to be charged in that zone based on a variety of factors. This would include the competitive conditions in a station’s trading area as well as the physical nature of the zone which is based on the natural and artificial impediments to consumers’ purchases. Such impediments can include a river or a set of hills, congested bridges and highways, and flows of traffic between working centres and residential areas. Other factors in zone



identification include differences in local taxes and different government gasoline specifications. Firms analyse the competitors' prices in the area very carefully when setting up their own zones. The natures of price zones differ from one company to another and in fact from one region to another. It can therefore be deduced that price zones are merely the consequence of different levels of competition in different areas (Kleit, 2003).

Zone pricing has received much criticism from retailers. It appears to be a sore point for retailers as they have little control over their gasoline margins and therefore allow themselves to be manipulated by their oil company partners (Reid, 2002). Critics also argue that zone pricing has a detrimental effect on morale and marketing efforts. In the past, if a dealer needed a thousand dollars he could raise the price by one cent and so obtain the money he required. Today however, it is not possible because this would result in the supply price being raised. Reid (2002) maintains that the only real purpose of zone pricing is to allow oil companies to extract maximum profits from retailers and consumers wherever they see an opportunity.

Kleit (2003) is of the opinion that eliminating price zones could result in some retailers being unable to compete, which in turn could result in the failure of some sites thereby affecting the overall level of competition in the gasoline retailing sector. The evidence clearly indicates that the abolition of zone pricing would raise the consumer price of gasoline rather than lower it. The reason is that eliminating zone pricing would change the focus of competition from many retail outlets to only a few terminal locations. The resultant 'softening' of the competition would most likely generate higher prices for consumers (Kleit, 2003). This information is consistent with a study conducted by Comanor et al., (2003) as cited in Kleit (2003). The study indicated that if zone pricing were to be eliminated in California in 1997 and 1998, retail gasoline prices would have been between 1.8 and 4.6 cents per gallon higher on average. This would have cost California motorists between \$419 million and \$625 million dollars per year in higher gasoline prices.

## **2.6 Marketing Strategies and Business Models in the United States**

### **2.6.1 Marketing Strategy – An Exploration of Mobil’s Marketing Strategy**

Kaplan and Norton (2000) examine the transformation of Mobil’s marketing strategy in the 1990s in order to boost its cash flow by US\$ 1 billion a year. Historically, Mobil had pursued a similar promotional strategy to that of other major oil companies (its rivals); that is, product leadership stressing brand image and unique product characteristics. However, the effectiveness of this strategy was neutralised precisely because of its similarity to its competitors’ strategies.

Price and location were still the chief competitive factors in the industry. Since this is a commodity based industry with high capital costs and high raw material costs, managerial focus was directed at cost reduction and productivity. As competitors also had access to low cost crude, it would therefore not be feasible for Mobil to pursue a cost leadership strategy in the long run. As such they decided to pursue a strategy for growth and differentiation that would attract customers who would:

- Purchase more gasoline than average.
- Buy more premium versus regular-blend products.
- Would pay higher prices for a better buying experience.
- Would purchase products other than gasoline.

Thus Mobil’s financial growth would rely on two components. Firstly, it would rely on increased sales in basic gasoline products, which would need to be faster than the industry average. Furthermore, Mobil wanted a higher percentage of sales to come from premium product grades, which are more profitable. Secondly, the company wanted to increase revenue from non-gasoline products such as convenience store items, and automobile services and products such as car washes, lubricants, and oil changes.

### **2.6.2 Branding in the United States**

According to Reid (2002), the term “branded” has traditionally been associated with the major and to some extent regional “independent” oil companies. Refiners often sell large quantities of gasoline directly from the refinery to distributors or even to other refiners in

spot transactions (Borenstein et al., 1997). Once the gasoline has been shipped to a distribution terminal in a city it may be sold as branded gasoline (with company additives) and at branded “terminal” price. On the other hand it may also be sold as generic gasoline at the terminal without the need to use the refiner’s name. Unbranded refiners i.e. those that are not vertically integrated, will sell unbranded gasoline at their city terminals for resale at unbranded stations. This means that these stations do not carry the name of a major refiner.

Reid (2002) reports that there has been a fundamental change in the attitude of the US gasoline consumer to brand loyalty since the 1950s and 1960s. This is due to several factors. The energy crisis of the 1970s and the resultant price increases forced consumers to become more price conscious. At the same time legislation requiring that price be displayed on the street was enacted. Reid (2002) also reports that the move from full service to self-service also changed consumers’ attitudes to gasoline – it came to be viewed as a commodity product. The transformation of gasoline stations to retail convenience centres also enhanced this view. These factors led to a decrease in major oil company brand loyalty, which has resulted in some dealers and jobbers going proprietary with their own brand or signing up with a marketer-refiner “independent” oil company. That said, brand benefits do come from the oil company’s marketing, promotional and advertising efforts.

The traditional definition of “branded” gasoline is no longer valid considering the entry of major hypermarkets into the gasoline retail business. Companies such as Wal-Mart, Meijer and Albertson’s are major brands that have invested significantly in promotion and brand awareness. The success of hypermarkets in gasoline retail is due not only to their low retail prices but also to the power of their brands in the minds of the consumer (Reid, 2002). Reid (2002) is of the opinion that although gasoline quality is not of paramount importance to the modern consumer, they still look for quality in the retail sites they visit, thus presenting an opportunity for the hypermarkets to level the brand playing field. Quality in retail sites may entail forecourt cleanliness, convenience, location and security.

### **2.6.3 Self-Service and Self-Service Bans in the USA**

In the early 1950s many states imposed self-service bans for safety reasons. With the advent of auto shut-off hoses and emergency shut-off switches, the National Fire

Protection Association removed its recommendation on self-service bans in the 1960s (Ronald and Johnson, 2000). This, together with the introduction of convenience stores, reinforced the desire of larger marketers to implement self-service. The resulting legal challenges meant that by 1977 only New Jersey and Oregon continued to bar self-service.

Vehement objection to self-service came from independent station dealers who felt that they would be run out of business by their suppliers i.e. the major oil companies. Dealers felt that oil companies wished to exploit economies of scale to reduce marketing costs. This meant closing down smaller retail outlets and replacing them with fewer high volume self-service operated outlets.

Based on the SIGMA statistical report of 2004, self-service is the norm in the US gasoline retail industry, with only the states of Oregon and New Jersey still banning self-service. Only 4% of SIGMA member supplied outlets offer a full service. 7% have a split island offering both full service and self-service. 85% of outlets offer self-service. 3% offer a mini service whilst 2% offer cardlock facilities that are unattended.

Johnson and Romeo (2000) report that most states in the United States repealed laws prohibiting customers from pumping their own gasoline in the mid 1970s. The same authors reported that with the removal of self-service bans, many small outlets went out of business. The nature of gasoline retail changed fundamentally. Retail outlets with one pump and a car workshop were made to close down and were replaced with fewer, larger outlets with more pumps and convenience stores attached. Johnson and Romeo (2000) confirm that only the states of New Jersey and Oregon still ban self-service. The authors also report that despite the continuation of these bans, the structure of gasoline retailing in these states still closely resembles that of other states in which self-service is allowed.

## **2.7 Regulatory Environment in the United States**

### **2.7.1 US Sales-Below-Cost Laws and Anti-Trust Laws**

Numerous states have “sales-below-cost” laws (SBC) laws which are often directed at specific products such as gasoline. Potential violations of these laws occur when prices are less than the sellers cost of doing business. The most commonly stated purpose of these laws is to protect small independent firms from predation by larger firms seeking to absorb

their business. Predatory pricing is a form of strategic behaviour whereby a firm initially lowers its price below its own costs to drive rivals out of business and scare off potential entrants. When its competition has been eradicated, the firm then supposedly raises its prices and more than recoups its losses. It was argued by Areeda and Turner (1975) as cited in Anderson and Johnson (1999) that a firm's pricing should be considered predatory only if the price was below short-run marginal costs and below average total costs. The logic behind this is that no firm would ever profitably choose to operate with prices less than marginal costs unless it was motivated by strategic behaviour. Areeda and Turner (1975) went on to suggest the use of average variable cost as a proxy for short-run marginal costs. At the end of 1993, 23 states had some form of general SBC law while 10 had a gasoline specific SBC law.

It has been suggested that state SBC laws differ from federal antitrust law and that gasoline specific SBC laws are likely to operate with more force than their generic counterparts (Anderson and Johnson, 1999). According to the study conducted by Anderson and Johnson (1999) empirical evidence has been gathered on the impact of SBC Laws on the retail gasoline market. The results of this study indicate that SBC laws have resulted in higher retail margins in the gasoline market.

### **2.7.2 Legislation in the USA**

The changing face of gasoline retail in the new millennium has strained one of the industry's primary touchstones, the Petroleum Marketing Practices Act (PMPA). This act has guided the dealer-supplier relationship for many decades and has shielded small businesses from the presumed abuses of suppliers. However, in recent months, court decisions have weakened its coverage and franchise-style contracts have bypassed the protection of the act altogether. Much of the recent upheaval came about as retailers initiated amendments to the PMPA in two key areas: the first would prohibit suppliers from setting maximum prices and the second would allow "first right of refusal" to dealers in the event that a major oil company moves out of a territory and hands supply over to an area jobber (Abcede, 1998).

### **2.7.3 Taxes and Subsidies on US Gasoline**

Motor fuel taxes are collected by federal, state and local governments (Anderson and Johnson, 1999). While the federal tax is uniform, state and local taxes vary. All states impose a per gallon tax. In addition, some states have instituted state sales taxes that apply to some or all motor fuel sales. County and local governments may likewise have sales or per gallon taxes.

The nationwide average tax on gasoline is 43.7 cents per gallon as of July 2004 (Nationwide and State by State Motor Fuel Taxes, 2004) consisting of state and federal taxes, the amounts being 25.3 and 18.4 cents per gallon respectively. Taxes on motor diesel fuel average 49.4 cents per gallon. This is also made up of state and federal taxes, the amounts being 25.0 and 24.4 cents per gallon respectively. Taxes add a significant amount to the price of motor fuel. The nationwide average price of gasoline exclusive of taxes on July 5, 2004 was \$1.50 per gallon and for motor diesel fuel was \$1.23 per gallon.

## **2.8 Supply and Demand of Petrochemical Products in the United States**

### **2.8.1 Gasoline and Diesel Supply in the USA**

In 2003, 185 billion gallons of motor fuel was sold in the USA (Osborne, 2004). Of this SIGMA members sold 32%.

Cook (2001) argues that the large number of gasoline types in the USA (due to regional environmental requirements) adds to the complexity of production, distribution and storage of gasoline for the overall marketplace. Regional gasoline types are produced by individual refineries making specialised products. The result of this has been the formation of gasoline islands (e.g. California and the Chicago/Milwaukee areas) where required gasolines are unique and only a limited number of refineries make these products. When gasoline inventory is decreased due to high demand or supply disruptions then gasoline prices surge in these areas. Cook (2001) notes that even if other gasoline markets are not tight, these price surges may be extended as these specialised fuels cannot be quickly re-supplied.

Refinery maintenance requires that the refinery is shut down for a few days or weeks every few years so that equipment can be inspected, cleaned, maintained and

repaired. During these periods a refiner's ability to produce fuel is reduced. Because of this, most refiners schedule such outages during the first or fourth quarters when gasoline demand is lowest. The Energy Information Administration (2003 California Gasoline Price Study: Preliminary Findings, 2003) report that refineries undergoing maintenance typically arrange in advance for branded gasoline to be supplied to branded sales under contract. Excess volumes that would normally be sold to unbranded marketers may or may not be withheld during this period.

Most of the diesel fuel produced in the USA is produced in the US refineries (A Primer on Diesel on Fuel Prices, 2006). In 2005 a small amount (5%) was imported from Canada and the Virgin Islands. Diesel is produced from crude oil, 65% of which is imported. Most diesel is transported by pipeline from refineries to terminals near major consuming areas. From there it is loaded onto tankers for distribution to retail outlets.

Supply of gasoline to the market may be influenced by demand for crude oil-derived petrochemical co-products such as diesel, heating fuel, paraffin and jet fuel. In the North American spring of 2001 low gasoline inventory levels were the result of refineries focusing on the production of distillates during the previous winter. Furthermore, high natural gas prices undercut the production of key clean gasoline components (Cook, 2001). A similar scenario took place in the winter of 1972 (Patterson and Allvine, 1972).

Cook (2001) also reported that refinery capacity limitations have become a factor affecting the US gasoline market, especially during periods of low inventories. This can cause price surges during periods of high demand an example of which was the summer of 1997.

In 1927 Gibson (1972) reported that about 500 000 barrels per day of gasoline was sold on the spot market. The amount of gasoline available to independent refiners is a direct function of refinery capacity utilisation i.e. operating rates. A three percent shift in capacity utilisation can change product output by nearly 400 000 barrels per day. Thus refinery capacity utilisation can exert a tremendous leverage on fuel prices.

## **2.8.2 Gasoline and Diesel Demand in USA**

In 2002 total gasoline demand in California was 15 billion gallons. This represented 11.2 % of US gasoline demand (2003 California Gasoline Price Study: Preliminary Findings,

2003). Over the preceding 10 years, demand for gasoline increased by 2.1% per year on average. US demand during the same period grew by 1.8% per year.

API reported in 2004 (Refineries, crude oil and product prices, 2004) that demand for petroleum products continues to grow along with the U.S economy. A significant amount of product has to be imported since, even operating at full capacity, US refineries cannot make enough products to satisfy market demand. The US imports 62% of the crude oil and petroleum products it consumes.

According to the Energy Information Administration (A Primer on Gasoline, 2006), gasoline prices rise during summer due to the increased demand and decrease in winter when people drive less. This trend is dependent on stable crude oil prices. The summer demand is on average 5% higher than the remainder of the year. In 2005 this would have equated to an increase of about 10-20 cents from January to the start of summer.

Based on the SIGMA statistical reports of 2004, 2005, and 2006 (Osborne, 2004, 2005, 2006) the amount of motor fuel sold in the USA was 185 (32%), 190 (31%) and 190 (31%) billion gallons per year in 2003, 2004 and 2005 respectively. The figures in brackets are the percentage of this fuel that was sold by SIGMA members. Of the amount of motor fuels sold, diesel comprised 30% in 2003, 29% in 2004, and 30.3% in 2005.

## **2.9 Competition in the United States Gasoline and Diesel Retail Industry**

### **2.9.1 Competition in the US Petroleum Retailing Industry**

According to Kleit (2003), the US petroleum industry is one of the most competitive in the world. Patterson and Allvine (1974) described the nature of competition in the US petroleum industry in the early 1970s. During this period there were basically three types of competitors engaging in rivalry for gasoline buyers. The first category are composed of the so-called “major” oil companies, which meant at the time the seventeen largest oil companies in the world, then among the world’s most financially powerful organisations. These companies are vertically integrated backwards into crude production, transportation, and refining.

The second category of companies are termed “semi-majors” and at the time consisted of a group of about twenty smaller integrated marketers. Due to the often unbalanced nature of their integration, their marketing behaviour is different. It often



parallels that of the third category, the so-called “independent marketers,” who were only partially integrated or non-integrated.

Patterson and Allvine (1974) state that each type of marketer employs a different competitive offering based on the quality and variation of both product and service, location, price level, method of payment, ancillary services, and sales promotions employed.

Patterson and Allvine (1974) believe that competition comes in two types viz. intratype and intertype. Intratype competition would take place between, for example, two major oil companies, while intertype competition may take place between, for example, an independent marketer and a major oil company.

Intertype competition ensures that industries remain strong, efficient, adaptive and innovative to change in markets. In contrast, intratype competition is more constrained. Because of the structural similarities of intratype competitors, one company cannot allow a competitor within the same category to have an advantage for long. New innovations and promotions are quickly matched to avoid losing market share. Price differences are even less tolerable and a price war is often viewed as self-defeating.

Intertype competition, on the other hand, generally emphasises differences in marketing strategy. If one category focuses on low volume full service operations, the other category can be expected to challenge this strategy with high volume, mass merchandising techniques and limited service operations. In the gasoline retail industry, intertype competitions tend to emphasise price. Patterson and Allvine (1974) credit intertype competition with keeping gasoline marketing margins in check.

The growth of intertype competition in the 1960s posed a serious challenge to the major oil companies. The basis of the major brand marketing style was a service bay, neighbourhood-orientated station. As safer dispensing equipment became more available, major oil companies were forced to copy independent marketers in the self-service revolution. The so-called “gas for less” component became a recognised and permanent feature of the gasoline market. Many majors responded by entering the market with secondary brands that focussed on discount pricing, self service and scaled down marketing costs. This resulted in an undermining of the traditional major brand marketing style.

Since the different distribution channels and marketing strategies each have different levels of control by the refiner, together with different levels of investment and associated pricing practice, there is often conflict between the different distribution

channels. There have been calls for elimination of certain of these marketing practices, such as non-price vertical restraints (restraints on where jobbers can sell branded gasoline). There have also been calls to dispense with zone pricing – the practice whereby refiners set uniform wholesale prices and supply branded gasoline directly to company operated and franchised dealers, within a small geographically distinct price zone. Kleit (2003) finds that from a competitive and consumer perspective these calls are misplaced and that these strategies are the result of competition between various forms of distribution and marketing. This promotes efficiency, which means lower prices for consumers. The objective of the refiner is to sell the greatest volume of product possible. This objective may be achieved by reducing the final sales cost of gasoline to the consumer. Thus it is in the best interest of the refiner to have a distribution system that is as efficient as possible and hence results in marketing and distribution costs that are as low as possible. However, in an unregulated industry such as this the price of gasoline at the pump is ultimately determined by market forces of supply and demand. Consequently the lower the retail price of gasoline to the consumer, the more consumers are likely to drive and the higher the demand. At the refinery, the higher the demand for gasoline, the higher the wholesale price at the refinery gate. Thus the refiner benefits from both higher wholesale prices as well as higher demand volumes. *Ceteris paribus* this should result in higher profits for the refiner. Kleit (2003) observes that both integrated and non-integrated refiners therefore desire low distribution costs for gasoline as it increases their profit potential.

### **2.9.2 Non-Price Vertical Restraints**

Refiners allow independent distributors known as “jobbers” to sell branded gasoline in certain areas. Non-price vertical restraints entail restrictions on where jobbers can sell branded gasoline (Kleit, 2003). This means that jobbers are contractually bound by refiners to use only the branded name and sell the refiner’s product within restricted territories.

Refiners sell fuel to their franchised dealers at a higher price than the sale price to jobbers. Thus without these restrictions franchised outlets could get gasoline cheaper from a jobber. According to Kleit, these restraints can have pro-consumer efficiency rationales. Refiners invest in promotional and branding activity for franchised dealers. These investments are recouped through wholesale margins. Jobber outlets traditionally get less

attention and investment, thus creating competitive tensions between these two types of outlets. Jobbers, via their trade group, the Petroleum Marketers Association of America, have called for non-price vertical restraints to be removed to enhance “intra-brand” competition. Kleit (2003) is of the view that this choice should be made solely by the refiner, as the refiner ultimately has the same incentive as the consumer i.e. to minimise the distribution costs of the product.

Such restrictions are referred to as “redlining” by jobbers. Kleit (2003) reports that there are two types of redlining viz. 1) “Territorial”, in which the contract between the parties gives the refiner the right to refuse to approve the jobber’s request to supply branded gasoline in independent stations or to supply its own stations in specific price zones. 2) “Site specific”, in which the contract includes financial disincentives for the jobber to sell in locations directly supplied by the refiner and prevents a jobber from shipping low-priced gasoline to stations located in high-priced zones.

Refiners require these constraints to allow them to recoup investments in dealer-operated stations. This includes developing distribution systems, siting costs, financial support, and responsibility for environmental concerns. Thus these constraints allow the refiner and the franchised dealer to engage in brand investment without the threat of “free-riding” on those brand investments by a jobber.

Kleit is of the view that should these territorial restrictions be prohibited, refiners may be expected either to restrict investment in their brands, or to reduce the number of jobbers used when expanding distribution channels. This alternative may be less efficient resulting in fewer branded sites.

## **2.10 Petrol and Diesel Product in South Africa**

In 2002 the South African Petroleum Industry Association (SAPIA) (SAPIA Annual Report, 2002) stated that there were plans to phase out leaded petrol by 2006 and to have mandatory low sulphur diesel (500 ppm limit) as well. This means that lead will no longer be emitted to the atmosphere from vehicle exhausts. The government also plans to implement new regulations aimed at making further specification changes in liquid fuels to enable more sophisticated engine technology that will result in the lowering of harmful emissions (SAPIA Annual Report, 2003).

In line with other countries like Germany and Australia, which provide tax incentives to producers of clean fuels, SAPIA has called on the government to consider the application of a clean fuels levy locally. The purpose of this levy would be to assist refineries in recouping a portion of their investment, which is needed to modify their refinery processes in order to meet the more environmentally-friendly petrol and diesel specifications that will be mandatory in 2006.

As of January 2006, oil companies may market the unleaded octane grades of 91, 93 and 95 both inland and at the coast. The grades marketed in the different regions will depend on the requirements and market demands in each region (SAPIA Annual Report, 2004).

## **2.11 The Structure of the South African Liquid Fuels Industry**

SAPIA (SAPIA Annual Report, 2002) states that oil companies would be willing to accept limits on the vertical integration of the industry. This would mean that they would not be allowed to operate service stations but would leave it to individual dealers to do so. This is provided that the limitation has the effect of reserving service stations for small and medium enterprises and black economic empowerment. However, the limitation should not be applied in a way that prevents the various arrangements being developed by oil companies with the specific purpose of advancing black economic empowerment.

Also, the ban on self-service at service stations should remain, at least while the government regulation remains in force. However, once the market becomes deregulated, SAPIA (SAPIA Annual Report, 2002) believe that the ban on self-service might not have the desired effects of preserving jobs, since service stations unable to compete by cutting costs might be forced to close down.

SAPIA (SAPIA Annual Report 2002) believe that while the pipeline network remains in the hands of a monopoly service provider, tariffs should be regulated in a manner which ensures equitable treatment, transparency and fair competition between all users, and protects the interests of the consumers.

## 2.12 Pricing of Petrol and Diesel in South Africa

According to SAPIA (SAPIA Annual Report, 2002), petroleum product prices are influenced by the crude oil price and the Rand-Dollar exchange rate. These movements are dealt with via the Monthly Pricing System. This system was based on the daily average of five published international oil prices for the product concerned. These were the posted prices of three refineries in Singapore, the Singapore spot market price and the posted price of a refinery in Bahrain (SAPIA Annual Report, 2002). Shipping costs and other costs related to South Africa were added to these prices. The resultant price in US dollars was converted to South African Rand at the daily Rand-Dollar exchange rate (SAPIA Annual Report, 2002).

Since it would be impractical to adjust pump prices on a daily basis, the average price calculated during the previous month is used as the price for the following month. The price change takes effect on the first Wednesday of each month. Under and over recoveries that result from the timing effects of this method are detailed in the “working rules” (SAPIA Annual Report, 2002). The system is managed by the Central Energy Fund and is subjected to monthly audits. The build up of the retail cost of petrol as controlled by the Monthly Pricing System also includes a refining margin and an industry marketing margin controlled by the government, the “Marketing of Petroleum Activities Return” (MPAR).

The high pump prices have however dampened demand for some petroleum products and sales volumes (notably petrol) have declined in recent years. The two systems that influence industry products are the “Marketing of Petroleum Activities Return” (MPAR) and the “In Bond Landed Cost” (IBLC) system which was replaced with the “Basic Fuel Price” (BFP) system in 2003.

The IBLC was a mechanism that linked South African petroleum products to world markets. According to SAPIA (SAPIA Annual Report, 2002), this system had been in place for a very long time and was continuously being reviewed. The objective was to investigate whether a system more appropriate to today’s increasing complex world markets could be developed. In April 2003, the IBLC was replaced with the Basic Fuel Price (BFP) system (SAPIA Annual Report, 2003). The main difference between the BFP and IBLC is that spot prices are used entirely in place of a mix of spot and posted prices.

According to SAPIA, the spot prices used are: “for petrol, 50% Mediterranean and 50% Singapore, and for diesel and paraffin, 50% Mediterranean and 50% Arabian Gulf” (New Basic Fuel Price Methodology to be implemented, 2003). This new approach allows for the price of different grades of petrol to be adjusted by different amounts when necessary to more closely reflect world market trends (SAPIA explains why our fuel price keeps changing, 2003).

The other elements of the BFP are (Basic Fuel Price Formula, 2003):

- Freight costs from these refining centres to South African ports.
- Demurrage (loading and discharging, waiting time for tankers at ports).
- Insurance and minor shipping costs.
- The allowed value for product loss through evaporation during marine transportation.
- Wharfage (harbour landing charges).
- Coastal storage to cover the cost of providing storage and handling facilities.
- Stock financing.

This makes for a much better linkage to real world market prices and should have saved the South African consumer about R1-billion annually at current values (SAPIA Annual Report, 2003). The BFP is reviewed once a month based on the average over the previous month of the daily internationally quoted prices of petrol, diesel and paraffin.

According to SAPIA (Basic Fuel Price Formula, 2003), the pump price is made up of the following components:

- **Basic fuel price.**
- **Government taxes and levies.**
- **Wholesale margins** i.e. cents per litre gross marketing margin set by an annual oil industry (based on MPAR).
- **Service differential** i.e. the cost of oil company depot operating costs and road delivery expenses.
- **Zone differentials** i.e. cents per litre costs of moving fuels from coastal port/refinery locations to inland distribution centres by pipeline, rail or road.
- **Wholesale price.** These are set each month and are the sum of all price structure elements except the petrol dealer margin.

- **Dealer margin** i.e. cents per litre which service stations are permitted to add to their petrol price.
- **Pump rounding factors** i.e. this ensures that oil companies do not gain or lose by charging wholesale prices in whole cents and so that service stations recover the full dealer margin.
- **Retail price at the pump.**

The marketing margin is controlled by the MPAR system (SAPIA Annual Report, 2002). The formula is based on *income before tax and interest* as a percentage of total assets. Stock profits and losses are excluded and inflation adjustments are made to depreciation calculations. The formula is applied one year behind the current year, so a 2006 margin increase will be motivated by quoting 2005 figures. According to the MPAR system, the government will accept a marketing profit of between 10% and 20% of assets. No increase or decrease is due if the returns are within these limits. An increase is indicated if returns go above 20%, while a decrease is due if the returns go below the 10% limit. Adjustments are made based on setting the new cents per litre marketing margin at 15% for the year under review (SAPIA Annual Report, 2002).

SAPIA (SAPIA Annual Report, 2002 and 2003) has stated that it believes that free market forces should be allowed to set the prices of petrol and diesel. This however is dependent on the meeting of certain social objectives as outlined by the government. Until this is achieved the retail price of petrol as well as the *maximum* wholesale prices of both petrol and diesel will be controlled as per the various regulations. Also, in order to ensure that energy is available to the poor at affordable prices, control over the retail prices of paraffin and liquid petroleum gas (LPG) is under consideration.

## 2.13 Regulatory Environment in South Africa

### 2.13.1 Legislation South Africa

According to the SAPIA Annual Report (2002), the government is currently redrafting the necessary legislation, the Petroleum Products Amendment Act (PPAA) and the Petroleum Pipelines Act (PPA) in order to pave the way for the managed liberalisation of the industry. This will enable the Minister to draft regulations relating to the licensing and control of

aspects of the business of both wholesalers and resellers. The objective of the new legislation is to facilitate the transformation of the South African petroleum and liquid fuels sector as per the current macro political, social and economic policy frameworks (SAPIA Annual Report, 2003). The new Amendment to the Act gives effect to the Liquid Fuels Charter, thereby forming an important part of the drive to transform the South African Liquid Fuels Industry. It also creates a proper licensing dispensation for petroleum product manufacturers, wholesalers and retailers.

The Petroleum Pipeline Act (PPA) provides the framework for establishing an independent Petroleum Pipelines regulator, whose many tasks will include the need to prescribe and oversee tariffs in a fair and transparent manner, with a specific emphasis on avoiding any monopolistic or potentially unfair commercial arrangements (SAPIA Annual Report, 2003).

There has also been progress towards promoting renewable sources of energy (SAPIA Annual Report, 2002). A draft White Paper on the Promotion of Renewable Energy and Clean Energy Development was published for comment in June 2002. The government's target is to increase renewable energy's share of final energy consumption to 14% by 2012. Other issues facing the industry include the new Competitions Act which influences the way the industry is regulated.

According to SAPIA (SAPIA Annual Report, 2004) there have been material amendments made to the PPAA in the last year, and both the Petroleum Pipelines and Energy Regulator Acts have been passed.

### **2.13.2 Deregulation/Liberalisation in South Africa**

SAPIA (SAPIA Annual Report, 2002) stated that during the current, radical review of regulatory mechanisms, a careful balance of conflicting policy objectives was required. For instance, while it was essential that fuel prices were kept as low as possible, it was also essential that there were fair returns on investment. The needs of black economic empowerment and of saving jobs also had to also be considered as they were important priorities.

SAPIA (SAPIA Annual Report, 2002) believe that all parties should seek to maintain as stable a business environment as possible during the period of transition to a less regulated industry. SAPIA supports the approach of adapting some of the regulatory



mechanisms governing the liquid fuels industry in order to further the government's social policy objectives, prior to moving into an environment of diminished government regulation, while also fostering a climate of certainty and fair returns for investments. SAPIA also supports efforts to attain the 25% empowerment target that is highlighted in the Charter. Lastly, SAPIA (SAPIA Annual Report, 2002) believe that the continued existence and growth of the local refining and synfuels production activities coincide with national interests i.e. government and industry have to seek mutual ways to meet various challenges.

### **2.13.3 Fuel Tax in South Africa**

According to SAPIA (SAPIA Annual Report, 2002), taxes derived from the sale of liquid fuels are a major source of government revenue in many countries of the world. During the 2000/2001 financial year, fuel taxes brought in more than R16.5 billion in revenue (SAPIA Annual Report, 2002). In 2002/2003, approximately R16 billion was collected as a result of the fuel levy.

As per the SAPIA Annual Report (2002), in 1988 a tax on petrol (3.6 cents per litre) and diesel (2.1 cents per litre) was introduced to replace the third party motor vehicle insurance scheme. This tax is directed to the Road Accident Fund (RAF) which is administered by the Department of Transport. According to SAPIA (SAPIA Annual Report 2002), the present gross RAF Levy collections are some R3.1 billion per annum. The current levy amount is 18.5 cents per litre on both petrol and diesel prices. Certain off-road users of diesel have been entitled to a rebate of this levy as of 2001.

In 1996 unleaded petrol was introduced to South Africa. The fuel levy on unleaded petrol was reduced in order to promote the use of unleaded petrol which is more environmentally friendly (SAPIA Annual Report, 2002). In 2000 South African Revenue Services (SARS) introduced legislation to curb the evasion of diesel taxes. This illegal practice entailed the mixing of tax-free illuminating paraffin into diesel by some distributors. The legislation requires that refiners add a chemical marker to paraffin thus enabling SARS to detect diesel product containing paraffin (SAPIA Annual Report, 2002).

In 2001 tax concessions for certain diesel fuel users were re-introduced via a refund procedure integrated with the VAT system. This concession resulted in a loss of

approximately R310 million per annum to the Road Accident Fund and R420 million per annum to the fiscus for the fiscal year 2002/2003 (SAPIA Annual Report, 2002).

In order to encourage the production and usage of bio-fuels (plant-derived liquid fuels), a fuel tax dispensation and related concession was introduced in 2002 (SAPIA Annual Report, 2002). In 2003, a more favourable tax regime for bio-fuels was considered. In addition, ethanol which is produced from sugarcane and other plant sources was also considered as an alternative to petrol (SAPIA Annual Report, 2003).

The total annual amount of fuel taxes collected on petrol, diesel and paraffin as of June 2005 were R16.91 billion, R11.00 billion and nil respectively. This amounted to R27.91 billion in total for 2005 (SAPIA Annual Report, 2005).

#### **2.13.4 Rationalisation of Retail in South Africa**

SAPIA (SAPIA Annual Report, 2003) state that the industry needs to give special attention to the overtraded retail sector. South African retail outlets pump around 12 billion litres of petrol and diesel annually. However, of the 4800 established retail outlets SAPIA estimates that not more than 3800 sites are needed to pump the required volumes on a more competitive basis (SAPIA Annual Report, 2003). In order to promote the long term competitiveness of the retail petroleum sector, SAPIA recommends that the retail industry and the Petroleum Regulator take practical steps to reduce the number of marginal sites in an orderly manner thus promoting economies of scale. There are two main objectives viz. (i) to lower retail margins to the benefit of consumers, and (ii) to enable higher sales volumes in the retail sector thus ensuring better profits and sustainability.

#### **2.13.5 Clean Fuel Incentives in South Africa**

In line with practices in other countries, including Germany and Australia, which provide incentives to producers of clean fuels, SAPIA (SAPIA Annual Report, 2004) has called on the government to evaluate and consider the application of a clean fuels incentive locally. The purpose of such an incentive would be to assist refiners in recouping a portion of the multi-billion rand investments needed to modify their refinery processes, in order to meet the more environmentally friendly petrol and diesel specifications that have become mandatory in 2006.

### **2.13.6 Sasol Main Supply Agreement**

The Sasol Main Supply and Blue Pump agreements expired on December 31, 2003 and have been replaced by individual commercial wholesale supply agreements between Sasol and individual oil companies operating in South Africa (SAPIA Annual Report, 2003).

## **2.14 Supply and Demand of Petrochemical Products in South Africa**

### **2.14.1 Demand for Petroleum Products (RSA Sales)**

- In the year 2002, as compared to 2001, petrol sales were static. Diesel sales grew by 5.2%. The overall total grew by 1.4% (SAPIA Annual Report, 2002).
- The year 2003 showed a welcome increase in sales of the main products (SAPIA Annual Report, 2003).
- In 2004, all products other than jet fuel showed growth over 2003. The combined growth was 3.6% (SAPIA Annual Report, 2004).
- In 2005, all the major products showed growth over 2004. The combined growth of all products over 2004 was 2.7% (SAPIA Annual Report, 2005).

### **2.14.2 Petroleum Product Supply in South Africa**

In 2003 the total capacity of South African Refineries was 708 000 barrels/day as compared to the 2002 capacity of 698 000 barrels/day (SAPIA Annual Report, 2004). SAPIA (SAPIA Annual Report, 2005) shows that the total refining capacity has not increased over the last two years.

## **2.15 Marketing Channels**

A “marketing channel” is a set of interdependent organisations involved in the process of making a product or service available for use or consumption (Kotler, 2000). A marketing

channel performs the work of moving goods from producers to consumers. Members of the marketing channel perform a number of functions, such as (Kotler, 2000):

- Gathering information about potential and current customers, competitors and other forces in the marketing environment.
- Developing and circulating persuasive communications to stimulate purchasing.
- Reaching an agreement on price and other terms so that transfer of ownership or possession can be affected.
- Placing of orders with manufacturers.
- Acquisition of funds to finance inventories at different levels in the marketing channel.
- Assumption of risks connected with carrying out channel work.
- Making provision for the successive storage and movement of physical products.
- Overseeing the actual transfer of ownership from one organisation or person to another.

A channel can be made up of a number of levels. For instance, a “zero-level” channel consists of a manufacturer selling directly to the final customer. Examples of this are door-to-door sales, mail order and telemarketing. On the other hand, a “one-level” channel contains one selling intermediary, such as a retailer. An example of this would be a wholesaler and a retailer. Lastly, a “third-level channel” contains two intermediaries (Kotler, 2000).

After a company has defined its target market and desired positioning, it should then identify its channel alternatives. A channel alternative is described by three elements: the types of available business intermediaries, the number of intermediaries needed and the terms and responsibilities of each channel member. Each channel alternative must be evaluated against economic, control, and adaptive criteria (Kotler, 2000):

- **Economic criteria-** Each alternative will produce a different level of sales and costs. The first step is to determine whether a company sales force or a sales agency will produce more sales. The next step is to estimate the costs of selling different volumes through each channel. The final step would be a comparison of sales and costs.
- **Control criteria-** According to Kotler (2000), using a sales agency can pose a control problem as a sales agency is an independent firm seeking to maximise its own profits.

- **Adaptive criteria-** In order to develop a channel, members must make some degree of commitment to each other for a specified period of time.

One of the most significant recent channel developments is the rise of vertical marketing systems. A “conventional marketing channel” comprises an independent producer, wholesaler(s) and retailer(s). A “vertical marketing system” (VMS) by contrast, comprises the producer, wholesaler(s), and retailers acting as a unified system. One channel member known as the “channel captain” owns the others or franchises them or is powerful enough that they all cooperate. The channel captain can be the producer, wholesaler or retailer.

There are three types of VMS (Kotler, 2000):

- **Corporate VMS** – this combines successive stages of production and distribution under single ownership.
- **Administered VMS** – coordinates successive stages of production and distribution through the size and power of one of the members.
- **Contractual VMS** – consists of independent firms at different levels of production and distribution integrating their programs on a contractual basis to obtain more economies or sales impact than they could achieve alone. This VMS is made up of three types:
  - **Wholesaler-sponsored voluntary chains:** Wholesalers organise voluntary chains of independent retailers to help them compete with large chain organisations.
  - **Retailer cooperatives:** Retailers take the initiative and organise a new business entity to undertake wholesaling and possibly some production.
  - **Franchise organisations:** A channel member called a franchisor might link several successive stages in the production-distribution process.

## 2.16 Strategy Development

Professor Michael Porter quoted in Lynch (2000) argues that there are three basic strategies open to any business:

1. **Cost leadership**
2. **Differentiation**
3. **Focus**

According to this theory, every business needs to choose one of these in order to compete in the market place. Porter explains these options by considering two aspects of the competitive environment.

**1. The source of competitive advantage** – Porter argues that there are only two sources of competitive advantage: the differentiation of products from competitors and low costs.

**2. The competitive scope of the target customers** – A broad target covers most of the market place, whilst a narrow target focuses on a particular niche.

Porter (1985) quoted in Lynch 2000 produced the following figure for generic strategic options:

		Competitive Advantage	
		Lower Cost	Differentiation
Competitive Scope	Broad target	Cost Leadership	Differentiation
	Narrow target	Cost Focus	Differentiation Focus

The low cost leader gains competitive advantage by maintaining the lowest costs in the industry. Typically the product is a standard, ‘no-frills’ product, where industry position is attained by shaving costs of every element in the value chain. Low cost leadership does not necessarily entail a low price (Lynch, 2000). Differentiation occurs when the products of an organisation meet the needs of some customers in the market place better than others. The underlying differentiation is the concept of market segmentation. In order to achieve differentiation, Porter argues that it is necessary to incur extra costs (Lynch, 2000). A focus strategy is achieved when a company focuses on a specific niche in the market place and develops its competitive advantage by offering products developed especially for that niche.

2.17 Research Questions

Based on literature reviews the following research questions have been identified:

1. What are the challenges and changes in the business environment that Sasol could face in the case of a deregulation of the liquid fuels industry in South Africa?

2. What are the fundamental differences and similarities between the South African industry and the US industry?
3. Which aspects may be implemented in a deregulated South African industry?
4. What marketing and distribution strategy should Sasol use in light of the loss of the Main Supply Agreement, and the potential deregulation of the liquid fuels industry?

## 2.18 Conclusion

The literature survey has covered theory on business and industry environmental analysis, as well as the frameworks for competitive analysis of the business environment. This includes Lynch's Eight Step Method (Lynch, 2000) as well as the Seven Questions Method proposed by Thompson and Strickland (2001). Within these broad frameworks for industry analysis, other techniques are covered that focus on particular aspects of the industry. These include PEST analysis, scenario analysis, industry life cycle analysis, key success factors analysis, Porter's Five Forces, the Four Links model, strategic group mapping, and competitor profiling.

The nature of gasoline and diesel product in the United States of America has been explored. This includes specifications with regard to composition, grades available and environmental specifications of both products.

The structure of the US gasoline retail distribution system has been investigated. The main distribution channels have been identified, namely, "direct supply" (entailing company operated and company franchised outlets); "jobber distributed" (operated, franchised and independent); and "hypermarkets" (via spot sales and contracts). The market share of each channel has also been described.

A "distributor" commonly referred to in the industry as a "jobber" is an independent operator who owns and operates a number of retail outlets, or may even have franchisees operating certain of those outlets. Typically a jobber has a contractual agreement to display a particular refiner's brand and to sell gasoline from that refinery. A jobber may also supply gasoline to independently owned and operated outlets, which may be branded or unbranded. The jobber is responsible for developing local facilities and for local promotions. The jobber would have the advantage of knowledge of local conditions and may thus be better able to perform these tasks.

There is a significant amount of vertical integration in the US industry. An integrated refinery is one that has company-owned or franchised retail outlets. These account for 78% of all refineries in the United States.

Integrated refiners may use either “lessee-dealer” contracts or “open-dealer” contracts to manage the relationship with their branded retail outlets. The nature and stipulations of these contracts have been discussed.

Hypermarkets are non-traditional retail outlets that specialise in selling high volumes of gasoline at prices near the wholesale price (Kleit, 2003). Their strategy is to attract new customers to their stores by using low gasoline prices as a promotional tool.

The types of retail fuel outlets present in the United States have been explored. The type of outlet is dependent on the nature of the service offering to the customer and the ancillary services, products and stores available at the outlet.

The pricing of gasoline and diesel in the United States has been investigated. This includes influences on the gasoline price, a breakdown of the price structuring, and the impact of the crude oil price. The use of “zone pricing” by integrated refiners to control the retail price of gasoline in a particular geographic location has been discussed and the opposition to zone pricing from retailers and jobbers has also been covered.

The marketing strategy used by a major US oil refiner has been detailed. The importance and influence of “branding” (or lack thereof) in the gasoline retail sector was also covered. During the past few years with the advent of more uniform gasoline specifications and self-service, price has come to supersede branding power as a major marketing influence. Based on statistics from the Society of Independent Gasoline Marketers of America self-service is the norm in the USA. 85% of their members offer self-service.

The regulatory environment in the USA has been explored including sales-below-cost laws, taxes and subsidies on gasoline. Supply and demand for petrochemical products in the United States has been covered. In the year 2003, 185 billion gallons of motor fuel was sold in the country. Of this approximately 31% was diesel while the remainder was gasoline.

The US petroleum industry is one of the most competitive in the world. The types of competitors in the industry have been identified. These include intertype and intratype competitors. The use of non-price vertical restraints by refiners to protect their investments in marketing and branding of their own franchises has been discussed.



The nature of petrol and diesel product in South Africa was also explored. This included grades of petrol and required specifications of fuel products. The limitations on vertical integration that may be imposed on the industry in South Africa as well as the continuation of the self-service ban have been discussed. The applicability of these limitations will have to be reviewed if the industry is deregulated.

Pricing of petrol in South Africa has been explored including the pricing mechanism and the internal and external influences on the price. The Marketing of Petroleum Activities Return (MPAR) and the Basic Fuel Price (BFP) are two key components of the South African petrol price.

The regulatory environment in South Africa has been discussed including proposed amendments to the Petroleum Pipeline Act and the proposed deregulation of the industry. The taxes levied on South African fuel have been explored. The supply and demand of petroleum products in South Africa have been covered. The demand for petroleum products grew by 2.7% in 2004.

The theory of marketing channels has been explored. This covers the functions of a marketing channel, as well as the levels of a marketing channel and the criteria used to evaluate them.

The chapter also covers a short description of generic strategy choices as proposed by Professor Michal Porter, namely cost leadership, differentiation, and focus. Research questions that need to be answered have also been identified.

The literature review has entailed a broad overview of the theories of industry environmental analysis, the US Liquid Fuels Industry, the South African Liquid Fuels Industry, as well as theory on marketing channels and generic strategies. The secondary information collected in the literature review together with the primary data collected from the research study will serve as a basis for the analysis to be performed in the following chapters.

### 3.1 Introduction on Research Methodology

In the previous chapter a review of literature was conducted on the United States and South African liquid fuels industries, and on the theories of business and industry environmental analysis. The following research questions have been identified: (1) What are the challenges and changes in the business environment that Sasol could face in the case of a deregulation of the liquid fuels industry in South Africa? (2) What are the fundamental differences and similarities between the South African industry and the US industry? (3) Which aspects may be implemented in a deregulated South African industry? (4) What marketing and distribution strategy should Sasol use in light of the dissolution of the Main Supply Agreement and the future deregulation of the liquid fuels industry? In this chapter a methodology for collecting data to answer these questions will be developed.

### 3.2 Types of Data

This study made use of both qualitative and quantitative data collected in accordance with the Delphi Technique, as well as secondary data retrieved from the literature review.

#### 3.2.1 Qualitative and Quantitative Data

Research methods refer to the systematic, focused and orderly collection of data for the purpose of obtaining information to solve/answer our research questions or problems. Methods, however, are different from techniques of data collection. According to Ghauri et al., (1995), “methods” refer to data collection through historical review and analysis, surveys, field experiments and case studies; while “techniques” refer to the step by step procedures that are followed in gathering data and their analysis in order to obtain answers to research questions.

The main difference between qualitative and quantitative research is not ‘quality’ but procedure (Ghauri et al., 1995). In qualitative research, findings are derived by statistical

methods or other procedures of quantification. Qualitative research is a mixture of the rational, explorative and intuitive, where the skills and experience of the researcher play an important role in the analysis of data.

According to van Maanen (1983), as cited in Ghauri et al., (1995), the skills needed to do qualitative research are: thinking abstractly, stepping back and critically analyzing situations, recognizing and avoiding biases, obtaining valid and reliable information, having theoretical and social sensitivity and the ability to keep analytical distance while at the same time utilizing past experience, as well as a shrewd sense of observation and interaction.

Quantitative research involves the collection and analysis of data in numerical form. A researcher typically conducts a quantitative research project in order to test the existence of relationships between variables of interest, or make inferences about the quantity of specific attributes in a population, based on measurements derived from a sample (Lubbe and Klopper, 2005).

Quantitative approaches include surveys, questionnaires and interviews. According to Rudestam and Newton (2001), questionnaires are not the only valid type of data collection instrument. Behavioral observations, extended interviews and archival data all constitute valid sources of data for dissertation research. However, the sources of this information as well as the checks for reliability and validity of the information must be considered.

**Table 3.1: The Difference in Emphasis in Qualitative versus Quantitative Methods.**

Qualitative Methods	Quantitative Methods
- Emphasis on understanding.	- Emphasis on testing and verification.
- Focus on understanding from a respondent's point of view.	- Focus on facts and/or reasons of social events.
- Interpretation and rational approach.	- Logical and critical approach.
-Observations and measurements in natural settings.	- Controlled measurement.
- Subjective 'insider view' and closeness to data.	- Objective 'outsider view' distant from data.
- Explorative orientation.	- Hypothetical-deductive, focuses on hypothesis testing.
- Process orientated.	- Result orientated.
- Holistic perspective.	- Particularistic and analytical.
- Generalization by comparison of properties and contexts of individuals.	- Generalization by population membership.

**Source:** Reichardt and Cook (1979) as cited in Ghauri et al., (1995)

There are three major components of qualitative research (Strauss and Corbin, 1990, as cited in Ghauri et al., 1995):

1. Data – often collected through interviews and observations.
2. Interpretive or analytical procedure – the techniques that conceptualize and analyze the data to arrive at findings or theories.
3. Report – this may be written or verbal.

**3.2.2 Primary and Secondary Data**

Data sources are the carriers of data (information). A distinction can be made between secondary and primary data sources. Secondary data refers to information collected by others for purposes which may be different from the research focus. Primary data refers to original data that is collected specifically for the research problem at hand (Ghauri et al., 1995).

It has been stated by Ghauri et al., (1995), that students underestimate the amount of data available from secondary sources. They suggest that students begin by looking for

secondary sources relevant to the research problem before actually going out to collect data. Sources of secondary information include: central and local government studies and reports, studies and reports of various institutions and departments, academic/organizational journals and newsletters relevant to the problem area, historical studies, textbooks and other relevant published material, and lastly theses and reports written by other students at other universities.

One advantage of using secondary data is the enormous saving in time and money. Another advantage is that secondary data can suggest suitable methods or data to handle a particular research problem. Moreover, it provides a comparison instrument which one can use to interpret and understand one's primary data. As put by Churchill (1987) as cited in Ghauri et al., (1995), *"Do not bypass secondary data. Begin with secondary data, and only when the secondary data are exhausted or show diminishing returns, then proceed to primary data"*.

However, one of the main problems with regard to secondary data is that they are collected for a study with different objectives and may not completely encompass the current research focus. Furthermore, it is the responsibility of the researcher to ensure that the data are accurate; this implies that inaccuracies cannot be blamed on the secondary source. It is therefore important to check the original source of data (Ghauri et al., 1995).

When secondary data are not available or are unable to help one answer one's research questions, then data that are relevant for the research study must be actively collected. This is called primary data. Normally this includes observations, surveys (questionnaires) and interviews. Primary sources offer an inside view of a particular event or time period (Lubbe and Klopper, 2005).

### 3.3 The Delphi Technique

#### 3.3.1 Background

The Delphi technique is a method for the systematic collection and aggregation of informed judgments from a group of experts on specific issues or questions. Repeat rounds of this process can be carried out until full consensus is reached (Williams and Webb, 1993). The basic idea is that, *“if the opinion of one expert on an uncertain point is useful, then the opinion of many experts when boiled down into a single group opinion should be even better”* (Gautschi, 1990).

The name originated from the oracle at Delphi, where the ancient Greeks were said to consult priests or priestesses who were able to forecast future events. Over the years, the Delphi technique has developed into a more established method and has been increasingly used in mainstream research in recent years. According to Kennedy (2004), Delphi can be viewed as a constructive effort in building knowledge by all who share in the process. Delphi has been used extensively in many scientific disciplines to identify priorities and essential elements in the area of enquiry (Kennedy, 2004). Essentially the technique consists of questioning a panel of experts on specific questions or issues. Information concerning the issue is posted individually to each expert who then responds to the researcher. This process is anonymous and confidential. The individual responses of the panel are scrutinized and collated by the researcher, who then compiles a comprehensive list of questions for re-submission to the panel. At this stage, the experts are asked to reconsider the list and respond by post again, indicating their agreement or disagreement with items. The replies are collated once more and the process repeated until consensus is reached (Williams and Webb, 1993).

Although the first round of questions should ideally be completely unstructured and open-ended, this usually results in a reduction of the possible number of iterations necessary to achieve a consensus or stability, since respondents become quite fatigued. A compromise is therefore suggested, where qualitative data from personal interviews (either face to face or telephonically) should be combined with several open ended questions on the initial round. This would allow more iteration of the same predictions to establish a consensus. The initial personal contact with the panel member should also increase the respondent's commitment to the Delphi research study. Furthermore, the results of the

open ended questions will be fed back into subsequent rounds which provide new information on each iteration and thus stimulate interest (Mitchell, 1991).

According to Johnson as cited in Mitchell (1991), “*an ideal Delphi was about 25 questions*” whereas Estes and Kuespert as cited in Mitchell (1991), argue that “*to ask a respondent more than twenty questions may hurt the study in two ways. Either he does not have the time to do each question justice or he does not complete and return the questionnaire on time*”. The guiding rule for business-people however, is brevity i.e. not more than thirty minutes in total. With regard to the appropriate number of Delphi rounds, Mitchell (1991) stated that most changes in Delphi response occur in the first two rounds. Other researchers have also reported that not much is gained in conventional Delphi by iterating more than twice. Thus, there is a move away from multi-round Delphi towards a view that two rounds are sufficient.

Linstone and Turoff (1975) as cited in Clayton (1997), point out that there are three types of Delphi studies: conventional, real-time and policy. In conventional Delphi, a team designs a questionnaire which is sent to a larger respondent group. After the questionnaire is returned, the monitor team summarizes the results and based upon them, develops a new questionnaire for the respondent group. The respondent group is usually given one opportunity to re-evaluate its original answers based upon examination of the group response. Real-time Delphi differs from conventional Delphi in that, rather than taking weeks to conduct the process, it occurs during the course of a meeting or conference. And lastly, in policy Delphi, the decision-maker is not focused so much on having a group generate his decision, but rather on having an informed group present all the options and supporting evidence for his/her consideration. The policy Delphi is not a mechanism commonly used for making decisions, as generating a consensus is not the prime objective (Clayton, 1997).

### **3.3.2 Strengths of the Technique**

The Delphi method has a flexibility which allows considerable diversity in its application. It has several advantages, mainly related to the fact that it provides consensus of expert opinion, without the bias which can readily occur through group interaction via comparable techniques like committee meetings or group discussions. In the latter, panel members can be intimidated or inhibited from expressing their views because stronger individuals can

dominate the group. As Beech (1991) as cited in Williams and Webb (1993) stated: *“the process is one which avoids the destructive group dynamics that would have accompanied other techniques. The individuals function as a nominal group, but need not ever meet each other”*.

Therefore, the Delphi method encourages honest opinion which is free from peer group pressure. Moreover, because successive rounds of information reach each panel member, views can be retracted, altered or added. Also, the Delphi technique allows the participation of larger groups of people that can be brought together for meetings and because it canvasses opinion by post, it is relatively cheap to undertake.

According to Linstone as cited in Mitchell (1991), there are two kinds of circumstances where Delphi techniques are most appropriate. The first is *“where the problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis”*. The second is *“where individuals who need to interact cannot be brought together in a face-to-face exchange because of time or cost constraints”*.

### **3.3.3 Limitations of the Technique**

Many of the limitations are related to the “scientific credibility” of the Delphi method. First, there appears to be no agreement regarding the size of the panel or any recommendations concerning sampling techniques. With regard to the composition of the panel, very few studies have specified criteria by which panel members were selected. Second, there is no evidence to prove that the Delphi method is reliable. For example, if exactly the same information was given to two or more panels who had been carefully selected using the same criteria, would the same results be achieved? Further criticisms maintain that the Delphi method is time consuming and it is suggested that there may be bias introduced by the researcher in the interpretation of the findings (Williams and Webb, 1993).

Another major disadvantage is its potential for imprecise execution. That is, Delphi studies relying on traditional mailing systems require relatively long periods of time to construct questionnaires and collect panel members’ opinions. In addition, during the course of execution, some members may not complete or return the questionnaires for each round, and valuable member contribution is therefore lost (Chou, 2002). This limitation makes the results less generalisable.



### **3.3.4 Consensus**

It seems that many researchers do not attempt to set a level of consensus prior to the enquiry. Instead, a decision is made after the data have been analyzed. This means that the concept of consensus is arbitrary and the definition of a high level of consensus is unilaterally decided upon by the researcher. Therefore, when using an empirical approach to consensus, it would seem appropriate to introduce inclusion criteria when selecting the panel. In addition, the attrition rate should be carefully monitored to ensure that the range of expert opinion is adequately represented in successive rounds (Williams and Webb, 2003).

## **3.4 Interviews**

In research, two main types of interview are employed. The first is “survey research interviews”, where a standard format of interview is used with an emphasis on fixed response categories, and systematic sampling and loading procedures combined with quantitative measures and statistical methods. The second type is “unstructured interviews”, where the respondent is given almost full liberty to discuss reactions, opinions and behaviour on a particular issue. The interviewer’s role is merely to provide leading questions and to record the responses. The questions and answers are unstructured and are not systematically coded beforehand (Ghauri et al., 1995).

There is also another type of interviewing called “semi-structured interviews”. Here, topics and issues to be covered, sample size, people to be interviewed, and questions to be asked are determined beforehand. They also differ by the way in which bias is minimised. In semi-structured interviews, bias is handled by careful design of the technique so as to avoid bias arising from the sequence in which we address subject matter, from any inadvertent omission of questions, from unrepresentative sampling and from an uncontrolled over-or-under- representation of subgroups among respondents. Semi-structured and unstructured interviews differ from structured interviews in that they demand greater skills from the interviewer. Also, in semi-structured and unstructured interviews, sensitive information is often obtained about personnel, attitudinal and value-laden material (Ghauri et al., 1995).

Interviews can either be short or very in-depth. The advantage of the latter is that it allows a more accurate and clear picture of the respondent’s position or behaviour. This

method of data collection is highly suitable for exploratory and inductive types of study as it matches very well with the purpose of these studies. However, the disadvantage is that in-depth interviews demand a skilled and cautious interviewer. The interviewer must have a complete understanding of the research problem, its purpose and what information is being sought. The course of the interview is decided by the skills of the interviewer when asking questions and probing further with supplementary questions.

### **3.4.1 Interview Preparation**

The first step in preparing for an interview is analysis of the research problem. Secondly, one needs to understand what information is required from an interviewee. Finally, it is necessary to determine which subjects can best provide the information required. An interview guide or questions should then be drafted and tested in the form of a pilot study. Based on the responses generated from the pilot study, a final draft can then be prepared.

Attention must also be given to the approach one plans to use i.e. method of initial contact and means of recording information. It is also important that respondents are properly informed with regards to the recording of information and confidentiality (Ghauri et al., 1995).

### **3.4.2 The Interview**

The introduction to the interview should describe the study and its purpose and more importantly, orient the respondents. The interviewer should be able to answer all questions posed to him. An interviewer should make use of simple, clear and understandable language when communicating with the respondents. Time management is also important as the interviewee has only allocated a certain amount of time for the interview session. It is also advisable to be tactful, particularly when posing sensitive questions (Ghauri et al., 1995).

## **3.5 Data Collection Method**

Based on the research questions posed, it has been decided to use two different techniques for data collection in this study, namely, (i) the Delphi technique for primary data

collection and (ii) secondary data collection derived from a review of the literature. Based on the literature review there is insufficient published information on the South African industry to draw meaningful conclusions with regard to the research questions. For this reason it was decided to collect the necessary primary data using a series of semi-structured interviews with key marketing personnel in the South African Liquid Fuels Industry, using the Delphi Technique. A copy of the interview questionnaire may be found in Appendix 2. Please refer to Table 3.2 for the research questionnaire development.

**3.5.1 Research Question 1.** *What are the challenges and changes in the business environment that Sasol could face in the case of a deregulation of the liquid fuels industry in South Africa?*

In order to collect primary data on the South African Liquid Fuels Industry a Delphi study was conducted among a panel of six industry experts. The expert panel consisted of the following five individuals from a major South African oil company (Sasol), namely the Manager of Brands and Communication, the National Sales Manager, a Specialist Business Analyst, the National Convenience Manager and the Manager of Strategic Planning. The sixth member of the panel was the Director of the South African Petroleum Industry Association (SAPIA). Each individual had more than seven years of industry experience. The total combined length of industry experience of the panel members was 110 years at an arithmetic average of 18 years of experience. The criteria to qualify industry expertise were the following: firstly, more than five years experience in the marketing sector of the South African Liquid Fuels Industry, and secondly, a current position as a high level manager, director or executive in a major South African oil company or industry association.

The Delphi technique requires the establishment of consensus among a panel of experts. In the first round data was collected using semi-structured interviews and the questionnaire in Appendix 2. The questionnaire contains structured questions requiring rating on a Likert Scale as well as open-ended questions. Statistical measures of central tendency and statistical measures of dispersion were used to identify consensus among the panellists. The theoretical background is found in Section 3.6. Once the first round had been completed, the Delphi technique requires that a second round of data collection is done in order to address issues of discord and lack of consensus. This was done via e-mail and telephonic interviews where necessary. The results of the first round were shown to each panellist together with the median (representing central tendency) and standard

deviation (representing dispersion). The score that the panellist had given on the first round was also clearly indicated. As per the Delphi technique requirement, panellists were given the opportunity to revise their answers. Where a particular expert expressed a view that was significantly different from the rest of the panel, a so-called “extreme” opinion, the reasons for the dissenting view were recorded.

#### **3.5.1.1 Rating Scales to Collect Quantitative Data – Likert Scale**

Scaled questions consist of statements or questions followed by rating scale where respondents indicate the degree to which they agree/disagree with the item. Scaled questions are useful for measuring attitudes as they can capture subtle gradations of opinions and perceptions. There are a number of different kinds of rating scale formats, of which the Likert Scale format is the most commonly used (Durrheim, 2000). This research study made use of a five point Likert Scale, based on each question.

**3.5.2 Research Question 2.** *What are the fundamental differences and similarities between the South African industry and the US industry?* Research question 2 pertains to the industry environment in the USA. In this case, the literature review has revealed that there is a wealth of information available in annual reports, published papers, journals and government reports on the United States Liquid Fuels Industry. It will therefore be possible to extract the secondary data in these reports for use during the analysis. The comparative analysis is carried out as per the steps outlined in Section 3.7, which includes tools such as PEST analysis and Porter’s Five Forces.

**3.5.3 Research Question 3.** *Which aspects may be implemented in a deregulated South African industry?* In Chapter 5, research question 3 will be answered based on the outcome of the analysis carried out on data from research questions 1 and 2, in a qualitative analysis.

**3.5.4 Research Question 4.** *What marketing and distribution strategy should Sasol use in light of the lack of a Main Supply Agreement and the potential deregulation of the liquid fuels industry?* Similarly in Chapter 5, the marketing and distribution framework required by question 4 will be based on the answers to research questions 1, 2 and 3.

**Table 3.2 Research Questionnaire Development**

Research Question	Survey Questions	Variable(s) and/or Relationships measured	Question Type	Statistical Test
1) What are the challenges and changes in the business environment that Sasol could face in the case of a deregulation of the liquid fuels industry in South Africa?	1.1 The future of the distribution and retailing sectors of the South African Liquid Fuel Industry can be classified as: (Highly predictable to Highly Unpredictable)	1.1 Identify predictability of current business environment	1.1 Five point Likert Scale	1.1 Median and Standard deviation to test consensus
	1.2 The rate of change of industry driving forces can be classified as: (Very rapid to very slow)	1.2 Identify rate of change of industry driving forces.	1.2 Five point Likert Scale	1.2 Median and Standard deviation to test consensus
	1.3 The most dominant features of the industry are (choose two):	1.3 To identify dominant economic features	1.3 Ranking scale	
	1.4 and 1.5 The average yearly demand for petrol/diesel over the next five years is likely to increase by ___?	1.4 and 1.5 To ascertain projections of product demand	1.4 and 1.5 Ranking scale	
	1.6 and 1.7 The likelihood that the petrol pricing mechanism may be deregulated in the next 2 / 5 years may be classified as: (Very likely to highly unlikely).	1.6 and 1.7 To identify time period when changes in petrol pricing mechanism are likely	1.6 and 1.7 Five point Likert Scale	1.6 and 1.7 Median and Standard deviation to test consensus
	1.8 The ban on self service is likely to continue in for the next five years: (Yes/No)	1.8 Identify if self service is likely to remain		

	<p>1.9 If all regulations pertaining to pricing, distribution, and retail were removed the impact on the marketing and distribution strategy of major oil refiners would be: (Very high to Very low)</p> <p>1.10 There are laws in place that that regulate how product is distributed from the refinery to the market place? (Yes/No) Specify</p> <p>1.11 There are laws in place that that influence the level of vertical integration in the industry? (Yes/No) Specify</p> <p>1.12 Please estimate the percentage of retail outlets in the country that are (Franchises, Independent, Other)</p> <p>1.13 The level of vertical integration in the industry at present may be classified as: (Very high to Very low)</p> <p>1.14 There are laws in place that prevent/inhibit new entrants from entering the liquid fuel retail market? (Yes/No) Specify</p>	<p>1.9 Identify impact of deregulation.</p> <p>1.10 Identifying laws applicable to the product distribution.</p> <p>1.11 Identifying laws applicable to the structuring of the industry.</p> <p>1.12 Identify types of retail outlets</p> <p>1.13 Identifying level of vertical integration in industry</p> <p>1.14 Identify laws that act as barriers to entry</p>	<p>1.9 Five point Likert Scale</p> <p>1.10 Open –ended</p> <p>1.11 Open -ended</p> <p>1.12 Open-ended</p> <p>1.13 Five point Likert Scale</p> <p>1.14 Open-ended</p>	<p>1.9 Median and Standard deviation to test consensus</p> <p>1.13 Median and Standard deviation to test consensus</p>
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	<p>1.15 In the near future, it is likely that major refiners will be forced to divorce themselves from the retail sector of the industry? (Yes/No)</p> <p>1.16 The use of supermarkets and hypermarkets as retail outlets is likely to be an effective retail distribution channel for major refiners in future. (Yes, No, Neutral) Please explain.</p> <p>1.17 It is currently possible for an independent retailer to purchase wholesale fuel from a refiner, for resale into the retail market? (Yes/No)</p> <p>1.18 It is currently possible for independently owned retail outlet to sell petrol/diesel that is branded with the name of a major oil company? (Yes/No)</p> <p>1.19 What distribution channels are currently used in the industry to get liquid fuel product to market?</p> <p>1.20 Who controls access to these distribution channels?</p>	<p>1.15 Ascertain whether there is likely to be a future change to level of vertical integration.</p> <p>1.16 Determine whether this is a viable marketing channel.</p> <p>1.17 Identify whether independent retailing is a possible under present circumstances.</p> <p>1.18 To identify whether structure of retailing is similar to US model</p> <p>1.19 Identify available distribution channels</p> <p>1.20 Investigate control of distribution channels.</p>	<p>1.16 Open ended</p> <p>1.19 Open ended</p> <p>1.20 Open ended</p>	
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	<p>1.21 What level of vertical integration currently exists in the industry?</p> <p>1.22 What are the generic types of contractual agreements currently in place between refiners and franchised retailers?</p>	<p>1.21 Investigate level of industry vertical integration.</p> <p>1.22 Investigate oil company/franchisee relationship.</p>	<p>1.21 Open ended</p> <p>1.22 Open ended</p>	
<p>2) What are the fundamental differences and similarities between the South African industry and the US industry?</p>	<p>2.1 What is the general business environment like?</p> <p>2.2 What is the competition like and how strong are each of the competitive forces (Thompson and Strickland, 2001)?</p> <p>2.3 What are the industry's dominant economic features (Thompson and Strickland, 2001)?</p>	<p>2.1 Political, Economic, Socio-cultural and Technological aspects of the environment.</p> <p>2.2 Bargaining power of suppliers/buyers. Threat of new entrants/substitutes/rivals.</p> <p>2.3 Market size, market growth rate, number of rivals and buyers, distribution channels</p>	<p>All analysis carried will be based on data collected in Delphi study (Question 1) and from secondary data</p> <p>2.1 PEST analysis</p> <p>2.2 Analysis using Porter's Five Forces</p> <p>2.3 Analysis using data collected in Delphi study and secondary data</p>	



3) Which aspects of the US industry can be implemented in a deregulated South African industry?	<p>3.1 What will the future environment in the South African liquid fuels industry be like?</p> <p>3.2 Which aspects of the US industry may be applicable to South Africa?</p>	Identifying applicable aspects of US industry that may be applicable to the South African situation.	This question will be answered based on the analysis from question 1 and 2.	
4) What marketing and distribution strategy should Sasol use in light of the lack of a Main Supply Agreement and the potential deregulation of the liquid fuels industry?	<p>4.1 What distribution channels should Sasol use?</p> <p>4.2 What level of vertical integration is proposed?</p> <p>4.3 What marketing strategy should be implemented?</p>	Proposal of framework for marketing and distribution strategy based on analysis carried out in answering questions 1 to 3.	A marketing framework will be proposed based on the answers and analysis from questions 1 to 3.	

## **3.6 Statistical Analysis of Quantitative Data**

### **3.6.1 Measures of Central Tendency**

The term central tendency refers to a “middle” point in a distribution (Durrheim, 2000). It refers specifically to the number that occupies the middle point in a group of numbers, if arranged from lowest to highest. There are several ways to interpret the word “middle”. In this research study, the middle number refers to the “mean”, “median” and the “mode”.

### **3.6.2 The Mean**

This is the simplest kind of measure of central tendency and is more commonly known as the arithmetic average (Durrheim, 2000). To obtain a mean, it is necessary to add up all the numbers in the group and then divide by  $N$  which is the total count of numbers in the research study. In the case of a grouped distribution, the mean is calculated by multiplying the midpoint of each interval by the corresponding frequency ( $f$ ), adding these products together and then dividing the sum by  $N$  or the total frequency.

#### **3.6.2.1 Advantages and Disadvantages**

According to Durrheim (2000), the “mean” is easily calculated and gives a very good idea of what to expect when encountering a distribution of measures provided that the distribution is reasonably symmetric and that there are few extreme values. However the mean can sometimes give a distorted picture due to the extreme cases in a research study.

### **3.6.3 The Median**

In some cases, the mean does not accurately reflect the typical measure in a population. A common example of this is “income”, as the calculation of a mean income results in a figure that is actually quite rare in the population. This is mainly because of the differences in income level (high/low) that people receive. This may be circumvented by computing a statistic called the “median”. This is the middlemost score in the distribution which has been ranked from lowest to highest (Terre Blanche and Durrheim, 1999). The median is a more robust indicator of central tendency and is not influenced by outlying data points. The median, unlike the mean, can be potentially complex at times.

### **3.6.3.1 Advantages and Disadvantages**

The median is very useful when there are extreme values in a distribution which would distort the overall impression of where typical values lie. Its disadvantage is that it is difficult to use in more complicated and powerful statistical procedures. Another minor drawback is that the data must be arranged in size order to computer the median, which is not required when calculating a mean.

### **3.6.4 Measures of Dispersion**

According to Durrheim (2000) the most acceptable measures of dispersion are the “variance” and the “standard deviation” (square root of the variance) which can be used for grouped as well as ungrouped data. It has been decided for the purposes of this study that a standard deviation of greater than 0.95 will indicate lack of consensus among the panellists.

## **3.7 Analysis**

Based on the needs of the research question 2, the following analytical tools have been selected.

### **3.7.1 Analysis of the General Environment**

A PEST analysis will be used for analysing the general environment as outlined in Section 2.2.1.2 (Lynch Step 2). A PEST analysis is a checklist of Political, Economic, Socio-cultural and Technological aspects of the environment. Lynch (2000) notes that listing every conceivable item has little value and betrays lack of serious consideration in the strategy process. It is recommended that it is better to have three or four well-thought-out items that are explored and justified with evidence rather than a lengthy “laundry list” of items.

### **3.7.2 Analysis of the Competitive Industry Environment**

The technique that will be used to analyse the competitive industry environment will be Porter’s Five Forces. Refer to Section 2.2.1.5 (Lynch Step 5, Thompson and Strickland Question 2).

### **3.7.3 Analysis of the Industry's Dominant Economic Features**

Refer to Section 2.2.1.9 (Thompson and Strickland Question 1). The factors to consider here are market size, scope of rivalry, market growth rate, number of rivals and buyers, types of distribution channels, the pace of change, capital requirements and industry profitability.

### **3.8 Outcome of the Analysis**

Based on the outcome of the analysis, in answering research questions 3 and 4 a framework will be proposed for a marketing strategy in a deregulated South African environment.

### **3.9 Conclusion**

This chapter has discussed the methods of data collection and the techniques used to analyze data in finding answers to the research questions. The difference between “qualitative” and “quantitative” data has been discussed. A distinction has also been made between “secondary data” that refers to information collected by others for purposes which can be different from the current research focus; and “primary data” that refers to original data that is collected specifically for the research problem at hand. It has been decided to use the Delphi technique to collect the necessary information on the state of the South African Liquid Fuels Industry. The required analysis will be carried out using this primary data as well secondary data available from published sources.

Chapter 4

Analysis and Discussion

4.1 Introduction

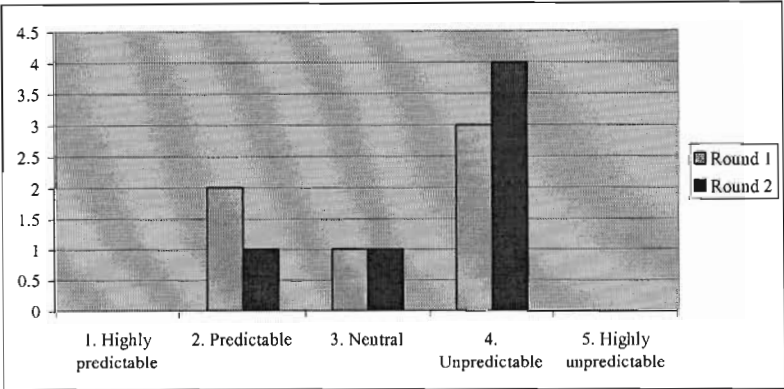
In this chapter an analysis is carried out on the results of the Delphi Study (research question 1). Research question 2 is then answered by carrying out a benchmarking exercise on the United States and the South African industries using techniques such as PEST analysis and Porter’s Five Forces.

4.2 Analysis of Quantitative Data collected in the Delphi Study

4.2.1 The Predictability of the South African Liquid Fuels Industry

The future of the distribution and retailing sectors of the South African liquid fuel industry can be classified as:

	Round 1	Round 2		Round 1	Round 2
1. Highly predictable	0	0	Total number of answers	6	6
2. Predictable	2	1	Mean	3.17	3.5
3. Neutral	1	1	Std dev	0.98	0.84
4. Unpredictable	3	4	Median	3.5	4
5. Highly unpredictable	0	0			



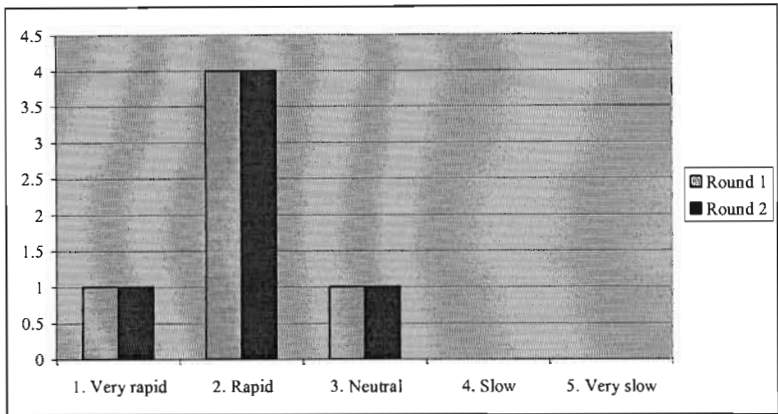
After round 2 of the data collection as per the Delphi technique, it was found that four out of the six participants classified the state of the South African Liquid Fuels Industry as unpredictable. The median value was 4 (unpredictable) with a standard deviation of 0.84. This indicates a fair level of consensus among the participants. Anonymous 4 stuck to his answer of 2 (predictable) justifying his view as follows: *“My answer is based on the fact that the areas you have highlighted are regulated by the Petroleum Products and Pipelines Act. All of these go through mandatory adverts and other processes which are of a public nature. The fact that the industry currently only has a few players makes it even more*

*predictable. I will stick to my answer”*. (personal communication via E-mail, 15 December 2006).

**4.2.2. The Rate of Change of Industry Driving Forces**

The rate of change of industry driving forces can be classified as

	Round 1	Round 2		Round 1	Round 2
1. Very rapid	1	1	Total number of answers	6	6
2. Rapid	4	4	Mean	2	2
3. Neutral	1	1	Std dev	0.63	0.63
4. Slow	0	0	Median	2	2
5. Very slow	0	0			

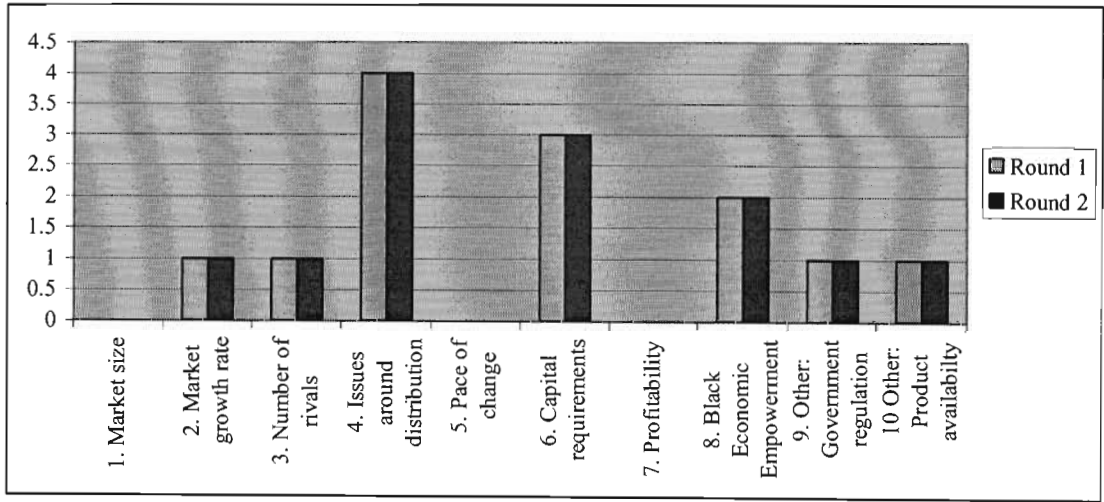


There is a fairly high level of consensus on this question indicated by the standard deviation of 0.63. The median value is 2 (rapid), therefore it is concluded that the rate of change of industry driving forces in the South African Liquid Fuels Industry can be classified as rapid.

4.2.3 The Most Dominant Features of the South African Liquid Fuels Industry

The most dominant features of the industry are (choose two):

	Round 1	Round 2
1. Market size	0	0
2. Market growth rate	1	1
3. Number of rivals	1	1
4. Issues around distribution channels	4	4
5. Pace of change	0	0
6. Capital requirements	3	3
7. Profitability	0	0
8. Black Economic Empowerment	2	2
9. Other: Government regulation	1	1
10 Other: Product availability	1	1

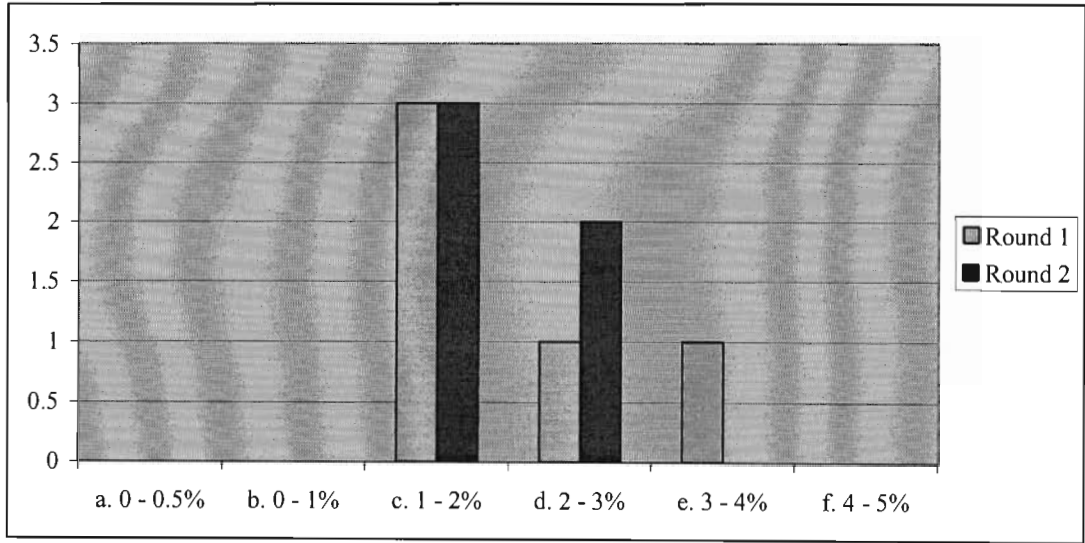


Due to the structure of this question, statistical tests were not carried out on the results thus it is not possible to scientifically verify that consensus has been achieved. However from the histogram it is possible to identify that the two most dominant features of the industry are (4) *Issues around distribution channels* and (5) *Capital requirements*.

4.2.4 The Average Yearly Demand for Petrol over the next Five Years

The average yearly demand for *petrol* over the next five years is likely to increase by

	Round 1	Round 2
a. 0 - 0.5%	0	0
b. 0 - 1%	0	0
c. 1 - 2%	3	3
d. 2 - 3%	1	2
e. 3 - 4%	1	0
f. 4 - 5%	0	0



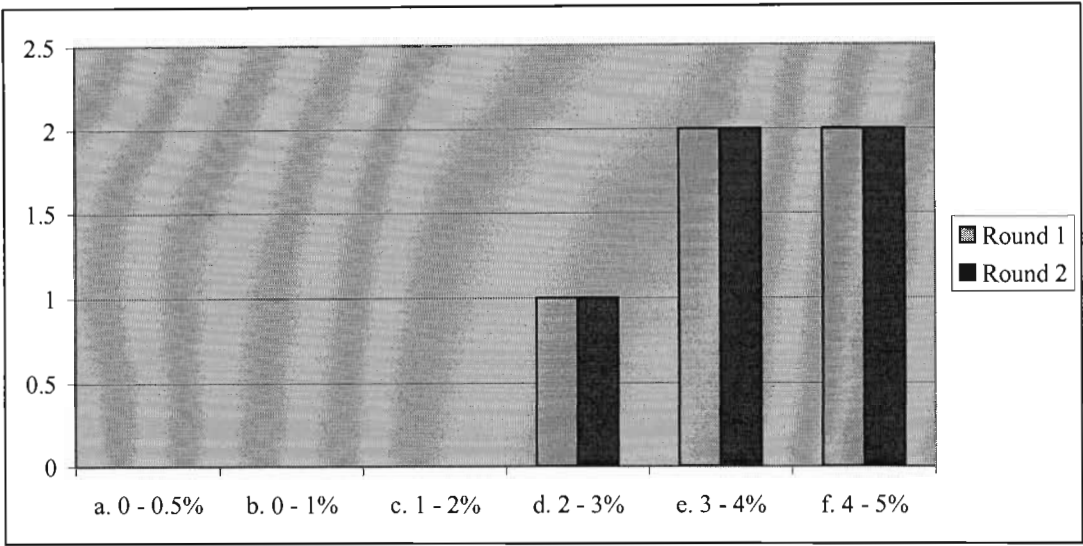
Only five participants answered this question. After the results of round 2, it was established that all five participants forecast a petrol growth rate of between 1 and 3%. The median value was (c) 1- 2%.



4.2.5 The Average Yearly Demand for Diesel over the next Five Years

The average yearly demand for *diesel* over the next five years is likely to increase by

	Round 1	Round 2
a. 0 - 0.5%	0	0
b. 0 - 1%	0	0
c. 1 - 2%	0	0
d. 2 - 3%	1	1
e. 3 - 4%	2	2
f. 4 - 5%	2	2

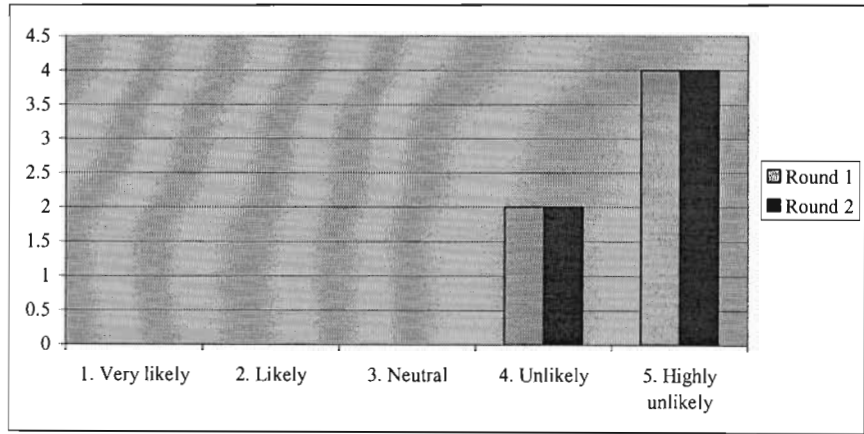


Out of the five participants who answered this question, one participant forecast the growth rate at between 2-3%, two participants forecast a growth rate of between 3-4%, and another two participants forecast a growth rate of between 4-5%. The dissenting participant, Anonymous 4, maintained his answer of 2-3% even after the second round and gave the following justification, “*It could be that I am too pessimistic – but the current very high growth – 7% - is unusual. I suppose that I am expecting Spoornet to return to health and a lower GDP growth ratio in the longer term*”. (personal communication via E-mail, 16 December 2006).

4.2.6 The Likelihood of the Petrol Pricing Mechanism being Deregulated in the Next Two Years.

The likelihood that the petrol pricing mechanism may be deregulated in the next 2 years may be classified as

	Round 1	Round 2		Round 1	Round 2
1. Very likely	0	0	Total number of answers	6	6
2. Likely	0	0	Mean	4.67	4.67
3. Neutral	0	0	Std dev	0.52	0.52
4. Unlikely	2	2	Median	5	5
5. Highly unlikely	4	4			

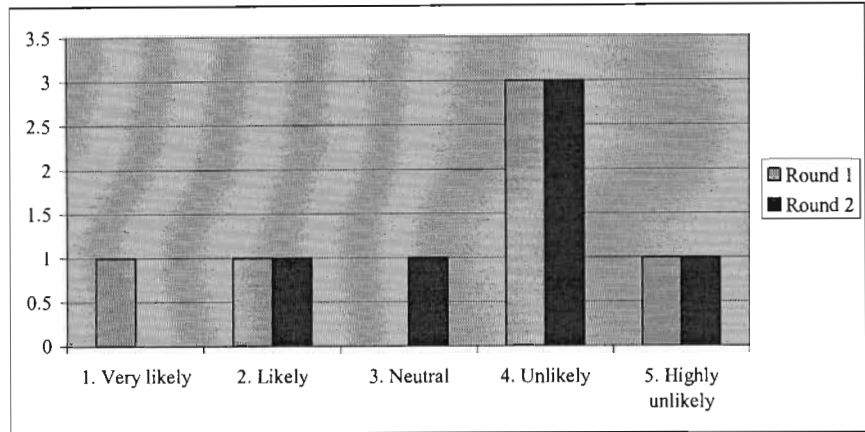


There was a fairly high degree of consensus among the participants that the petrol pricing mechanism would not be deregulated in the next two years. This was indicated by standard deviation of 0.52 and a median value of 5 (Highly unlikely).

4.2.7 The Likelihood of the Petrol Pricing Mechanism being Deregulated in the Next Five Years

The likelihood that the petrol pricing mechanism may be deregulated in the next 5 years may be classified as

	Round 1	Round 2		Round 1	Round 2
1. Very likely	1	0	Total number of answers	6	6
2. Likely	1	1	Mean	3.33	3.67
3. Neutral	0	1	Std dev	1.51	1.03
4. Unlikely	3	3	Median	4	4
5. Highly unlikely	1	1			

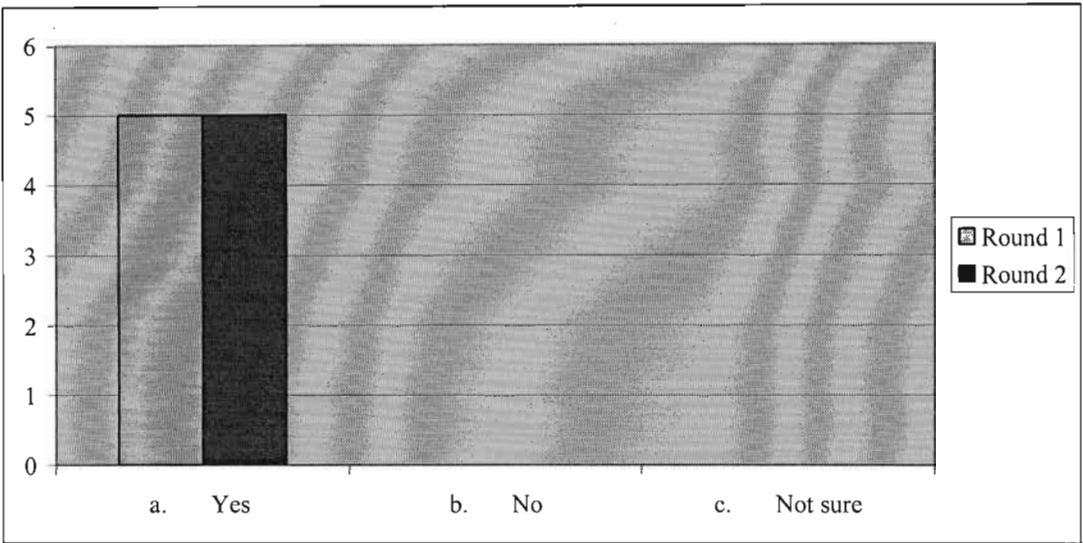


Even after the second round of questionnaires, there was no consensus among the panellists regarding the likelihood of the petrol price being deregulated within the next five years. This is confirmed by the standard deviation of 1.03. One of the participants, Anonymous 5, maintained her answer of 2 (likely) based on the fact that it is the stated intention of the government to deregulate the pricing structure by 2010 (Reasons for Decision, 2004). Part of the dissent among the participants is that even though the government has made clear its decision to deregulate the industry (White Paper on the Energy Policy of the Republic of South Africa, December 1998) there has been no track record of implementation on the stated objective since 1998. This is highlighted during the interviews of participants Anonymous 1 and Anonymous 2 (personal communication, 11 December 2006). Most participants felt that 10 years was a far more realistic timeline.

4.2.8 The Ban on Self Service

The ban on self service is likely to continue in for the next five years:

	Round 1	Round 2
a. Yes	5	5
b. No	0	0
c. Not sure	0	0

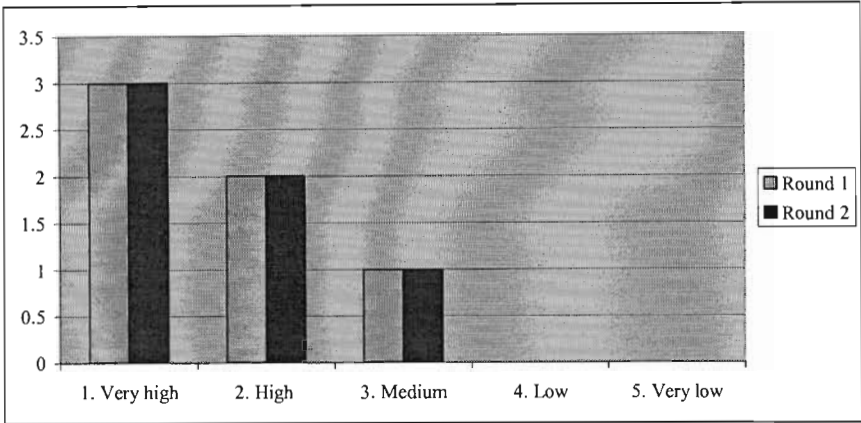


As the above figure indicates, among the five participants who answered the question, there was unanimous consensus that the ban on self-service would continue into the future. The government has stated its intention to introduce legislation that would ban self-service in order to protect the jobs of the petrol attendants (White Paper on the Energy Policy of the Republic of South Africa, December 1998) and in the draft regulations for retailing (Notice of Intention to Make Regulations Regarding Petroleum Products Site and Retail Licenses, 13 January 2006).

4.2.9 The Impact of Deregulation on the Marketing and Distribution Strategy of Major Oil Refiners

If all regulations pertaining to pricing, distribution, and retail were removed the impact on the marketing and distribution strategy of major oil refiners would be

	Round 1	Round 2		Round 1	Round 2
1. Very high	3	3	Total number of answers	6	6
2. High	2	2	Mean	1.67	1.67
3. Medium	1	1	Std dev	0.82	0.82
4. Low	0	0	Median	1.5	1.5
5. Very low	0	0			



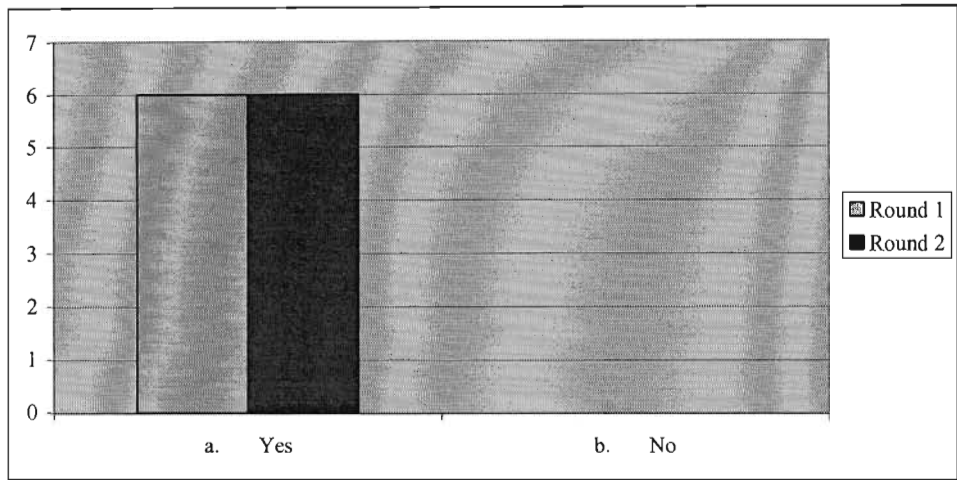
The standard deviation of 1.5, after the second round, indicates that there was no consensus regarding the impact of deregulation on the industry. Five of the six panellists classified the impact as “high” or “very high”. However the dissenting view came from Anonymous 4 who maintained his answer after the second round and gave the following justification, *“The country is currently short in petroleum products and we have to therefore import the balance. The BFP methodology has also proven itself to be a good proxy for IPP(import parity price). If one looks at the supply dynamics in the country the price for product imported is very close or higher than BFP. This being the case I see a medium impact as the current regulatory mechanisms in place almost “mirrors” what one will achieve without the regulations. Answer remains”* (personal communication via E-mail, 15 December 2006).

Even though consensus could not be established, none of the participants classified the impact as “low” or “very low”. Thus it is safe to assume that the impact of deregulation will be anywhere between “medium” to “very high”.

4.2.10 Identifying Laws that Regulate how Product is Distributed.

There are laws in place that that regulate how product is distributed from the refinery to the market place?

	Round 1	Round 2
a. Yes	6	6
b. No	0	0

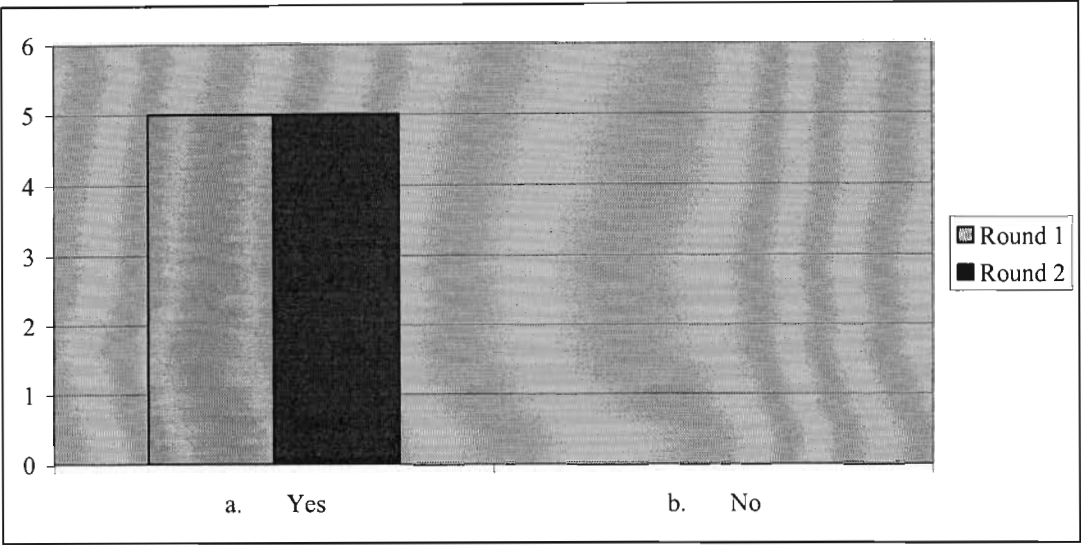


There is clear consensus from all panellists that the distribution of liquid fuels from refinery to market place is regulated. All participants identified the new licensing regulations under the amended Petroleum Products Act as relevant.

4.2.11 Identifying Whether there are Laws in Place that Influence the Level of Vertical Integration.

There are laws in place that that influence the level of vertical integration in the industry?

	Round 1	Round 2
a. Yes	5	5
b. No	0	0

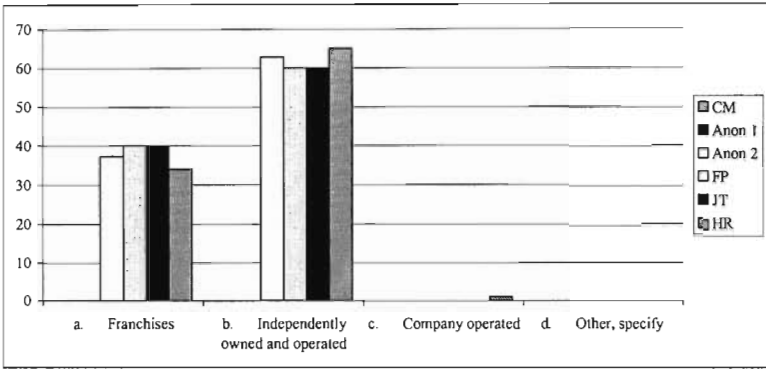


Five participants answered this question. There was unanimous consensus among the participants that there **are** laws in place that influence the level of vertical integration. Prime among the examples provided were the draft regulations for retail licenses that prevent wholesalers or refiners from holding a retail license.

4.2.12 Franchises, Independently Operated, or Company Operated Outlets.

Please estimate the percentage of retail outlets in the country that are

	CM	Anon 1	Anon 2	FP	JT	HR	Mean	
a. Franchises			37.2	40	40	34	37.8	%
b. Independently owned and operated			62.8	60	60	65	61.95	%
c. Company operated			0	0	0	1	0.25	%
d. Other, specify								%



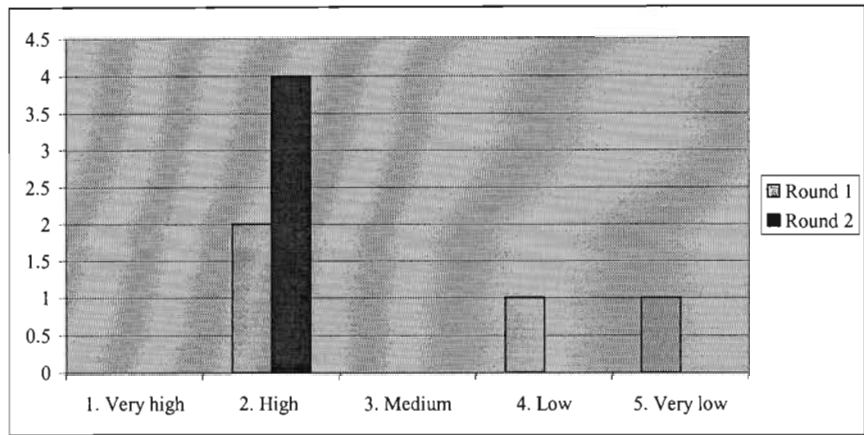
There was fairly good consensus among the panellists regarding the fraction of retail outlets that were franchises, at mean of 37.8% with a standard deviation of 2.8. A negligible amount of sites are company operated (0.25%) since oil companies are only allowed to run retail sites for training purposes. The remainder are independently owned and operated.



4.2.13 Level of Vertical Integration

The level of vertical integration in the industry at present may be classified as:

	Round 1	Round 2		Round 1	Round 2
1. Very high	0	0	Total number of answers	4	4
2. High	2	4	Mean	3.25	2
3. Medium	0	0	Std dev	1.5	0
4. Low	1	0	Median	3	2
5. Very low	1	0			

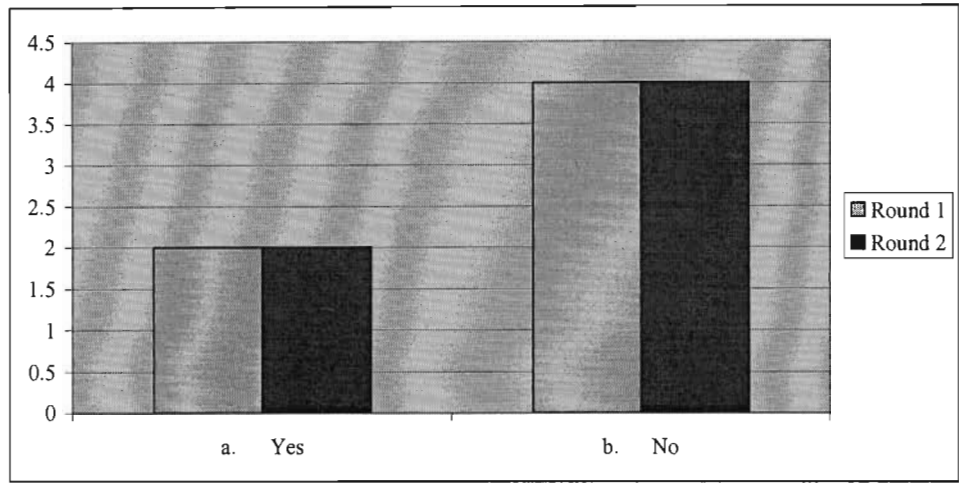


Only four participants answered this question. After round 2 there was unanimous consensus that the level of vertical integration in the industry could be classified as high with a standard deviation of 0. This consensus was achieved after it was clarified that the value chain was vertically integrated from refining to marketing and distribution but specifically excluded retailing. As per the Petroleum Products Amendment Bill (2003) wholesalers are not allowed to hold retail licenses except for training purposes.

4.2.14 Identification of Laws Preventing or Inhibiting New Entrants into the Liquid Fuel Retail Market.

There are laws in place that prevent/inhibit new entrants from entering the liquid fuel retail market:

	Round 1	Round 2
a. Yes	2	2
b. No	4	4

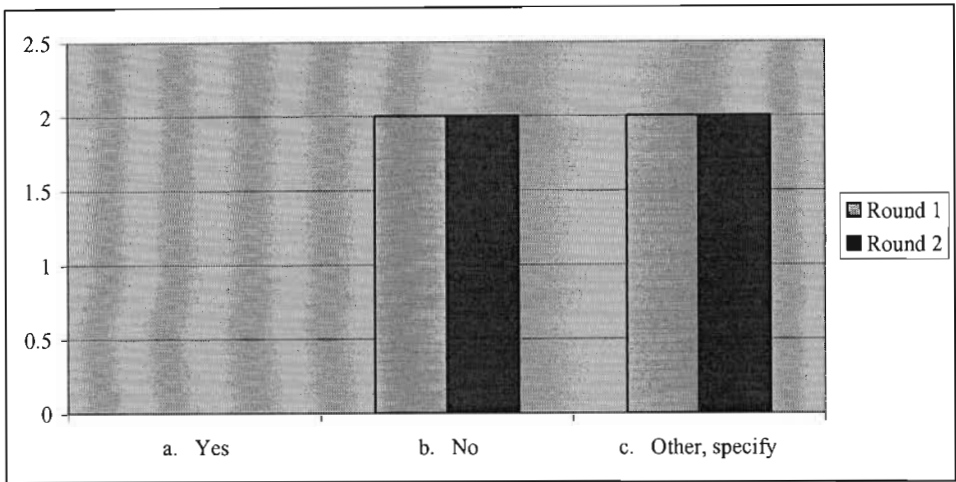


There was no consensus on this particular issue. One of the participants who answered “Yes” specified import restrictions as a barrier to entry. The other participant who answered “Yes” expressed the opinion that large supermarket or hypermarket retailers were prevented from entering the retail market but did not specify the exact regulation. Other participants that answered “No” were adamant that there were no regulatory restrictions on supermarket or hypermarket retailers entering the retail market.

4.2.15 Forecast on Level of Oil Company Involvement in Future.

In the near future, it is likely that major refiners will be forced to divorce themselves from the retail sector of the industry.

	Round 1	Round 2
a. Yes	0	0
b. No	2	2
c. Other, specify	2	2

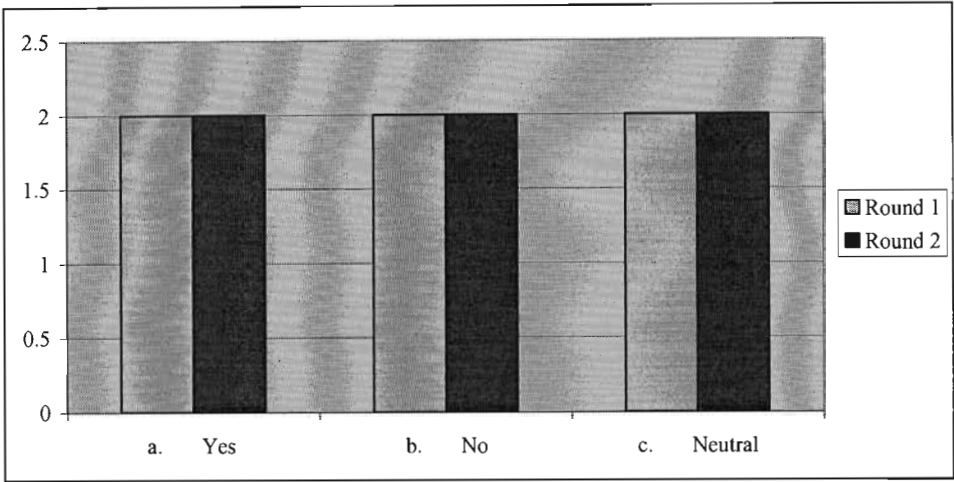


There was no consensus on this particular issue from the four participants that answered. One participant expressed the view that in his opinion vertical integration was prohibited under the now expired Service Station Rationalisation Plan and that it was now expressly forbidden under the new licensing regulations. Other participants were of the view that due to the franchise model, oil companies were significantly invested in retailing. One participant stated that even though the government’s intention was to constrain the involvement of oil companies in retail, this was not practical due to branding, goodwill and capital investment issues.

4.2.16 The Use of Supermarkets or Hypermarkets as Retail Distribution Channels.

The use of supermarkets and hypermarkets as retail outlets is likely to be an effective retail distribution channel for major refiners in future.

	Round 1	Round 2
a. Yes	2	2
b. No	2	2
c. Neutral	2	2



On this particular issue, no consensus could be established. Some of the opinions expressed were the following. One of the participants felt that hypermarkets would be direct competition for the oil company franchises in which the oil companies had invested significantly. Oil companies would want to protect the rental incomes they received from turnover and would therefore avoid supplying hypermarket retailers.

Another participant expressed the view that hyper retailers would push the biggest volumes, which would benefit the oil company. They would sell product at cost or even below cost to secure market share. Their entry however would be contingent on the deregulation of the pricing structure.

One of the participants could not see hypermarkets taking a big market share due to their limited footprint.

Another participant noted that there weren't many suitable potential sites situated at supermarket or hypermarket parking lots. Safety, health, and environmental considerations would also limit entry.

Another participant expressed the view that restrictions on supermarket entry may be enacted. Hypermarket retailing would have to follow the US model. The participant also felt that the South African market did not possess a sufficient critical mass of hypermarket retailers for this to be feasible. The entry of supermarkets and hypermarkets into retailing

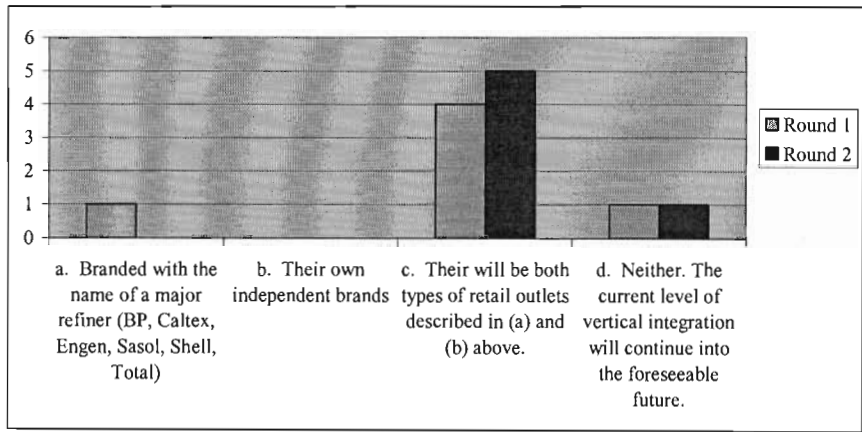
would also be a move away from the government’s peripheral economic initiative of empowering small to medium enterprises.

One of the participants noted that this would require significant investment into infrastructure and that if it did happen then it would be in 10 to 15 years and would also be dependent on price deregulation.

**4.2.17 Identifying Whether it was Possible for Independent Retailers to Secure Product.**

In your opinion, in a future deregulated scenario, independent retailers will sell fuel

	Round 1	Round 2
a. Branded with the name of a major refiner (BP, Caltex, Engen, Sasol, Shell, Total)	1	0
b. Their own independent brands	0	0
c. Their will be both types of retail outlets described in (a) and (b) above.	4	5
d. Neither. The current level of vertical integration will continue into the foreseeable future.	1	1



After the second round, five of the six participants indicated that in future it is likely that some retail outlets will have their own independent brands, while others will still carry the name of a major refiner. The lack of complete consensus was due to the single participant who maintained their choice of (d) *Neither. The current level of vertical integration will continue into the foreseeable future.* This may well be due to a lack of complete understanding of the question.

### **4.3 Analysis to Identify Fundamental Differences and Similarities between the South African and US Industries.**

Research question 2 is as follows, “What are the fundamental differences and similarities between the South African industry and the US industry?” This is further broken down into the following sub-questions (Thompson and Strickland, 2001): “2.1 *What is the general business environment like?* 2.2 *What are the key factors for competitive success?* 2.3 *What is the competition like and how strong are each of the competitive forces?* 2.4 *What are the industry’s dominant economic features?* 2.5 *Is the industry attractive and what are the prospects for above-average profitability?*” In this section we will develop answers to these questions using applicable analytical tools.

#### **4.3.1 Analysis of the General Environment in the USA and South Africa using a PEST Analysis.**

##### **4.3.1.1 Political Future**

This section will examine the USA and South African industries with special reference to the following points.

- Legislation, e.g. on taxation and employment law.
- Relations between government and the organisation (possibly influencing the preceding items in a major way and forming a part of future corporate strategy).
- Government ownership of industry and attitude to monopolies and competition.

#### **United States of America**

The level of regulation in the United States liquid fuel industry can be classified as very low in comparison to the South African industry.

In the United States the Petroleum Marketing Practices Act (PMPA) has guided the dealer–supplier relationship for a long time. It has shielded small businesses from the presumed abuses of suppliers. In 1998, Abcede reported that recent court decisions had weakened its coverage and that franchise-style contracts had bypassed its protections altogether. Much of the stir came about as retailers initiated amendments to the PMPA in two key areas: the first would prohibit suppliers from setting maximum prices and the

second would allow “first right of refusal” to dealers in the event that a major oil company moved out of a territory and handed supply over to an area jobber.

There are laws that protect consumer rights by ensuring a competitive environment prevails. Numerous states have sales-below-cost laws (SBC) laws which are often directed at specific products such as gasoline (Areeda and Turner, 1975). Potential violations of these laws occur when prices are less than the seller’s cost of doing business. The most commonly stated purpose of these laws is to protect small independent firms from the potential predatory pricing behaviour of larger firms. At the end of 1993, 23 states had some form of a general SBC law while 10 had a gasoline specific SBC law (Anderson and Johnson, 1999). According to the study conducted by Anderson and Johnson (1999) there has been empirical evidence that SBC laws have resulted in higher retail margins in the gasoline market.

Motor fuel taxes are collected by federal, state and local governments (Anderson and Johnson, 1999). While the federal tax is uniform, state and local taxes vary. All states impose a per gallon tax. In addition, some states have instituted state sales taxes that apply to some or all motor fuel sales. County and local governments likewise may have sales or per gallon taxes.

According to the American Petroleum Institute, the nationwide average tax on gasoline is 43.7 cents per gallon as of July 2004 (Nationwide and State-by-State Motor Fuel Taxes, 2004). This consists of both state (25.3 cents per gallon) and federal taxes (18.4 cents per gallon). Taxes on motor diesel fuel average 49.4 cents per gallon. This is also made up of state and federal taxes, the amounts being 25.0 and 24.4 cents per gallon respectively. Taxes add a significant amount to the price of motor fuel. The nationwide average price of gasoline exclusive of taxes on July 5, 2004 was \$1.50 per gallon and for motor diesel fuel it was \$1.23 per gallon (Nationwide and State-by-State Motor Fuel Taxes, 2004).

### **South Africa**

Due to the strategic importance of petroleum products and the balance of payment implications, Sasol was established by government in the first half of the 1950’s (Reasons for Decision, 2004). It was funded by the Industrial Development Corporation. Sasol 1 (based in Sasolburg) was commissioned in 1955, while Sasol 2 and 3 (located in Secunda) were commissioned in the early 1980s. Sasol started producing fuel in the fifties.

The Main Supply Agreement also known as the “Sasol Supply Agreement” was brokered by government to ensure that the fuel produced by Sasol was uplifted (Reasons for Decision, 2004). This was effectively a government-brokered and sanctioned form of private regulation and was periodically amended. The agreement stated that the inland marketing arms of the other oil companies would have to satisfy their inland marketing requirements by uplifting Sasol’s inland output in preference to conveying product from coastal refineries. Product was purchased at import parity price. In return Sasol’s participation in the retail market was limited.

According to Sasol (Sasol’s submission to the National Treasury Task Team, 2006) the first Sasol Supply Agreement for Sasol 1 was not negotiated by government but by Sasol management. It was signed in March 1954. Only in 1970 with the start up of Natref did government require that the other oil companies purchase full Sasol One production so that they could retain exclusive marketing rights. In an agreement known as the “Blue Pump Agreement” Sasol was allowed to install one of its petrol pumps in each forecourt of the service stations in its supply area (the inland area) (Reasons for Decision, 2004). In 1976 the government initiated discussions regarding the upliftment of product from Sasol 2 and 3.

In 1988 the last Main Supply Agreement was concluded. The other oil companies would buy Sasol’s fuels up to maximum of 7 740 million litres/year i.e. 90% of Sasol white fuel product. The new agreement allowed Sasol certain marketing rights in the commercial and industrial sectors. Marketing via the blue pumps was capped at 9.23% market share, and in addition, Sasol was permitted to market 22.5 million litres of diesel into the commercial market.

In 1998 Sasol gave the other oil companies the stipulated five year notice necessary to terminate the agreement. Sasol maintains that this was done as the company was advised that the agreement would fall foul of the Competition Act. When Sasol terminated the Main Supply Agreement (effective in 2003) it was found that logistical capacity constrained the ability of the other oil companies to bring in refined product from the coast, thus bestowing inland market power on Sasol.

The Service Station Rationalisation Plan was a government backed agreement among the oil companies to regulate the growth of the retail market. It placed limits on the opening of new sites and prohibited self-service to protect employment at retail service stations. It was superseded by the Petroleum Products Amendment Act 58 of 2003.



In December 1998 the Department of Minerals and Energy published a white paper on the energy policy of South Africa (White Paper on the Energy Policy of the Republic of South Africa, 1998). In the document it is clearly stated: “*Government believes that the desired attributes for the liquid fuels industry can ultimately best be met in an environment of minimum governmental intervention and regulation*”.

The white paper states the government support for an industry with limited government intervention and continued investment in new refining, wholesaling and retailing facilities. Government states its aim to keep the cost of liquid fuels as low as possible since it is a significant input cost to the economy. The intention to regulate monopolies in pipelines and storage facilities with a view to optimising investment and lowering cost is stated.

Some of the cornerstones of future policy framework highlighted in the document are (White Paper on the Energy Policy of the Republic of South Africa, December 1998):

- Deregulation.
- The promotion and preservation of employment in the formal sector.
- The desire for retail pricing that is commercially based without inter-fuel or rural-urban cross subsidies.
- Retailing activities should be preserved for small and medium businesses.
- Regulation of pipeline and storage facility infrastructure to prevent the exclusion of new entrants and to encourage optimum investment.

Retail price control and import control together form the cornerstone of the regulatory dispensation of the liquid fuels industry. Government states in the document that “*it believes competitive market forces should determine prices*” (White Paper on the Energy Policy of the Republic of South Africa, 1998). However, the import parity pricing approach would be retained as long as price control is applied.

The stated intention is to move away from price control with the achievement of suitable transitional milestones and arrangements. Control of industry margins, at wholesale and retail level will be removed and thereafter will be determined on a competitive and commercial basis.

The Service Station Rationalisation Plan (RATPLAN) was a voluntary agreement between government and the wholesale and retail industry to limit the number of service stations and thereby through economies of scale to contain costs in a price controlled environment. It also prohibited self service at retail outlets to protect the jobs of pump attendants. Vertical integration in the industry was also limited. Wholesale marketers were

not allowed to operate service stations. Government stated the intention to phase out the Service Station Rationalisation Plan.

It also however stated the intention to implement legislation that would prohibit self-service and that would limit the vertical integration of oil companies into retailing.

Current policy allowed free importation of crude oil to meet the needs of the crude oil refiners, whereas importation of refined products was limited and recommended only when demand could not be satisfied through local production.

The white paper states that quantitative import and export control will be phased out as free participation in the liquid fuels industry is realised (White Paper on the Energy Policy of the Republic of South Africa, 1998). Duties on refined products could be re-introduced where justified by socio-economic considerations. This could mean higher duties on refined products in order to reduce the country's balance of payments account and to protect the synthetic fuel industry if necessary.

The removal of price controls will allow the discontinuation of the current practice of making reference to a transport cost in the price build up for certain products. Government has also stated its intention to promote competition in the liquid fuels transportation sector (White Paper on the Energy Policy of the Republic of South Africa, 1998).

The monopolistic abuse of pipelines and storage facilities will be prohibited by the petroleum regulatory regime. As per the white paper, *"Pipelines will be required to provide non-discriminatory open access to uncommitted capacity, transparency of tariffs, and disclosure of cost and pricing information to a suitable authority"* (White Paper on the Energy Policy of the Republic of South Africa, 1998).

In the white paper, government states its intention to lower the tariff protection to the synthetic fuel industry and to review protection before mid 2000. This was carried out as stated (Crompton et al., 2006).

Government has stated its intention to simultaneously remove retail price control, and import and export control once specified milestones have been achieved (White Paper on the Energy Policy of the Republic of South Africa, 1998). That said, a phased approach will be used to allow proper monitoring of the process. It intends to use a three phase approach.

First phase major milestones:

- *"The sustainable presence, ownership or control by historically disadvantaged South Africans of a quarter of all facets of the liquid fuels industry."* (White Paper

on the Energy Policy of the Republic of South Africa, 1998). As of 2006 this has been achieved (Reasons for Decision, 2004).

- Synfuel producers to have put in place mutually acceptable arrangements with marketers of crude oil based products to ensure the upliftment of their synthetic fuel production. This has been achieved, since after the dissolution of the Sasol Main Supply Agreement at the end of 2003, Sasol has negotiated individual supply agreement with all the other major oil companies ((Anonymous 4, personal communication, 12 December 2006) and (SAPIA Annual Report, 2003)).
- Legislation to be introduced to facilitate important elements of government policy including protection of “full service” and the fair participation of small businesses in the industry. This has been achieved with the enacting of the Petroleum Products Amendment Bill (2003) in May 2006.
- Introduction of suitable transitional arrangements with the Service Station Rationalisation Plan, the so-called “RATPLAN”. This has been replaced by the new licensing regulations accompanying the Petroleum Product Amendment Bill (2003).

Thus, by and large, some of the key milestones in the first phase have already been achieved.

The second phase entails the simultaneous removal of the retail price regulation and import controls. In the third phase government will monitor and evaluate problems pertaining to deregulation in order that corrective action may be taken (White Paper on the Energy Policy of the Republic of South Africa, 1998). The stated objective of the government was to achieve deregulation by 2010 (Reasons for Decision, 2004). However it is likely this will be delayed due to limited progress with respect to the introduction of black economic empowerment investors into the industry (Reasons for Decision, 2004).

The Petroleum Products Amendment Bill (2003) was enacted in May 2006. The bill provides for licensing of persons involved in the manufacturing or sale of petroleum products. The bill states clearly that a licensed wholesaler may not hold a retail license (except for training) in order to promote small business in the retail industry. Self-service by consumers of petrol and diesel is also prohibited in order to protect the jobs of petrol attendants. The bill also envisions provisions to extend the Minister’s power to determine the price of petroleum products.

Section 2D of the bill makes provision for existing site holders, wholesalers and manufacturers. The aforementioned will be deemed to be license holders but will have to,

within a period of six months from the date of commencement, apply for the relevant licenses.

The system for allocation of licenses is based on several principles, namely:

- The retail sector must be transformed into one that has the optimum number of efficient sites.
- Efficient investment in the retail sector and the productive use of retail facilities should be promoted by limiting the total number of site and corresponding retail licenses in any period; and by linking the total number of site and corresponding retail licenses in any period, to the total mass or volume of prescribed petroleum products sold by a licensed retailer.

- It may be specified that petroleum products which,
  - are manufactured from coal, natural gas, or vegetable matter, when available
  - meet prescribed specifications and standards, where applicable
  - are at mutually acceptable prices

must be supplied to a licensed retailer before the supply of petroleum products manufactured from other raw materials. If this principle were applied it could mean that petrol and diesel made synthetically from coal would have to be preferentially supplied to retail outlets ahead of crude oil derived products.

On the 13 January 2006, the government printed drafted regulations pertaining to the holding of site, retail, wholesale and manufacturing licenses in the South African Liquid Fuels Industry for public comment (Notice of Intention to Make Regulations Regarding Petroleum Products Site and Retail Licenses, 2006). The evaluation of site license applications would depend among other requirements on the following: a proven need for a site; the location of the site promotes growth and developmental objectives; the site must contribute to security of supply of petroleum products, promote competition, promote efficient use or development of logistical infrastructure, promote transformation in the liquid fuels industry and increase the participation of historically disadvantaged South Africans (HDSA) in the industry.

The evaluation for the retail licence application is based on the same conditions as that of a site license application. A licensed wholesaler may, for training purposes, be issued a limited number of retail licenses provided certain conditions are met. A licensed retailer can only retail from the site specified on its retail license and purchase prescribed petroleum products from a licensed wholesaler or a licensed manufacturer. A licensed

retailer is cannot allow self-service by consumers of petrol and diesel. The regulations also state that the business must commence with retailing activities within six months after the date of issue else the license lapses.

The regulations for site and wholesale licenses include stipulations on environmental management requirements that have to be met (Notice of Intention to Make Regulations Regarding Petroleum Products Wholesale Licenses, 2006). Financial provisions pertaining to these requirements are also specified. The regulations state that the wholesaler may only purchase prescribed products in bulk from other licensed wholesalers or licensed manufacturers, except in the case of imports. Wholesalers may sell petrol and diesel in bulk to licensed manufacturers, wholesalers, retailers and to end-consumers for their own consumption. Wholesalers may not make use of a business practice, method of trading, agreement, arrangement, scheme or understanding which would result in the licensed wholesaler selling directly or indirectly to an end-consumer from a retail site. Wholesalers are also prohibited from holding retail licenses except for training purposes. The business must commence with wholesaling activities within six months after the date of issue.

The Petroleum Pipelines Bill (14 March 2003) establishes the legal right of the Petroleum Pipelines Regulatory Authority to issues licenses for the operation, construction and conversion of petroleum pipelines, loading facilities and storage facilities. The authority can also set or approve tariffs and charges in manner prescribed by regulation. The authority will also monitor and take necessary and appropriate action to ensure that access to petroleum pipelines, loading facilities and storage facilities is provided in a non-discriminatory, fair and transparent manner.

Other issues facing the industry include the new Competitions Act which influences the way the industry is regulated, and the need to renegotiate the Sasol Supply Agreements.

Fuel derived tax is a major source of government revenue. During 2000/2001 financial year, fuel taxes brought in more than R16.5 billion in revenue to the fiscus (SAPIA Annual Report, 2002). In 2002/2003, approximately R16 billion was collected in respect of the fuel levy. Also an additional R3 billion was collected for the Road Accident Fund (SAPIA Annual Report, 2003).

Some of the tax legislation pertaining to the Liquid Fuels industry that has been enacted during the past 10 years include the following (SAPIA Annual Report, 2002):

- In 1996, the introduction of leaded petrol was accompanied by a reduction in the fuel levy on unleaded petrol as compared to leaded petrol. This was

designed to promote the use of the more environmentally friendly (unleaded) fuel.

- In 2000, legislation was introduced to allow for the chemical marking of tax-free paraffin in order to stop the mixing of this product with diesel.
- In 2001, tax concessions for certain diesel fuel users were reintroduced.
- In 2002, a fuel tax dispensation was introduced to promote the production and use of bio-fuels.

In essence now that the Service Station Rationalisation Plan and the Sasol Main Supply Agreements have fallen away, the South African Liquid Fuels industry is in a process of being re-regulated. The Rationalisation Plan has been replaced by the licensing regulations of the amended Petroleum Products Act. The dissolution of the Main Supply Agreement at the end of 2003 unleashed an onslaught of competition in the retail sector as Sasol tried to establish a retail presence and gain market share.

#### **4.3.1.2 Socio-Cultural Future**

This section will examine the USA and South African industries with special reference to the following points.

- “Green” environmental issues
- Distribution of income

#### **United States**

There are several “green” environmental factors that influence the nature of the United States Liquid Fuel Industry. The United States imports a significant proportion of refined product to satisfy market demand. Kleit (2003) is of the opinion that due to economic, environmental and political reasons it is improbable that any new refinery would be built in the USA. In fact no new refineries have been built in the USA since the late 1970s.

Certain states and areas in the USA are required by regulation to use reformulated gasoline that meets strict emission requirements, that is, have a low carbon monoxide reduction and do not emit any toxins or smog. The Clean Air Act Amendments of 1990 require that refineries produce oxygenated gasolines, lower sulphur diesels and reformulated gasoline (RFG) (Perkins, 1999).

The U.S. Environmental Protection Agency's (EPA) ultra low sulphur diesel (ULSD) specifications were due for implementation in mid 2006. This entails a reduction in sulphur content to 15 parts per million by weight.

Demographically the American gasoline customer has been categorised into the following five segments. This information was gleaned from a study conducted by Mobil's gasoline marketing department (Kaplan and Norton, 2000).

1. Road warriors 16% - Generally wealthier, middle-aged men who drive 25 000 to 50 000 miles a year, purchase premium gasoline, and buy sandwiches and drinks from the convenience store.
2. True Blues 16% - Men and women with moderate to high incomes, loyal to a brand or station and frequently buy premium gasoline.
3. Generation F3 16% - Upwardly mobile men and women – half under 25, constantly on the go, drive a lot and snack heavily from the convenience store.
4. Homebodies 21% - Usually housewives who shuttle their children around during the day and use whatever gasoline is along their route of travel.
5. Price shoppers 20% - Generally aren't loyal to a brand or station, rarely buy premium gasoline, frequently on tight budgets.

The results of the study indicate that a fairly significant amount (32%) of the population buys premium gasoline and that only 20% can be categorised as price sensitive shoppers.

### **South Africa**

There are several environmental issues that impact on the South African liquid fuels industry. The government has embarked on an initiative to improve energy efficiency and the use of cleaner energy sources. A draft *White Paper on the Promotion of Renewable Energy and Clean Energy Development* was published for comment in June 2002 (SAPIA Annual Report, 2002). The government's target is to increase renewable energy's share of final energy consumption to 14% by 2012.

In 2006 petrol and diesel specifications were introduced that improved the quality of the fuels with respect to emissions. The limit on sulphur content in diesel was decreased from 3000 ppm to 500 ppm. Furthermore, leaded petrol has been removed from the market place. This has been replaced with lead replacement petrol, which contains heavy metal based additives.

The new licensing regulations for site holders, retailers, wholesalers and manufactures in the industry include stipulations on environmental management.

Demographically the South African populace is less wealthy on average than their counterparts in the USA. A far higher fraction of South Africans are likely to fit into the “Price Shopper Category”.

#### **4.3.1.3 Economic Future**

This section will examine the USA and South African industries with special reference to the following points:

- Currency fluctuations and exchange rates
- Cyclicity
- Transport costs, raw material costs

#### **United States**

Crude oil prices are determined by worldwide supply and demand. Significant influence on price is wielded by the Organisation of Petroleum Exporting Countries (OPEC). According to the Energy Information Administration, OPEC has tried since its formation to keep world oil prices at its target level by setting an upper production limit on its members (A Primer on Gasoline Prices, 2006). OPEC members account for 40% of the world’s production of crude oil and hold more than 60% of estimated crude oil reserves. This is the basis for its influence on world oil supply (A Primer on Gasoline Prices, 2006).

The price of crude oil increased from \$37 per barrel in 2004 to \$50 per barrel in 2005 (A Primer on Gasoline Prices, 2006). Thus the crude oil price was a significant contributor to gasoline price in 2005 (53% of the cost of a gallon of regular grade gasoline).

A report published by the American Petroleum Institute (FYI on Gasoline Prices, 2004) states that there appears to be no guarantee that when crude oil prices are stable, gasoline prices will also be stable. Factors such as seasonality and local retail station competition cause gasoline prices to fluctuate normally. Nevertheless, the price of crude oil is still the main factor in the price of diesel fuel and fluctuations in the crude oil market greatly influence changes in diesel prices.

One reason for this close association between the two prices is competition, particularly with finished petroleum products that are imported into the USA and that may



not reflect every kind of cost incurred in the USA. In addition consumers of these petroleum products can be sensitive to price changes (Perkins, 1999).

### **South Africa**

The South African Liquid Fuels Industry is profoundly affected by fluctuations in the Rand/US Dollar exchange rate. The price of crude oil is measured in US Dollar terms on international crude oil spot markets. The Basic Fuel Price which is a proxy for import parity price of refined fuel in the South African market is a key component of the retail fuel price. Sasol also sells refined product to the other oil companies and distributors at wholesale prices based on the Basic Fuel Price. Thus a weakening of the Rand in relation to the US Dollar would result in an increase in the Basic Fuel Price, an increase in the retail price of petrol and an increase in the wholesale margin for the synthetic fuel producers. This in particular applies to Sasol since the raw material costs of Sasol are related to domestically sourced coal and not imported crude oil. The converse applies with strengthening of the Rand in relation to the US Dollar.

Similarly high crude oil prices benefit Sasol by increasing the Basic Fuel Price, while low oil prices decrease the Basic Fuel Price and consequently the wholesale margins.

Based on information extracted from the document Reasons for Decision (2004), the logistical cost of transporting liquid fuel product via road is 2.5 times the cost of transporting the same amount of fuel via pipeline. The cost of transporting the fuel via rail is 1.5 times the cost of transporting via pipeline. This is particularly important in the South African Liquid Fuels Industry environment. The industrialised inland area is the biggest market for liquid fuel products in the country. Most of the oil companies have refineries located at the coast, namely, Engen, Caltex and SAPREF (co-owned by Shell and BP). Since each of these companies have significant retailing footprints in the inland area they need to source sufficient liquid fuel product to satisfy demand. Pipeline capacity from the coastal refineries to the inland area is severely constrained (Reasons for Decision, 2004). This means that these oil companies are unable to pump up sufficient refined product via the pipelines to satisfy demand. Since it is prohibitively expensive to transport product via road or rail, the other oil companies are forced to rely on Sasol to meet their inland supply requirements.

According to SAPIA, world market conditions cause the variance in the relationship between product prices and crude prices (SAPIA Annual Report, 2002). For instance, the peak demand for petrol is during the northern hemisphere summer (the so-

called “driving season”) while the peak demand for distillates (petrol and distillate) is during the northern hemisphere winter. To South Africa’s benefit the opposite trends hold true for South Africa with respect to petrol and paraffin. The summer rainfall peak usage of diesel by South African farmers is unfortunately at a time when that product reaches its seasonal high in the northern hemisphere (SAPIA Annual Report, 2002 and 2003).

#### **4.3.1.4 Technological Future**

##### **United States and South Africa**

Due to the impact of fossil fuels on the environment in particular global warming from carbon dioxide emissions, there is a big drive to identify and implement alternative and cleaner fuels. Examples are bio-diesel, bio-ethanol and the use of hydrogen as an automotive fuel. It is likely that in both the United States and South Africa the liquid fuels industries will need to adapt marketing and distribution strategies in order to meet the new challenges posed by these alternative fuels.

#### **4.3.2 Analysis of the Competitive Industry Environment in the USA and South Africa using Porter’s Five Forces Model.**

In conducting a Porter’s Five Forces analysis it is important to identify the stage in the value chain around which the analysis will be conducted. For the purpose of this section it has been decided that a proper analysis on the liquid fuels industry can be carried out by considering the wholesaler or distributor of refined products as a basis of reference. In this scenario, major oil refiners would constitute suppliers, while retailers would constitute customers or buyers.

##### **4.3.2.1 Force 1 - The Bargaining Power of Suppliers**

The competitive pressures stemming from supplier-seller collaboration and bargaining.

#### **4.3.2.1.1 Can Suppliers Exercise Sufficient Bargaining Power to Influence the Terms and Conditions of Supply in their Favour?**

##### **United States**

The marketing and distribution model of the liquid fuels industry in the United States has been described in the literature review (Section 2.4.1). In the United States the extent of supplier (that is major oil refiner) bargaining power is governed by the relationship between jobbers (distributors) and oil refiners. Many US oil refiners are vertically integrated forward into distribution and retailing. That said, jobbers hold about 44% of distribution market share in the United States (Kleit, 2003). They thus constitute an important distribution channel for major oil refiners. The objective of major oil refiners in the US is to ensure that the volume of gasoline sold in the retail sector is as high as possible. This consequently increases the demand for gasoline which drives up wholesale prices. Jobbers that supply fuel to branded outlets are contractually bound to purchase fuel from the refinery that owns that particular brand. In this case the bargaining power of the supplier (refiner) is high. A jobber may be threatened with cancellation of his contract for failing to adhere to the conditions of the supplier. However jobbers that supply fuel to unbranded outlets or to their own outlets may “shop around” for the lowest refinery gate fuel price. In this case the bargaining power of the supplier is limited.

##### **South Africa**

In South Africa most major oil refiners are vertically integrated forward into product distribution. The presence of independent wholesalers is growing but is presently limited. A unique feature of the South African liquid fuels industry is the structure of the supply and demand balance of refined petrol and diesel in the inland market, that is, the industrial heartland. Most of the major oil companies (SAPREF (BP/Shell), Caltex, Engen) have refineries at coastal locations. Total and Sasol have refineries in the inland area. However due to the limitations of the Main Supply Agreement (Reasons for Decision, 2004) Sasol was not allowed to establish a retail presence in the South African market. The other oil companies do however have extensive retail networks in the inland market area. Since the dissolution of the Main Supply Agreement the other oil companies are no longer contractually bound to uplift all Sasol’s refined product. However, due to logistical constraints they are unable to transport sufficient liquid fuel product from their coastal refineries to meet inland market demand. They are thus forced to source product from Sasol. This confers significant supplier bargaining power on Sasol. Individual supply

agreements have now been signed between Sasol and the other oil companies (SAPIA Annual Report, 2003).

#### **4.3.2.1.2 The Extent of Supplier–Seller Collaboration**

##### **United States**

In the United States the extent of supplier – seller collaboration has been limited due to the deregulated and vast nature of the industry.

##### **South Africa**

The history of the supplier–seller collaboration in the inland market used to be governed by the Main Supply Agreement which secured a market for Sasol’s liquid fuels product and ensured that the other oil companies had a stable and sufficient supply to meet their market demand. In return Sasol was prevented from establishing a retail network. In the Competition Tribunal document (Reasons for Decision, 2004), which explains the reasons for the prohibition of the Uhambo (i.e. Sasol Oil - Engen) merger, the authors express the view that the Main Supply Agreement was nothing less than a government sanctioned cartel. The Main Supply Agreement has subsequently been dissolved.

#### **4.3.2.1.3 Is it Difficult to Change Suppliers, if a Supplier Starts to Exert Power when Supplies are Limited?**

##### **United States**

In the case of a jobber supplying unbranded sites, it would be relatively easy to change suppliers if necessary. On the other hand, jobbers supplying sites branded with the name of major oil refiner have no scope for finding alternative suppliers.

##### **South Africa**

In South Africa most refiners are integrated into distribution so the same scenario does not hold true. However, in the inland area where most of the product is sourced from the Sasol Secunda plant, there is limited scope to find alternative supply due to the logistical constraints of bringing product in from the coast.

The only pipeline currently available to transport refined product from the coast to the inland area is the Durban-Johannesburg Pipeline (DJP) (Crompton et al., 2006). The second multi-product pipeline is the Durban Witwatersrand pipeline. However after the start-up of Sasol 2 and 3 in the early 1980s this pipeline was rendered obsolete. Sasol now

had sufficient manufacturing capacity to supply the inland market. With the requirements of the Main Supply Agreement this meant that the other oil companies did not have to use this pipeline to bring in product from the coast. Subsequently in 1995 the pipeline was converted into a methane rich gas (MRG) pipeline to facilitate Sasol's MRG marketing to KZN. The other oil companies felt this should be reserved for their usage once market growth warranted it and the Sasol upliftment agreement fell away. But Petronet entered into 17 year agreement with SASOL effectively locking in pipeline infrastructure away from the other oil companies. However, due to economic growth and the associated increase in demand for liquid fuel products by 2005, the ratio of pipeline capacity to inland demand had fallen to 25%.

#### **4.3.2.1.4 Do Suppliers' Prices form a Large Part of the Total Cost of the Organisation?**

##### **United States**

In the case of the USA, greater than 70% of the distributors' costs are made up of the price of fuel from a refiner (A Primer on Gasoline Prices, 2006). Thus potential increases in price can have a substantial impact on profits if the distributor is unable to pass on these costs to the retailers.

##### **South Africa**

In South Africa most oil companies handle their own distribution. However for those independent wholesalers in the industry, the price of fuel from a refiner (at Basic Fuel Price) makes up more than 80% of the wholesale cost of fuel at which it is sold to a retailer.

#### **4.3.2.2 Force 2 - The Bargaining Power of Buyers/Customers**

The competitive pressures stemming from seller-buyer collaboration and bargaining. When the extent and competitive importance of seller-buyer strategic partnerships in the industry is widespread and strong.



#### **4.3.2.2.1 Do Buyers have Sufficient Bargaining Power to Influence the Terms and Conditions of Sale in their Favour**

##### **United States**

In the United States, this would only pertain to dealer-owned dealer-operated sites. Company-owned and operated sites and franchised sites are contractually bound to buy product from their parent refiner. Since federal regulations require oil companies to produce a standardised gasoline and diesel, unbranded dealer-owned dealer-operated sites have the choice of buying product on the spot market. That said, their bargaining power to influence the terms and condition of the sale in their favour is limited.

##### **South Africa**

In South Africa the retail distribution system consists of franchises (38%) and independently owned (62%) outlets (refer to Section 4.2.12). In this case independently owned and operated outlets can have significant bargaining power. Due to the fact that number of retail sites in the country is constrained (previously by the Service Station Rationalisation Plan and currently by the new licensing regime) there is competition among the oil companies to secure the branding and supply rights to existing independently owned retail sites. This gives the owner of the retail site bargaining power to negotiate price discounts on the wholesale price of fuel. Sasol for instance, has grown its retail footprint and market share by generous discounting of the wholesale price of petrol (Reasons for Decision, 2004).

#### **4.3.2.2.2 Do Customers have the Ability to Integrate Backwards - thus Fulfilling the Role of the Organisation?**

##### **United States**

The United States industry does exhibit a fair degree of vertical integration. For instance, jobber distributors sometimes do own and operate their own retail outlets. Major oil companies may be integrated from oil exploration and drilling all the way through the value chain into retailing. Smaller retailers would find it difficult to integrate backwards into distribution since this entails significant capital expenditure on trucks, tanks and depots.

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### **South Africa**

In South Africa there are clear stipulations in the regulations (Notice of Intention to Make Regulations Regarding Petroleum Products Site and Retail Licenses, 13 January 2006) that prohibit a wholesaler from holding a retail license. This means that the converse would equally apply.

#### **4.3.2.3 Force 3 - The Threat of Potential New Entrants**

New entrants bring new production capacity, the desire to establish a new place in the market and sometimes substantial resources with which to compete.

The seriousness of the competitive threat of entry depends on two classes of factors - *barriers to entry* and the *expected reaction of incumbent firms* to the new entry. A barrier to entry exists when it is hard for a newcomer to break into the market. The following are the major barriers to entry.

##### **4.3.2.3.1 Product Differentiation**

### **United States**

Federal authorities require that oil refineries produce a standard gasoline that meets the uniform specifications. This allows the sale of gasoline on spot markets and has led to an upsurge in the amount of unbranded sites and hypermarket retailers in the USA. Major oil companies try to differentiate their liquid fuel products with the use of additives, by branding and customer service offerings at the retail outlet. Once all factors have been considered it is clear that product differentiation is not a significant barrier to entry in this industry.

### **South Africa**

There are similar national regulations governing the quality and specification of liquid fuel products in South Africa. Government is currently actively promoting the entry of independent wholesalers into the liquid fuels industry in order to facilitate the entry and economic empowerment of Historically Disadvantaged South Africans. Oil companies are required to sell product to new independent wholesalers at depot or refinery level.

#### **4.3.2.3.2 Capital Requirements**

##### **United States**

The highly developed nature of the infrastructure in the United States means that a substantial capital requirement is not necessary for entry into the market. In addition, the vast and deregulated structure of the American market would make the profitability of a new entrant to the market more feasible.

##### **South Africa**

In the South African industry entry into the distribution sector would require capital to purchase road tankers, for example. In order to promote entry into the industry the government does not require any further investment into infrastructure or depots. The existing major oil companies are required to share pipeline infrastructure and depot capacity with new wholesaling entrants (Anonymous 4, personal communication, 13 December 2006). Thus capital requirement is not a significant barrier to entry at a wholesale level, and while the same may be true at a retail level, the saturation of the market may make recouping of the investment more difficult.

#### **4.3.2.4 Force 4 - The Threat of Substitutes**

In the case of both the United States and South Africa, the only threat of substitutes is likely to come from alternative fuels such as bio-diesel, bio-ethanol and hydrogen. However, it is unlikely that these alternative fuels will pose a major threat of substitution in the next five years.

#### **4.3.2.5 Force 5 - The Extent of Competitive Rivalry.**

In competitive markets companies engage in extensive monitoring of key competitors entailing examining and matching price moves; examining and attempting to match product changes and developments; watching investment in new plants and matching cost reduction efforts and attempting to headhunt key employees.



#### **4.3.2.5.1 Price Wars**

##### **United States**

The United States Liquid Fuels Industry is based on a deregulated retail pricing structure. This means that, being a commodity product, the retail price of fuel is set by the fundamentals of supply and demand. Competitors often engage in price wars in order to get market share. For this reason retail margins in the US industry tend to be quite small and large volumes are required in order to secure profitability.

##### **South Africa**

In South Africa the retail price of petrol is strictly controlled and regulated by the government. Thus price wars in the retail sector are not possible. However in a future deregulated environment it is highly likely that price-based competition will tend to reduce the retail price and subsequently the retail margin.

#### **4.3.2.5.2 Competitors that have Expressed a Determination to Achieve a Strategic Stake in Market and are willing to Incur Short Term Costs to Secure Long-Term Advantages.**

##### **South Africa**

This point is particular pertinent to Sasol's situation. The Main Supply Agreement (MSA) effectively curtailed Sasol's participation in the retail sector of the industry. After publication of the government's white paper on energy policy (White Paper on the Energy Policy of the Republic of South Africa, 1998) and after being advised that the MSA would fall foul of the new competition law (Reasons for Decision, 2004) Sasol decided to terminate the agreement. This however meant that Sasol had to secure an outlet for its liquid fuel products. New individual supply agreements were signed with each oil company, but in order to establish leverage on wholesale pricing Sasol had to quickly establish a retail presence (Reasons for Decision, 2004). Although Sasol's retail market share (at 9%) is significantly less than that of competitors, this was established very quickly over the period of a few years. This was achieved by securing the branding and supply rights to new and existing sites by discounting the wholesale price of petrol.

4.3.3 Analysis of the Industry’s Dominant Economic Features

4.3.3.1 Market Size

United States of America

Based on the SIGMA statistical reports of 2004, 2005, and 2006 (Osborne, 2004, 2005, 2006) the amount of motor fuel sold in the USA was 185 (32%), 190 (31%) and 190 (31%) billion gallons per year in 2003, 2004 and 2005 respectively. The figures in brackets are the percentage of this fuel that was sold by SIGMA members. Of this the proportion of motor fuels that was diesel was 30% in 2003, 29% in 2004, and 30.3% in 2005.

In 2002, total gasoline demand in California was 15 billions gallons. This represented 11.2 % of total US gasoline demand (2003 California Gasoline Price Study: Preliminary Findings, 2003). Over the preceding 10 years, demand for gasoline increased by 2.1% per year on average. US demand during the same period grew by 1.8% per year. This would equate to a total US gasoline demand in 2002 of 134 billion gallons and using a diesel proportion of 30% this would mean that 191 billion gallons of motor fuel was sold in 2002.

Based on the data provided by National Petroleum News (Retail Market, 2004), the number of retail stations in the USA was 167 346 in 2004. The represented all retail outlets of any kind at which the public can buy gasoline. There has been a decrease in the amount of retail outlets from 202 178 in 1994 to 167 346 in 2004. The decrease has been attributed to increased competition from non-traditional channels of trade (such as high volume hypermarkets), stiffer environmental regulations, shrinking gasoline margins, and the ability of many retailers to pump higher volumes than in the past.

**Table 4.1 Number of Retail Outlets in the USA and Average Monthly Gasoline Volume**

	2000	2001	2002	2003
Average monthly gasoline volume per store (gallons)	103 635	104 293	106 802	107 560
Total retail outlet count	175 169	172 169	170 018	167 571

Source: *Retail Market. (2004). National Petroleum News. Vol 91. Issue 8. p 127*

**Table 4.2 Breakdown of Motor Fuel Sales by Grade**

	Percent of gallons sold per month		Gallons per month per store	
	2002	2003	2002	2003
<b>Unleaded</b>	70.6%	71.0%	76300	81000
<b>Regular</b>				
<b>Mid Grade</b>	11.8%	10.9%	12800	12400
<b>Premium</b>	8.9%	8.5%	9600	9700
<b>Diesel</b>	8.6%	9.4%	9300	10600
<b>Total</b>	100%	100%	108100	113900

Source: *Retail Market. (2004). National Petroleum News. Vol 91. Issue 8. p 127*

**South Africa**

From Table 4.3 it can be seen that the market for liquid fuels products has grown from 23.6 billions litres per year in 1993 to 30.6 billion litres per year in 2004. It can also be seen that the inland area has the dominant market share of 63%. During the period 1993 to 2004, demand for petrol has grown by 17% while demand for diesel has grown by 64%. This clearly indicates the higher growth rate for diesel and supports the predictions made during the Delphi study on diesel growth rate (see Section 4.2.5).

**Table 4.3 Average Yearly Demand for Liquid Fuel Products**

Year	Volume of fuel sold in Litres (Billions)	Volume of fuel sold in US gallons (Billions)	Inland consumption of petrol in Litres (Millions)	Inland consumption of diesel in Litres (Millions)
1993	23.6	6.23	9202	4940
1994	24.7	6.53	9630	5110
1995	28.0	7.40	10153	5432
1996	29.4	7.77	10566	5759
1997	33.8	8.93	10798	5875
1998	31.0	8.19	10883	5959
1999	26.6	7.03	10861	5993
2000	26.7	7.05	10396	6254
2001	26.9	7.11	10340	6488
2002	31.4	8.30	10335	6831
2003	30.2	7.98	10667	7263
2004	30.6	8.08	10985	7679
2005			11165	8115

Source: *SAPIA Annual report 2005*. (2005). Cape Town: Simunye.

#### **4.3.3.2 Scope of Rivalry**

##### **United States of America**

The United States Liquid Fuels Industry is the largest in the world. It is characterised by robust competition and a large number of rivals. The scope of rivalry largely pertains to market share and retail pricing.

##### **South Africa**

A key event in the history of the South African industry took place at the end of 2003 when the Main Supply Agreement was dissolved. This unleashed an outbreak of competition among the oil companies as they competed to secure market share. Rivalry was based on the use of wholesale pricing to gain competitive advantage. Sasol was able to protect the demand for its liquid fuel product due to the logistical constraints (primarily access to

coastal-inland pipelines) experienced by the other oil companies in transporting fuel from their coastal refineries to the inland market.

When the setting of retail price is deregulated in future it will definitely extend the scope of the competitive rivalry to competition based on retail price.

#### **4.3.3.3 Market Growth Rate**

##### **United States of America**

In 2002 total gasoline demand in California was 15 billions gallons. This represented 11.2 % of US gasoline demand (2003 California Gasoline Price Study: Preliminary Findings, 2003). Over the preceding 10 years demand for gasoline increased by 2.1% per year on average. US demand during the same period grew by 1.8% per year.

##### **South Africa**

- In the year 2001, as compared to 2000, petrol sales declined by 0.5%, jet fuel by 4.8% and paraffin by 8.3%. Diesel sales grew by 3.7%. The overall total grew by 0.3%.
- In the year 2002, as compared to 2001, petrol sales were static. Diesel sales grew by 5.2%. The overall total grew by 1.4%.
- The year 2003 shows an increase in sales of the main products (SAPIA Annual Report, 2003).
- In 2004 all products other than jet fuel showed growth over 2003. The combined growth was 3.6% (SAPIA Annual Report, 2004).
- In 2005 all the major products showed growth over 2004. The combined growth of all products over 2004 was 2.7% (SAPIA Annual Report, 2005).

Based on the results of the data collected during the Delphi study from the panel of experts the growth rate for petrol was forecast to increase over the next five years by between 1 to 2%. The growth rate for diesel was forecast at between 3 to 4%.

4.3.3.4 Number of Rivals and Buyers

United States of America

The United States Liquid Fuels Industry is the biggest in the world. In addition to the major oil companies, there are also independent refiners, jobber operated outlets as well as unbranded independent retailers.

In the year 2003 there were 167 571 retail outlets in the USA (Retail Market, 2004). The top 14 major branded companies combined have a total of 101 733 outlets. This would consist of company operated, franchised and branded open dealers. These branded stations constitute only 61% of the number of retail outlets thus confirming the amount of rivalry in the US motor fuel retail industry. The company with the largest number of branded outlets is Shell Oil Products U.S./Movita Enterprises LLC with 18279 outlets (10.9% of total retail outlets).

**Table 4.4 United States - Branded gasoline retail outlets 2003**

Company	Number of retail outlets
Shell Oil Products U.S./Motiva Enterprises LLC	18279
BP America Inc	14900
ConocoPhillips	14616
CITGO Petroleum Corp.	13844
ExxonMobil	12473
Chevron Products Co.	7827
Sunoco, Inc.	4528
Marathon Ashland Petroleum	3908
Valero Energy Corp.	3300
Sinclair Oil Company	2124
Speedway SuperAmerica LLC	1775
CHS (Cenex)	1597
Getty Petroleum	1313
Amerada Hess	1249
<b>Total</b>	<b>101733</b>

Source: *Retail Market. (2004). National Petroleum News. Vol 91. Issue 8. p 127*

**South Africa**

The South African industry is dominated by a few major oil companies. A list of the major players together with share of the retail market for the year 2005 is given below:

**Table 4.5 South Africa - Major product market share (%)**

Company	Petrol	Diesel
Afric Oil	0.52	2.91
BP	16.02	13.87
Caltex	16.28	15.54
Engen	26.89	24.34
Sasol	8.46	9.96
Shell	17.45	15.18
Tepco	0.14	2.64
Total	14.24	15.56
Sum	100	100

Source: *SAPIA Annual report 2005*. (2005). Cape Town: Simunye.

The number of rivals is set to increase in the distribution sector with the entry of independent distributors. The barriers to entry have intentionally been kept low by government regulations. Furthermore, the entry of Historically Disadvantaged South African (HDSA) companies will continue as per the government’s stated intention. For instance, BP has outsourced its commercial distribution business to Masana Petroleum which is an HDSA empowered company (Reasons for Decision, 2004).

**4.3.3.5 Types of Distribution Channels**

**United States of America**

Refiners in the USA use a variety of channels to get their product to the market. The types of distribution channels in the USA can be summarised as follows:

- Direct Supply
  - Company-owned and operated retail outlets (branded)
  - Company franchised retail outlets (branded)
  - Independent dealer retail outlets (branded)

- Jobber Distributed
  - Jobber operated outlets (branded/unbranded)
  - Jobber franchised outlets (branded/unbranded)
  - Independent dealer (unbranded)
- Spot and Contract Sales
  - Hypermarkets

A comprehensive analysis of the distribution channels used in the US industry can be found in Chapter 2, the Literature Review (Section 2.4.1).

### **South Africa**

The distribution channels of product from the refinery to the depot are via road, rail, and pipeline (personal communication: Anonymous 2, Anonymous 4, Anonymous 6, 9 -13 December 2006). The primary distribution is dominated by rail. The secondary distribution from the depots to the retail outlets is mainly via road using company-owned or leased fleets. Each oil company would add their own additives to the product at the depot level. This distribution is done by the oil companies and by independent distributors. These independent distributors may be contracted to supply major oil company retail outlets in outlying areas, or they may distribute product to unbranded stations – referred to in the South African industry as “white sites”. The entry of independent distributors into the industry is encouraged by government policy.

The vast majority of South African retail sites are branded with the name of a major oil company (personal communication, Anonymous 2, 11 December 2006). Based on information collected in the Delphi study (see Section 4.2.12) the fraction of retail outlets that are franchises (also known as company-owned dealer-operated) is 38%. The remainder are independent outlets (also known as dealer-owned dealer-operated). The fraction of outlets that are company-owned and operated is negligible since these are only allowed for training purposes (personal communication, Anonymous 5, 13 December 2006).

A franchise agreement governs the relationship between the oil company and its company-owned dealer-operated outlet. This agreement lasts for a period of three to five years and may be renewed. The following may be included in a typical franchise agreement: a complete building/structure including forecourt (pumps and tanks but excluding stock), branding and signage, convenience store (excluding stock), bakery/fresh food outlet, ATM and car wash (some locations only) ( Prospectus Sasol Franchise,



www.sasol.com, 16 October 2006). The franchisor provides assistance with marketing and advertising, design and layout of premises, training of staff, installation of equipment, management, stock control, office systems and financial management systems. The franchisee would pay the oil company monthly rental fees based on a fraction of the dealer margin for forecourt sales, and a percentage of gross shop sales in the convenience store.

A supply agreement governs the relationship between the oil company and a branded dealer-owned dealer-operated outlet (DODO) (Anonymous 2, personal communication, 12 December 2006). Due to safety, health and environmental regulations some oil companies may take ownership of the tanks in independently owned retail outlets. The licensing regulations attached to the amended Petroleum Products Bill prevent refiners and wholesalers from operating retail sites.

Hypermarket retailing is not currently a feature of the South African industry. This is due to the regulated nature of the retail petrol price. The business model of the hypermarket fuel retail industry is based on attracting customers to the site using super low prices at cost or even slightly below cost (personal communication, Anonymous 2, 11 December 2006). The business model assumes that customers attracted to the parking lot of the hypermarket will then use the opportunity to enter the hypermarket to purchase other items. Loyalty programmes are also used by hypermarket retailers in the US to achieve customer retention. Currently the ban on loyalty programmes in the country (personal communication, Anonymous 5, 13 December 2006) and the regulated nature of the retail price inhibit hypermarket entry into the fuel retail business. From the Delphi study no consensus could be established on whether hypermarket retailing would be a viable marketing channel in future. One of the participants felt that hypermarkets would be direct competition for the oil company franchises in which they (the oil companies) had invested significantly. Oil companies would want to protect the rental incomes they received from turnover and would therefore avoid supplying hypermarket retailers. Another participant noted that there weren't many suitable potential sites situated at supermarket or hypermarket parking lots. Safety, health, and environmental considerations would also limit entry. One of the participants noted that this would require significant investment into infrastructure and that if it did happen then it would be in 10 to 15 years and would also be dependent on price deregulation.

Sasol sells fuel to other oil companies at a wholesale price consisting of the basic fuel price (BFP), taxes, and levies. Product is sold to commercial customers such as

government and other parastatals at a discounted wholesale price. (Anonymous 6, personal communication, 11 December 2006).

Access to some aspects of the distribution channels such as storage facilities at depots, plants and dispensing sites are essentially controlled by the oil companies by virtue of their ownership of this infrastructure (personal communication, Anonymous 5, 13 December 2006).

One of the new aspects that has been highlighted is the threat of emerging wholesalers. These new entrants get the full wholesale margin with very little cost or investment into infrastructure. It is only the retail price of petrol that is regulated and not the wholesale price.

Storage depots are located inland and at the coast and are linked by a product pipeline. They are “shared” among all oil producers through “hospitality agreements”. Sasol is currently highly dependent on hospitality agreements with other oil companies since it has very few depots of its own (Reasons for Decision, 2004).

#### **4.4 Conclusion**

In this chapter an analysis was carried out on the results of the Delphi Study (research question 1). Research question 2 was then answered by carrying out a benchmarking exercise on the United States and the South African industries using techniques such as PEST analysis and Porter’s Five Forces. In the following chapter, research questions 3 and 4 will be answered. This will constitute identifying similarities and differences between the two industries followed by a recommendation on the marketing strategy that Sasol should use.

## **Chapter 5**

## **Recommendations and Conclusions**

### **5.1 Introduction**

In this chapter objectives 1, 2 and 3 will be fulfilled and in so doing research questions 3 and 4 will be answered. The objectives entail benchmarking the South African liquid fuels industry with the United States industry and recommending marketing strategies to be implemented in a deregulated industry. The distribution channels to be used and the proposed level of vertical integration will also be discussed.

### **5.2 Objective 1 – Benchmarking of the Regulated South African Liquid Fuels Industry against the Deregulated United States Industry.**

Fulfilling this objective entails identifying aspects of the US industry that can be implemented in a deregulated South African industry. Recommendations are made based on developing answers to the following questions.

#### **5.2.1 What will the Future Environment in the South African Liquid Fuels Industry be like?**

The history of the South African Liquid Fuels Industry has been dominated by two key government brokered agreements. The Main Supply Agreement secured the upliftment of Sasol's liquid fuel products and in return prohibited them (Sasol) from entering the retail sector of the industry. The Service Station Rationalisation plan (RATPLAN) sought to limit the number of service stations in order to protect retail profitability by exploiting economies of scale. The RATPLAN also banned self-service in order to protect the jobs of pump attendants. These agreements were adhered to by the participants in the industry even though they were not actually signed into law. The agreements have subsequently lapsed. The Petroleum Product Amendment Bill of 2003 was formally enacted in May 2006. The regulations attached to this bill effectively replaced the RATPLAN. Thus the South African industry is currently in a period of re-regulation rather than deregulation. Nevertheless, in the white paper on energy policy, the government has formally stated its intention to deregulate the industry once certain milestones have been achieved.

Based on the secondary information gleaned from the literature review, the primary data collected in the Delphi study, and the analysis undertaken in Chapter 4, it is suggested that a future deregulated South African Liquid Fuels Industry will have the following features:

**Pricing Structure** – The retail price of petrol will be totally deregulated and will be determined by the market forces of supply and demand. This is based on the stated government intention to deregulate the pricing structure once certain milestones have been achieved. Consensus from the panel of experts was that the pricing structure would not be deregulated within the next two years. Estimates of when this would be implemented ranged from five to ten years. Unless there are investments in additional refining capacity South Africa will have to continue to import refined product into the country in order to meet market demand. Therefore it is likely that the wholesale price of petrol will be fairly close to import parity. Price competition in the retail sector is likely to lead to decreased retail margins which may lead to lack of profitability and a rationalisation of the number of retail outlets in the country. This would be further exacerbated by the ban on self-service.

**Self-Service** – the government has clearly stated its intention to maintain the ban on self-service in order to protect the jobs of the petrol attendants in the country. The self-service ban was originally a part of the now defunct Service Station Rationalisation Plan. It has been explicitly stated in the Petroleum Products Amendment Bill that the ban on self-service would continue. Furthermore, the licensing regulations on retailing also prohibit self-service.

**Vertical Integration** - The government has stated its intention to empower small and medium enterprises in the liquid fuels industry particularly with regard to Historically Disadvantaged South Africans. Wholesalers are currently prohibited from holding retail licenses as per the wholesaling and retailing license regulations of the Petroleum Products Bill. This effectively prevents major oil companies from operating retail sites. Other than the aforementioned prohibition there are no other regulatory prohibitions on vertical integration. Even though oil companies are not allowed to operate retail outlets (except for an insignificant number of training sites) they are still substantially involved in retailing by virtue of their franchised outlets (from which they receive income based rentals).

**Issues Dominating the Business Environment** - Access to distribution channels (in order to transport liquid fuel product from the refineries to the depots and the retail sites) is likely to remain a contentious issue. Currently the coastal oil refiners (Shell, BP, Engen and Caltex) are unable to transport sufficient product from their coastal refineries to the inland market because of constraints on pipeline capacity. The logistical costs of moving product using rail and road are respectively 1.5 and 2.5 times higher than the tariff costs of the pipeline. Therefore the other oil companies will continue to be reliant on Sasol for inland market product supply. The extended Durban-Johannesburg pipeline is due to be commissioned in 2010. The consequent increase in pipeline capacity is likely to be temporary due to the increase in fuel demand (which is a function of economic growth).

The other major issue is capital expenditure. The growing demand for liquid fuel products has strained the current distribution infrastructure in the country. This pertains to tanks, depots and loading/offloading facilities as well as the need for more or bigger pipelines. Significant capital expenditure is needed to address infrastructure constraints.

**Types of Retail Outlets** – There are currently three types of retail outlets in the South African industry, namely, branded dealer-owned dealer-operated sites, branded company-owned dealer-operated sites, and unbranded dealer-owned dealer-operated sites (the so-called “white sites”). In a future deregulated scenario all three of these retail outlets will be present. Furthermore, the deregulation of the pricing structure would mean that the business model proposed by hypermarket retailers may be feasible. Even though some of the Delphi panellists expressed the view that this would be contrary to the stated policy aims of the government with regard to empowerment of small to medium enterprises, no documented government intention could be found with regard to the banning of hypermarket fuel retailing.

### **5.2.2 Which Aspects of the US Industry may be Applicable to South Africa?**

The retail prices of the gasoline and diesel in the United States are set by market forces of supply and demand. There is fierce competition among neighbouring retailers in any given location based on price. Regulations require that retail outlets display the price of gasoline at the store front such that it is visible from the street. In a highly competitive price-based market it is possible that this could become a feature of the South African industry.

The US market is characterised by the existence of price zones. Zone pricing is the practice whereby refiners set uniform wholesale prices for retail stations within a small but distinct geographic area called a price zone. The differences in the wholesale prices among the price zones in a particular region can reach up to several cents per gallon. Each refiner decides the nature of its price zone and the wholesale price to be charged in that zone based on a variety of factors. This would include the competitive conditions in a station's trading area. Zone pricing is an attempt by the refiner to control the retail price of gasoline in order to ensure that the retail outlet is effectively competing with the neighbouring competition. In a deregulated South African industry the use of zone pricing by refiners may be appropriate.

The distribution model in the United States is characterised by the stark differences in vertical integration that different companies use in marketing their product. Some of the major oil refiners are vertically integrated from oil extraction to refining to distribution to retailing. Others rely on jobber distributors to distribute their product to either branded or unbranded retailers. Some refiners even go to the extent of selling their standardised product on the spot market where it would be purchased by hypermarkets and independent distributors. An overhaul of the marketing and distribution channels is likely to take place in a deregulated South African industry. The entry of independent distributors increases this likelihood. Certain aspects of the US model would be applicable to the South African scenario.

As identified in Section 4.3.1.1 of the PEST analysis one of the major differences between the current US model and the South African scenario described in Section 5.2.1 is the level of regulation. Self service bans and limitations on vertical integration are not features of the US industry.

One of the other crucial differences between the two industries is the distribution of income and demographic make-up of the populations in the two countries. The United States is a first world country where a significant amount (32%) of consumers purchase the more expensive premium gasoline. The South African market is likely to be substantially more price conscious.

One of the fundamental differences between the South African and American industries is the size of the market. The total retail station count in the United States was over 167 000 in 1993, in contrast South Africa has approximately 4800 retail sites. The total volume of liquid motor fuel sold in the US is approximately 185 billion gallons per year. In South Africa the total yearly volume of liquid fuel sold was 8 billion gallons. This

difference in market size is relevant in areas such as economies of scale for distribution channels and critical masses that may be required for different marketing strategies to be effective. These limitations were critically considered in developing the proposed strategy.

### **5.3 Objective 2 – Changes in the Business Environment in terms of Dissolution of the Main Supply Agreement and other Newly Enacted Legislation.**

Recommendations are made based on developing answers to the following questions.

#### **5.3.1 What Distribution Channels should Sasol use?**

Based on the analyses carried out above it is recommended that Sasol use the following distribution channels. This proposed approach is contingent on the environmental scenario as outlined in section 5.2.1 above. It is proposed that Sasol use a multifaceted approach to distribution strategy. The individual supply agreements that have been negotiated with individual oil companies should be maintained and renegotiated on an “as-needed” basis. These agreements serve the crucial purpose of securing demand for the bulk of Sasol’s liquid fuels products. Historically and currently Sasol’s *production capacity–retail capacity* equilibrium has been out of balance. Sasol’s retail and distribution arm is still not developed enough to correct this equilibrium. The ruling of the Competition Tribunal in which the proposed merger with Engen was disallowed indicates that the competition authorities will not allow Sasol to acquire or merge with another oil company in order to correct the supply-demand balance. Thus Sasol is forced to grow its retail sector organically, that is, by steadily increasing market share. This strategy does not offer an immediate short term solution to the problem. Hence Sasol is forced to use supply agreements with the other companies to secure a market for its product.

It is proposed that Sasol make use of independent distributors to sell product to “white sites”. A future deregulated scenario will likely see the emergence of unbranded retail sites. In this case “unbranded” would refer to a retail site that does not bear the branding or name of a major oil company. The government is promoting the entry of small and medium enterprises into the retail and wholesale sector. There are significant incentives for independent wholesalers to enter the market such as the requirement that they be given access to pipeline and depot infrastructure without the need for capital investment. Regulations that may be implemented in future will continue to support these

initiatives. Thus, this distribution channel is likely to offer a significant alternative for Sasol's product.

Sasol should also make use of independent wholesalers to supply retail locations outside of their core area (the inland market). These independent wholesalers can be tied in to short term contracts stipulating that they only supply Sasol fuel to Sasol branded outlets.

In order to maintain a wholesale presence, franchised retailers should be supplied by Sasol operated distributors.

The analysis has shown that Sasol is currently highly dependent on hospitality agreements with other oil companies to secure depot storage. It is thus crucial that Sasol invest in depot infrastructure to reduce this dependency. Given Sasol's huge production volumes this would entail major capital expenditure.

It is recommended that Sasol continue with its approach of using both *company*-owned dealer-operated (franchised) and dealer-owned dealer-operated (branded independent) retail outlets. The franchised outlets are potentially highly lucrative since Sasol receives rental from the dealer based on dealer margin (18% of this) and gross convenience store sales (9% of this). A thriving franchised outlet is thus a significant source of income. Bearing this in mind, it is recommended that the franchise model be used in busy metropolitan areas where fuel sale volumes and convenience store volumes are likely to be high. In less busy outlying locations the volume of product sold may not justify the extra investment required for a franchised outlet. In this case it is recommended that the branded independent model be used. The branded independent model has a valuable role to play in securing market share as discussed below.

The viability of hypermarkets in a future deregulated South African scenario remains to be seen. The significantly smaller size of the South African market in comparison the US market means that hypermarket retailers are unlikely to be able to achieve the required critical volume in sales that would make an investment in liquid fuel retailing feasible. Significant investment would be required on the part of retailers since most hypermarket parking lots are not currently suitable for conversion to petrol station outlets. This is especially due to the safety, health and environment requirements pertaining to petrol stations. The US model of hypermarket retailing is also based on self-service. As per the scenario described in section 5.2.1, the ban on self service is likely to continue into the foreseeable future. It is unlikely that more than one or two hypermarkets per metropolitan area will enter the market. Thus the retail footprint of this distribution channel is likely to be small.



### **5.3.2 What Level of Vertical Integration is Proposed?**

It is proposed that Sasol stay forward vertically integrated in the industry. It is crucial that a retail marketing presence be established. Forward vertical integration would require a wholesaling presence and a distribution presence.

## **5.4 Objective 3 - Marketing and Distribution Strategy in a Deregulated Environment**

In the deregulated scenario described in section 5.2.1, retail price would be determined by market forces of supply and demand. Decisions on retail pricing would be made by the independent dealer or franchisee and the oil company would not be able to directly set retail price. It is likely that in this scenario, retail margins would come under pressure especially as the ban on self-service is likely to continue. Retailers may be tempted to inflate retail prices in order to protect their retail margins. Thus a situation could develop where a retailer could price his or her product at a level measurably higher than neighbouring competitors. This could result in a decrease in volumes of product sold and a reduction in turnover. In extreme situations this could result in closure of the retail outlet to the detriment of the dealer and the oil company. It is recommended that Sasol implement the practice of “zone pricing” in an attempt to influence the retail price of product in a particular geographical area. This would ensure that product was competitively priced and that market share (and consequently wholesale product volume) was not compromised in order to protect retail margin.

It is recommended that the US practice of prominently displaying retail petrol and diesel prices at the store front should be implemented. This would help in attracting price conscious customers to the retail outlet.

In the short term it is crucial that Sasol gain market share in the retail sector. Since Sasol will continue to supply the other oil companies with wholesale product, market share is crucial in gaining leverage with the other oil companies during negotiations on wholesale pricing. It is proposed that the following strategy be used to gain market share. Due to the stated government intention of rationalising the number of retail sites in the country it will be difficult to secure site licenses for new retail sites. Thus Sasol must target

existing non-Sasol site license holders for conversion to Sasol branded sites. Sasol may achieve this by giving substantial individual discounts on the wholesale price of fuel to the targeted site license holders. The dealer-owned dealer-operated model may be used for this purpose. Price discounts should not be given to franchises since the company needs to recoup the substantial investment made in the development of the site.

Once a substantial retail market share has been established, Sasol may use this to ultimately achieve the long term goal of *protecting wholesale prices*. It is crucial to understand that the use of discounts on the wholesale price to independent branded dealers is not a long term strategy but rather a short term one in order to achieve market share. The current logistical constraint on coastal-inland pipeline capacity is to Sasol's advantage. The other oil companies are now reliant on Sasol to source product for their inland market demand. Sasol needs to exploit this situation to extract maximum wholesale prices from the other oil companies. The crux of the matter lies in retail market share. The more extensive Sasol's retailing presence is, the less reliant it is on the other oil companies to secure a market for its product. This means that it gains more leverage during wholesale price negotiations. Furthermore, with the commissioning of the extended Durban-Johannesburg pipeline in 2010, more liquid fuel product will be able to be brought up from the coast. This decreases the reliance of the other oil companies on Sasol and underscores the need for Sasol to establish a retail presence.

## **5.5 Limitations**

The primary data collected in the study was collected by interviewing a panel of six industry experts including the director of SAPIA and five other senior managers in the marketing division of Sasol Oil. For this reason it is possible that the results of the study reflect a "Sasol" view of the industry. For the purposes of this study the results would be applicable and sufficient since the purpose of the study was to identify the impacts on Sasol and to propose a marketing strategy for Sasol. However, for a broader industry view it would be necessary to conduct the study using a panel of experts sourced from a greater number of oil companies. One of the other limitations of the study is the choice of the United States as benchmark against which to compare the South African industry. Due to the substantial difference in market size there are limitations with regard to the type of comparisons that can be made. Nevertheless, the study has taken into account this

limitation and the marketing and distribution framework that has been proposed takes into account the particular circumstances relevant to the South African industry.

## **5.6 Future Research**

It is recommended that the results of the study be checked by conducting a quantitative survey using a representative sample population of industry experts. Alternatively the Delphi technique could be used again albeit with a different panel of experts representing a broader viewpoint rather than one that is specific to a particular company. It is also recommended that a different country (other than the USA) be used as a benchmark for future research in order that new and alternate distribution models can be identified that may be applicable to the South African industry.

## **5.7 Conclusion**

This chapter has identified aspects of the US industry that are similar in nature to the South African industry. A scenario of a future deregulated South African Liquid Fuels Industry has been described based on the preceding research and analysis. Recommendations have been made on the distribution channels, level of vertical integration and marketing strategies that should be used. The limitations of the study have also been identified and recommendations have been made for future research.

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# Appendices

# Appendix 1 Concept Matrix

		1. Business and Industry Environmental Analysis							
		Themes							
		Sub-themes	Competitive Strategy / Competitive Advantage	Analysis of the business environment	Competitive forces and strategy	Analysis of resources	Industry and competitive analysis	Developing strategic options	Global strategic analyses
		Ref num	j1	k1	l1	m1	n1	p1	o1
		Total	3	1	1	1	2	1	1
Articles	Ref num								
Anderson and Johnson, 1999	1	4							
Kleit, 2003	2	7							
Energy Information Administration, 2003	3	5							
Energy Information Administration, 2006	4	4							
Energy Information Administration, 2006	5	5							
API, March 2004	6	2							
API, July 2004	7	2							
API, October 2004	8	2							
API, February 2004	9	1							
API, October 2004	10	2							
API, October 2004	11	2							
Perkins, February 1999	12	3							
SAPIA, 2002	13	10							
API, October 2004	14	3							
SAPIA, 2003	15	10							
SAPIA, 2004	16	9							
SAPIA, 2005	17	6							
SIGMA, 2004	18	9							
SIGMA, 2005	19	9							
SIGMA, 2006	20	8							
National Petroleum News, Jul 2004	21	6							
National Petroleum News, Jul 2003	22	2							
National Petroleum News, Jul 2002	23	6							
National Petroleum News, Feb 2002	24	0							
National Petroleum News, Jul 2001	25	2							
Cook J, 2001	26	4							
National Petroleum News, May 2001	27	3							
Morrison M, 2000	28	2							
National Petroleum News, Jul 99	29	2							
National Petroleum News, Jul 99	30	0							
Abcede, A, Aug 98	31	1							
Smith D, Jul 97	32	1							
Usher J.M, Oct 96	33	2							
Reed, V, 96	34	2							
Ingene, CA, Brown JR, 87	35	1							
Kaplan R.S., 2000	36	1							
Blair, R Daugherty L, 2003	37	3							
Johnson RN, Romeo CJ, 2000	38	2							
Borenstein, Cameron, Gilbert, Feb 97	39	2							
Shepard A, 93	40	4							
Shepard A, 91	41	1							
Allen, BT	42	1							
Patterson, J.M, Allvine F.C.	43	3							
Marvel H.P.	44	2							
Gibson RG	45	6							
Churchill, Ford, Ozanne	46	1							
Jaffe,Wegrzynowicz	47	3							
Schendel, Balestra	48	1							
Summer M	49	1							
Winer, L	50	2							
Exec order	51	1							
Gartner WB	52	1							
Porter, ME	53	1							
IPAA, 2001	54	0							
Lynch, 2000	55	3							
Thompson and Strickland, 2001	56	1							
Aktouf, Chenoufi, Holford, 2005	57	1							
Presscott J, Smith DC, 87	58	1							
Thomas, Pollock, Gorman, feb 99	59	1							
SAPIA, 2006	60	1							
Klein, J, 2002	61	1							
SAPIA product sales, 2006	62	1							
SAPIA product prices, 2006	63	1							
SAPIA 2003	64	1							
DME, 2003	65	1							
DME, 2003	66	1							
SAPIA, 2003	67	1							
SAPIA, 2003	68	1							
SAPIA, 2003	69	1							
Dixon, DF, 1965	70	1							
Kennedy, 2003	71	1							
Powell, 2002	72	1							
Chou, 2002	73	1							
Clayton, 1997	74	1							
Hartman, 1996	75	1							
Buckley, 1995	76	1							
Williams, 1994	77	1							
Mitchell, 1991	78	1							
Gautschi, 1990	79	1							
Best, 1974	80	1							
Competition Tribunal, 2004	81	10							
Petroleum Pipelines Bill, 2003	82	1							
Sasol Franchise Prospectus	83	1							
Draft guides Import Export Crude oil, 2006	84	1							
White paper energy policy, 1998	85	1							
Sasol submission to windfall tax task team	86	2							
Shell submission to windfall tax task team	87	0							
Possible reform -fiscal regime windfall tax	88	10							
Government gazette, 13 Jan 006	89	2							
Petroleum Products Amendment Bill	90	1							

Articles	Ref num	Themes					
		Sub-themes	2. USA Product Gasoline/ diesel specs and types in US	3. USA Structure distributn & retail system Structure of US gasoline distribution system	Types of retail outlets in US	Industry trends in the USA	4. USA Prices and pricing Pricing of US gasoline/ diesel
		Ref num	l	b	f	c1	c
		Total	10	13	13	3	22
Anderson and Johnson, 1999	1	4		1			1
Kleit, 2003	2	7		1	1		1
Energy Information Administration, 2003	3	5	1				1
Energy Information Administration, 2006	4	4	1	1			1
Energy Information Administration, 2006	5	5	1				1
API, March 2004	6	2					1
API, July 2004	7	2					
API, October 2004	8	2					1
API, February 2004	9	1					1
API, October 2004	10	2					1
API, October 2004	11	2					1
Perkins, February 1999	12	3	1				1
SAPIA, 2002	13	10					
API, October 2004	14	3	1				1
SAPIA, 2003	15	10					
SAPIA, 2004	16	9					
SAPIA, 2005	17	6					
SIGMA, 2004	18	9	1	1	1	1	
SIGMA, 2005	19	9	1	1	1	1	
SIGMA, 2006	20	8	1		1	1	
National Petroleum News, Jul 2004	21	6		1	1		
National Petroleum News, Jul 2003	22	2					
National Petroleum News, Jul 2002	23	6		1			1
National Petroleum News, Feb 2002	24	0					
National Petroleum News, Jul 2001	25	2			1		
Cook J, 2001	26	4	1				1
National Petroleum News, May 2001	27	3			1		
Morrison M, 2000	28	2			1		1
National Petroleum News, Jul 99	29	2			1		
National Petroleum News, Jul 99	30	0					
Abcede, A, Aug 98	31	1					
Smith D, Jul 97	32	1			1		
Usher J.M, Oct 96	33	2			1		
Reed, V, 96	34	2			1		
Ingene, CA, Brown JR, 87	35	1		1			
Kaplan R.S., 2000	36	1					
Blair, R Daugherty L, 2003	37	3					1
Johnson RN, Romeo CJ, 2000	38	2					
Borenstein, Cameron, Gilbert, Feb 97	39	2		1			1
Shepard A, 93	40	4		1	1		1
Shepard A, 91	41	1		1			
Allen, BT	42	1		1			
Patterson,J.M, Allvine F.C.	43	3					
Marvel H.P.	44	2					1
Gibson RG	45	6	1				1
Churchill, Ford, Ozanne	46	1					1
Jaffe,Wegrzynowicz	47	3		1			
Schendei, Balestra	48	1					1
Summer M	49	1					
Winer, L	50	2					
Exec order	51	1					
Gartner WB	52	1					
Porter, ME	53	1					
IPAA, 2001	54	0					
Lynch, 2000	55	3					
Thompson and Strickland, 2001	56	1					
Aktouf, Chenoufi, Holford, 2005	57	1					
Presscott J, Smith DC, 87	58	1					
Thomas, Pollock, Gorman, feb 99	59	1					
SAPIA, 2006	60	1					
Klein, J, 2002	61	1					
SAPIA product sales, 2006	62	1					
SAPIA product prices, 2006	63	1					
SAPIA 2003	64	1					
DME, 2003	65	1					
DME, 2003	66	1					
SAPIA, 2003	67	1					
SAPIA, 2003	68	1					
SAPIA, 2003	69	1					
Dixon, DF, 1965	70	1					
Kennedy, 2003	71	1					
Powell, 2002	72	1					
Chou, 2002	73	1					
Clayton, 1997	74	1					
Hartman, 1995	75	1					
Buckley, 1995	76	1					
Williams, 1994	77	1					
Mitchell, 1991	78	1					
Gautsch, 1990	79	1					
Best, 1974	80	1					
Competition Tribunal, 2004	81	10					
Petroleum Pipelines Bill, 2003	82	1					
Sasol Franchise Prospectus	83	1					
Draft guides.Import Export Crude oil,2006	84	1					
White paper energy policy, 1998	85	1					
Sasol submission to windfall tax task team	86	2					
Shell submission to windfall tax task team	87	0					
Possible reform -fiscal regime windfall tax	88	10					
Government gazette, 13 Jan 006	89	2					
Petroleum Products Amendment Bill	90	1					

Articles	Ref num	Total	5. USA Marketing strategy & business models				6. USA regulatory environment		
			Marketing strategy USA	Branding USA	Self Service USA and Self Service Bars	Payment and credit cards and Business models USA	US Sales- below-cost laws and anti-trust	Legislation USA	Taxes and subsidies on US gasoline
			11	e1	d1	q1	a	h1	d
Anderson and Johnson, 1999	1	4					1		1
Kleit, 2003	2	7							
Energy Information Administration, 2003	3	5							
Energy Information Administration, 2006	4	4							
Energy Information Administration, 2006	5	5							
API, March 2004	6	2							
API, July 2004	7	2							1
API, October 2004	8	2							
API, February 2004	9	1							
API, October 2004	10	2							
API, October 2004	11	2							
Perkins, February 1999	12	3							
SAPIA, 2002	13	10							
API, October 2004	14	3							
SAPIA, 2003	15	10							
SAPIA, 2004	16	9							
SAPIA, 2005	17	6							
SIGMA, 2004	18	9		1	1				
SIGMA, 2005	19	9		1	1				
SIGMA, 2006	20	8		1	1				
National Petroleum News, Jul 2004	21	6		1					
National Petroleum News, Jul 2003	22	2		1					
National Petroleum News, Jul 2002	23	6		1		1			
National Petroleum News, Feb 2002	24	0							
National Petroleum News, Jul 2001	25	2							
Cook J, 2001	26	4							
National Petroleum News, May 2001	27	3				1			
Morrison M, 2000	28	2							
National Petroleum News, Jul 99	29	2							
National Petroleum News, Jul 99	30	0							
Abcede, A, Aug 98	31	1						1	
Smith D, Jul 97	32	1							
Usher J.M, Oct 96	33	2							
Reed, V, 96	34	2							
Ingene, CA, Brown JR, 87	35	1							
Kaplan R.S., 2000	36	1	1						
Blair, R Daugherty L, 2003	37	3					1	1	
Johnson RN, Romeo CJ, 2000	38	2			1				
Borenstein, Cameron, Gilbert, Feb 97	39	2							
Shepard A, 93	40	4							
Shepard A, 91	41	1							
Allen, BT	42	1							
Patterson, J.W, Allvine F.C.	43	3							
Marvel H.P.	44	2							
Gibson RG	45	6			1				
Churchill, Ford, Ozanne	46	1							
Jaffe, Wegrzynowicz	47	3	1						
Schendel, Balestra	48	1							
Summer M	49	1					1		
Winer, L	50	2	1						
Exec order	51	1							
Gartner WB	52	1						1	
Porter, ME	53	1							
IFAA, 2001	54	0							
Lynch, 2000	55	3							
Thompson and Strickland, 2001	56	1							
Aktouf, Chenoufi, Holford, 2005	57	1							
Presscott J, Smith DC, 87	58	1							
Thomas, Pollock, Gorman, Feb 99	59	1							
SAPIA, 2006	60	1							
Klein, J, 2002	61	1							
SAPIA product sales, 2006	62	1							
SAPIA product prices, 2006	63	1							
SAPIA 2003	64	1							
DME, 2003	65	1							
DME, 2003	66	1							
SAPIA, 2003	67	1							
SAPIA, 2003	68	1							
SAPIA, 2003	69	1							
Dixon, DF, 1995	70	1							
Kennedy, 2003	71	1							
Powell, 2002	72	1							
Chou, 2002	73	1							
Clayton, 1997	74	1							
Hartman, 1995	75	1							
Buckley, 1995	76	1							
Williams, 1994	77	1							
Mitchell, 1991	78	1							
Gautschi, 1990	79	1							
Best, 1974	80	1							
Competition Tribunal, 2004	81	10							
Petroleum Pipelines Bill, 2003	82	1							
Sasol Franchise Prospectus	83	1							
Draft guides Import Export Crude oil, 2006	84	1							
White paper energy policy, 1998	85	1							
Sasol submission to windfall tax task team	86	2							
Shell submission to windfall tax task team	87	0							
Possible reform -fiscal regime windfall tax	88	10							
Government gazette, 13 Jan 006	89	2							
Petroleum Products Amendment Bill	90	1							



Articles	Ref num	Ref num Total	7. USA supply and demand				8. USA industry competition		USA data
			Gasoline/ diesel supply in US	Gasoline/ diesel demand in US (sales)	Refining capacity in US	Station count USA	Non-price vertical restraints in the US and Vertical Integration	Competition in US gasoline retail industry and structure of gasoline retailing	
			k	m	l	f1	g	h	e/s/j
			10	9	2	2	3	5	19
Anderson and Johnson, 1999	1	4							
Kleit, 2003	2	7			1		1	1	1
Energy Information Administration, 2003	3	5	1	1					1
Energy Information Administration, 2006	4	4		1					
Energy Information Administration, 2006	5	5	1	1					1
API, March 2004	6	2							1
API, July 2004	7	2							1
API, October 2004	8	2		1					
API, February 2004	9	1							
API, October 2004	10	2							1
API, October 2004	11	2							1
Perkins, February 1999	12	3							1
SAPIA, 2002	13	10							
API, October 2004	14	3							1
SAPIA, 2003	15	10							
SAPIA, 2004	16	9							
SAPIA, 2005	17	6							
SIGMA, 2004	18	9	1	1					1
SIGMA, 2005	19	9	1	1					1
SIGMA, 2006	20	8	1	1					1
National Petroleum News, Jul 2004	21	6		1		1			1
National Petroleum News, Jul 2003	22	2							1
National Petroleum News, Jul 2002	23	6	1						
National Petroleum News, Feb 2002	24	0							
National Petroleum News, Jul 2001	25	2							
Cook J, 2001	26	4	1						1
National Petroleum News, May 2001	27	3							1
Morrison M, 2000	28	2							
National Petroleum News, Jul 99	29	2							1
National Petroleum News, Jul 99	30	0							
Abcede, A, Aug 98	31	1							
Smith D, Jul 97	32	1							
Usher J.M, Oct 96	33	2							
Reed, V, 96	34	2							
Ingers, CA, Brown JR, 87	35	1							
Kaplan R.S., 2000	36	1							
Blair, R Daugherty L, 2003	37	3							
Johnson RN, Romeo CJ, 2000	38	2							1
Borenstein, Cameron, Gilbert, Feb 97	39	2							
Shepard A, 93	40	4							
Shepard A, 91	41	1							
Allen, BT	42	1							
Patterson J.M, Altvine F.C.	43	3	1						
Marvel H.P.	44	2							
Gibson RG	45	6	1						
Churchill, Ford, Ozanne	46	1							
Jaffe,Wegrzynowicz	47	3							
Schendel, Balestra	48	1							
Summer M	49	1							
Winer, L	50	2							
Exec order	51	1							
Gartner WB	52	1							
Porter, ME	53	1							
IPAA, 2001	54	0							
Lynch, 2000	55	3							
Thompson and Strickland, 2001	56	1							
Aklouf,Chenoufi, Holford, 2005	57	1							
Prescott J. Smith DC, 87	58	1							
Thomas, Pollock, Gorman, feb 99	59	1							
SAPIA, 2006	60	1							
Klein, J., 2002	61	1							
SAPIA product sales, 2005	62	1							
SAPIA product prices, 2006	63	1							
SAPIA 2003	64	1							
DME, 2003	65	1							
DME, 2003	66	1							
SAPIA, 2003	67	1							
SAPIA, 2003	68	1							
SAPIA, 2003	69	1							
Dixon, DF, 1965	70	1							
Kennedy, 2003	71	1							
Powell, 2002	72	1							
Chou, 2002	73	1							
Clayton, 1997	74	1							
Hartman, 1995	75	1							
Buckley, 1995	76	1							
Williams, 1994	77	1							
Mitchell, 1991	78	1							
Gautschi, 1990	79	1							
Besf, 1974	80	1							
Competition Tribunal, 2004	81	10							
Petroleum Pipelines Bill, 2003	82	1							
Sasol Franchise Prospectus	83	1							
Draft guides Import Export Crude oil,2006	84	1							
White paper energy policy, 1998	85	1							
Sasol submission to windfall tax task team	86	2							
Shell submission to windfall tax task team	87	0							
Possible reform -fiscal regime windfall tax	88	10							
Government gazette, 13 Jan 006	89	2							
Petroleum Products Amendment Bill	90	1							

Themes Sub-themes	Ref num	Total	9. RSA Product	10. RSA Industry structure	11. RSA Pricing
			Petrol/ Diesel specs in RSA	Structuring of RSA petroleum industry	Pricing of petroleum products South Africa incl. MPA and IBL/BFP
			r	t	q
Articles	Ref num	Total			
Anderson and Johnson, 1999	1	4			
Kleit, 2003	2	7			
Energy Information Administration, 2003	3	5			
Energy Information Administration, 2004	4	4			
Energy Information Administration, 2006	5	5			
API, March 2004	6	2			
API, July 2004	7	2			
API, October 2004	8	2			
API, February 2004	9	1			
API, October 2004	10	2			
API, October 2004	11	2			
Perkins, February 1999	12	3			
SAPIA, 2002	13	10	1	1	1
API, October 2004	14	3			
SAPIA, 2003	15	10	1		1
SAPIA, 2004	16	9	1		1
SAPIA, 2005	17	6			1
SIGMA, 2004	18	9			
SIGMA, 2005	19	9			
SIGMA, 2006	20	8			
National Petroleum News, Jul 2004	21	6			
National Petroleum News, Jul 2003	22	2			
National Petroleum News, Jul 2002	23	6			
National Petroleum News, Feb 2002	24	0			
National Petroleum News, Jul 2001	25	2			
Cook J, 2001	26	4			
National Petroleum News, May 2001	27	3			
Morrison M, 2000	28	2			
National Petroleum News, Jul 99	29	2			
National Petroleum News, Jul 99	30	0			
Abcede, A, Aug 98	31	1			
Smith D, Jul 97	32	1			
Usher J.M, Oct 96	33	2			
Reed, V, 96	34	2			
Ingene, CA, Brown JR, 87	35	1			
Kaplan R.S., 2000	36	1			
Blair, R Daugherty L, 2003	37	3			
Johnson RN, Romeo CJ, 2000	38	2			
Borenstein, Cameron, Gilbert, Feb 97	39	2			
Shepard A, 93	40	4			
Shepard A, 91	41	1			
Allen, BT	42	1			
Patterson J.M, Altvine F.C.	43	3			
Marvel H.P.	44	2			
Gibson RG	45	6			
Churchill, Ford, Ozanne	46	1			
Jaffe, Wegrzynowicz	47	3			
Schendel, Balestra	48	1			
Summer M	49	1			
Winer, I.	50	2			
Exec order	51	1			
Gartner WB	52	1			
Porter, ME	53	1			
IPAA, 2001	54	0			
Lynch, 2000	55	3			
Thompson and Strickland, 2001	56	1			
Aktouf, Chenoufi, Holford, 2003	57	1			
Presscott J, Smith DC, 87	58	1			
Thomas, Pollock, Gorman, feb 99	59	1			
SAPIA, 2006	60	1			1
Klein, J., 2002	61	1			
SAPIA product sales, 2006	62	1			
SAPIA product prices, 2006	63	1			1
SAPIA 2003	64	1			1
DME, 2003	65	1			1
DME, 2003	66	1			1
SAPIA, 2003	67	1			1
SAPIA, 2003	68	1			1
SAPIA, 2003	69	1			1
Dixon, DF, 1965	70	1			
Kennedy, 2003	71	1			
Powell, 2002	72	1			
Chou, 2002	73	1			
Clayton, 1997	74	1			
Hartman, 1995	75	1			
Bucklay, 1995	76	1			
Williams, 1994	77	1			
Mitchell, 1991	78	1			
Gautschi, 1990	79	1			
Best, 1974	80	1			
Competition Tribunal, 2004	81	10		1	1
Petroleum Pipelines Bill, 2003	82	1			
Sasol Franchise Prospectus	83	1		1	
Draft guides Import Export Crude oil, 2006	84	1			
White paper energy policy, 1998	85	1			
Sasol submission to windfall tax task team	86	2		1	
Shell submission to windfall tax task team	87	0			
Possible reform -fiscal regime windfall tax	88	10		1	1
Government gazette, 13 Jan 06	89	2			
Petroleum Products Amendment Bill	90	1			



Articles	Ref num	Total	Themes	12. RSA Regulatory environment						
			Sub-themes	Legislation South Africa	Deregulation / Liberalisation South Africa	Fuel tax RSA	Rationalisation of retail in RSA	Clean fuels incentives South Africa	Sasol main supply agreement	
			Ref num	o	p	u	z	b1	a1	
Anderson and Johnson, 1999	1	4								
Kleit, 2003	2	7								
Energy Information Administration, 2003	3	5								
Energy Information Administration, 2006	4	4								
Energy Information Administration, 2006	5	5								
API, March 2004	6	2								
API, July 2004	7	2								
API, October 2004	8	2								
API, February 2004	9	1								
API, October 2004	10	2								
API, October 2004	11	2								
Perkins, February 1999	12	3								
SAPIA, 2002	13	10	1		1	1				
API, October 2004	14	3								
SAPIA, 2003	15	10	1			1	1			1
SAPIA, 2004	16	9	1			1		1		
SAPIA, 2005	17	6				1				
SIGMA, 2004	18	9								
SIGMA, 2005	19	9								
SIGMA, 2006	20	8								
National Petroleum News, Jul 2004	21	6								
National Petroleum News, Jul 2003	22	2								
National Petroleum News, Jul 2002	23	6								
National Petroleum News, Feb 2002	24	0								
National Petroleum News, Jul 2001	25	2								
Cook J, 2001	26	4								
National Petroleum News, May 2001	27	3								
Morrison M, 2000	28	2								
National Petroleum News, Jul 99	29	2								
National Petroleum News, Jul 99	30	0								
Abcede, A, Aug 98	31	1								
Smith D, Jul 97	32	1								
Usher J.M, Oct 96	33	2								
Reed, V, 96	34	2								
Ingene, CA, Brown JR, 87	35	1								
Kaplan R.S., 2000	36	1								
Blair, R Daugherty L, 2003	37	3								
Johnson RN, Romeo CJ, 2000	38	2								
Borenstein, Cameron, Gilbert, Feb 97	39	2								
Shepard A, 93	40	4								
Shepard A, 91	41	1								
Allen, BT	42	1								
Patterson, J.M, Alvine F.C.	43	3								
Marvel H.P.	44	2								
Gibson RG	45	6								
Churchill, Ford, Ozanne	46	1								
Jaffe, Wegrzynowicz	47	3								
Schendel, Balestra	48	1								
Summer M	49	1								
Winer, L	50	2								
Exec order	51	1								
Gartner WB	52	1								
Porter, ME	53	1								
IPAA, 2001	54	0								
Lynch, 2000	55	3								
Thompson and Strickland, 2001	56	1								
Aktouf, Chenoyli, Holford, 2005	57	1								
Presscott J, Smith DC, 87	58	1								
Thomas, Pollock, Gorman, Feb 99	59	1								
SAPIA, 2006	60	1								
Klein, J., 2002	61	1								
SAPIA product sales, 2006	62	1								
SAPIA product prices, 2006	63	1								
SAPIA 2003	64	1								
DME, 2003	65	1								
DME, 2003	66	1								
SAPIA, 2003	67	1								
SAPIA, 2003	68	1								
SAPIA, 2003	69	1								
Dixon, OF, 1985	70	1								
Kennedy, 2003	71	1								
Powell, 2002	72	1								
Chou, 2002	73	1								
Clayton, 1997	74	1								
Hartman, 1995	75	1								
Buckley, 1995	76	1								
Williams, 1984	77	1								
Mitchell, 1991	78	1								
Gautschi, 1990	79	1								
Best, 1974	80	1								
Competition Tribunal, 2004	81	10	1		1	1	1			1
Petroleum Pipelines Bill, 2003	82	1	1							
Sasol Franchise Prospectus	83	1								
Draft guides Import Export Crude oil 2006	84	1	1							
White paper energy policy, 1998	85	1	1							
Sasol submission to windfall tax task team	86	2								
Shell submission to windfall tax task team	87	0								1
Possible reform -fiscal regime windfall tax	88	10	1		1	1	1			1
Government gazette, 13 Jan 006	89	2	1		1					
Petroleum Products Amendment Bill	90	1	1							

Articles	Ref num	13. RSA supply and demand				14. Research methodology	
		Themes	Sub-themes			RSA data	Delphi Method
			Demand for petroleum products RSA (sales)	Petroleum product supply in RSA	Market share in RSA	Aggregate Financial results of SAPIA members and Value Added Statements	
		Ref num	w	x	y	v	w
Anderson and Johnson, 1999	1	4					
Kleit, 2003	2	7					
Energy Information Administration, 2003	3	5					
Energy Information Administration, 2006	4	4					
Energy Information Administration, 2006	5	5					
API, March 2004	6	2					
API, July 2004	7	2					
API, October 2004	8	2					
API, February 2004	9	1					
API, October 2004	10	2					
API, October 2004	11	2					
Perkins, February 1999	12	3					
SAPIA, 2002	13	10	1	1	1	1	
API, October 2004	14	3					
SAPIA, 2003	15	10	1	1	1	1	
SAPIA, 2004	16	9	1	1	1	1	
SAPIA, 2005	17	6	1	1	1	1	
SIGMA, 2004	18	9					
SIGMA, 2005	19	9					
SIGMA, 2006	20	8					
National Petroleum News, Jul 2004	21	6					
National Petroleum News, Jul 2003	22	2					
National Petroleum News, Jul 2002	23	6					
National Petroleum News, Feb 2002	24	0					
National Petroleum News, Jul 2001	25	2					
Cook J, 2001	26	4					
National Petroleum News, May 2001	27	3					
Morrison M, 2009	28	2					
National Petroleum News, Jul 99	29	2					
National Petroleum News, Jul 99	30	0					
Abcede, A, Aug 98	31	1					
Smith D, Jul 87	32	1					
Usher J.M, Oct 96	33	2					
Reed, V, 96	34	2					
Ingene, CA, Brown JR, 87	35	1					
Kaplan R.S., 2000	36	1					
Blair, R Daugherty L, 2003	37	3					
Johnson RN, Romeo CJ, 2000	38	2					
Borenstein, Cameron, Gilbert, Feb 97	39	2					
Shepard A, 93	40	4					
Shepard A, 91	41	1					
Allen, BT	42	1					
Patterson, J.M, Allyn F.C.	43	3					
Marvel H.P.	44	2					
Gibson RG	45	6					
Churchill, Ford, Ozanne	46	1					
Jaffe, Wegrzynowicz	47	3					
Schendel, Balestra	48	1					
Summer M	49	1					
Winer, L	50	2					
Exec order	51	1					
Gartner WB	52	1					
Porter, ME	53	1					
IPAA, 2001	54	0					
Lynch, 2000	55	3					
Thompson and Strickland, 2001	56	1					
Aktouf, Chenouff, Holford, 2005	57	1					
Presscott J, Smith DC, 87	58	1					
Thomas, Pollock, Gorman, feb 99	59	1					
SAPIA, 2008	60	1					
Klein, J, 2002	61	1					
SAPIA product sales, 2006	62	1	1				
SAPIA product prices, 2006	63	1					
SAPIA 2003	64	1					
DME 2003	65	1					
DME 2003	66	1					
SAPIA, 2003	67	1					
SAPIA, 2003	68	1					
SAPIA, 2003	69	1					
Dixon, DF, 1985	70	1					
Kennedy, 2003	71	1					1
Powell, 2002	72	1					1
Chou, 2002	73	1					1
Clayton, 1997	74	1					1
Hartman, 1985	75	1					1
Buckley, 1995	76	1					1
Williams, 1994	77	1					1
Mitchell, 1991	78	1					1
Gautschi, 1990	79	1					1
Best, 1974	80	1					1
Competition Tribunal, 2004	81	10	1	1	1		
Petroleum Pipelines Bill, 2003	82	1					
Sasol Franchise Prospectus	83	1					
Draft guides Import Export Crude oil, 2006	84	1					
White paper energy policy, 1998	85	1					
Sasol submission to windfall tax task team	86	2					
Shell submission to windfall tax task team	87	0					
Possible reform -fiscal regime windfall tax	88	10	1	1	1		
Government gazette, 13 Jan 006	89	2					
Petroleum Products Amendment Bill	90	1					

# Appendix 2 Research Questionnaire

## QUESTIONNAIRE

**Project title:** A benchmarking of the South African Liquid Fuels Industry with that of the United States

**Details of investigator:**

**Name:** Kamil Ballim  
**Company:** Sasol Technology  
**Position:** Senior Process Engineer  
**Qualifications:** BSc Eng (Chemical) (Natal)  
PGDipBusMgt (Natal)  
**Registered for:** MBA, University of KwaZulu-Natal  
**Student number:** 942411454  
**Tel:** 0823310782 (cell); 011-3440050 (office); 011-6099739 (home)  
**E-mail:** Kamil.Ballim@sasol.com, or KBallim@mweb.co.za

**Institution:** University of KwaZulu-Natal  
Faculty of Management Studies  
Graduate School of Business

**Approximate time required:** 35 minutes

**Instructions:**

Please indicate your choice by with an X in the appropriate box

**Example**

Choice A	<input type="checkbox"/>
Choice B	<input checked="" type="checkbox"/>
Choice C	<input type="checkbox"/>

Where required answers may be typed into the appropriate spaces indicated as follows:

---

Name of participant: \_\_\_\_\_ (You are welcome to remain anonymous)  
Current position: \_\_\_\_\_ (Optional)  
Organisation: \_\_\_\_\_ (Optional)  
Experience in liquid fuels industry: \_\_\_\_\_ Years

Thank you for your time and effort.

1. Structured questions:

1.1 General industry related

1.1.1 The future of the distribution and retailing sectors of the South African liquid fuel industry can be classified as

- a. Highly predictable

b. Predictable

c. Neutral

d. Unpredictable

e. Highly unpredictable
- |  |
|--|
|  |
|  |
|  |
|  |
|  |

1.1.2 The rate of change of industry driving forces can be classified as

- a. Very rapid

b. Rapid

c. Neutral

d. Slow

e. Very slow
- |  |
|--|
|  |
|  |
|  |
|  |
|  |

1.1.3 The most dominant features of the industry are (choose two):

- a. Market size

b. Market growth rate

c. Number of rivals

d. Issues around distribution channels

e. Pace of change

f. Capital requirements

g. Profitability

h. Black Economic Empowerment

i. Other: specify

j. Other: specify
- |  |
|--|
|  |
|  |
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|  |
|  |
|  |

1.1.4 The average yearly demand for *petrol* over the next five years is likely to increase by

- a. 0 - 0.5%

b. 0 - 1%

c. 1 - 2%

d. 2 - 3%

e. 3 - 4%

f. 4 - 5%
- |  |
|--|
|  |
|  |
|  |
|  |
|  |
|  |

1.1.5 The average yearly demand for *diesel* over the next five years is likely to increase by

- a. 0 - 0.5%

b. 0 - 1%

c. 1 - 2%

d. 2 - 3%

e. 3 - 4%

f. 4 - 5%
- |  |
|--|
|  |
|  |
|  |
|  |
|  |
|  |

1.2 Regulatory environment

1.2.1 The likelihood that the petrol pricing mechanism may be deregulated in the next 2 years may be classified as

- a. Very likely

b. Likely

c. Neutral

d. Unlikely

e. Highly unlikely
- ☐

☐

☐

☐

☐

1.2.2 The likelihood that the petrol pricing mechanism may be deregulated in the next 5 years may be classified as

- f. Very likely

g. Likely

h. Neutral

i. Unlikely

j. Highly unlikely
- ☐

☐

☐

☐

☐

1.2.3 The ban on self service is likely to continue in for the next five years:

- a. Yes

b. No

c. Not sure
- ☐

☐

☐

1.2.4 If all regulations pertaining to pricing, distribution, and retail were removed the impact on the marketing and distribution strategy of major oil refiners would be

- a. Very high

b. High

c. Medium

d. Low

e. Very low
- ☐

☐

☐

☐

☐

1.2.5 There are laws in place that that regulate how product is distributed from the refinery to the market place?

- a. Yes

b. No
- ☐

☐

If Yes, please specify \_\_\_\_\_

1.2.6 There are laws in place that that influence the level of vertical integration in the industry?

- a. Yes

b. No
- ☐

☐

If Yes, plase specify \_\_\_\_\_

1.2.7 Please estimate the percentage of retail outlets in the country that are

- a. Franchises \_\_\_\_\_ %
- b. Independently owned and operated \_\_\_\_\_ %
- c. Company operated \_\_\_\_\_ %
- d. Other, specify \_\_\_\_\_ %

### 1.3 Vertical integration

1.3.1 The level of vertical integration in the industry at present may be classified as:

- a. Very high ☐
- b. High ☐
- c. Medium ☐
- d. Low ☐
- e. Very low ☐

1.3.2 There are laws in place that prevent/inhibit new entrants from entering the liquid fuel retail market:

- a. Yes ☐
- b. No ☐

c. If Yes, please specify \_\_\_\_\_

1.3.3 In the near future, it is likely that major refiners will be forced to divorce themselves from the retail sector of the industry.

- a. Yes ☐
- b. No ☐
- c. Other, specify \_\_\_\_\_ ☐

1.3.4 The use of supermarkets and hypermarkets as retail outlets is likely to be an effective retail distribution channel for major refiners in future.

- a. Yes ☐
- b. No ☐
- c. Neutral ☐

Please give a short explanation:

---

---

---

1.3.5 It is currently possible for an independent retailer to purchase wholesale fuel from a refiner, for resale into the retail market?

- a. Yes ☐
- b. No ☐

1.3.6 It is currently possible for independently owned retail outlet to sell petrol/diesel that is branded with the name of a major refiner?

- a. Yes ☐
- b. No ☐

1.3.7 In your opinion, in a future deregulated scenario, independent retailers will sell fuel

- a. Branded with the name of a major refiner (BP, Caltex, Engen, Sasol, Shell, Total)
- b. Their own independent brands
- c. They will be both types of retail outlets described in (a) and (b) above.
- d. Neither. The current level of vertical integration will continue into the foreseeable future.

☐  
☐  
☐  
☐

**2. Open ended questions:**

2.1 What distribution channels are currently used in the industry to get liquid fuel product to market?

2.2 Who controls access to these distribution channels?

2.3 What level of vertical integration currently exists in the industry?

2.4 What are the generic types of contractual agreements currently in place between refiners and franchised retailers?



## Appendix 3 Informed Consent Document

### DECLARATION ON INFORMED CONSENT

**Project title:** A benchmarking of the South African liquid fuels industry with that of the United States.

**Project aim:** The South African liquid fuels industry is currently in a state of flux. During the last few years, the landscape of the industry has changed. A new fuel pricing mechanism has been rolled out and new legislation has been enacted within the past few years. These changes have significantly impacted on the business environment. The South African liquid fuels industry is currently based on a controlled fuel price. The government has indicated that there is the potential for further deregulation of the industry. What remains to be answered is how businesses would be affected by deregulation of the pricing structure and new limitations on vertical integration. Revisions to marketing, retail and distribution strategies may be required in order to address new challenges and to exploit new opportunities.

#### Details of investigator:

Name:	Kamil Ballim
Company:	Sasol Technology, Technology Licensing.
Position:	Senior Process Engineer
Qualifications:	BSc Eng (Chemical) (Natal) PGDipBusMgt (Natal)
Registered for:	MBA, University of KwaZulu Natal
Student number:	942411454
Tel:	0823310782

#### Details of alternate contact person:

Dr Anesh Maniraj Singh  
Head of School  
Graduate School of Business  
University of Kwazulu Natal  
Tel: +2731 - 260 7564  
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**Choice of participant:** All prospective participants were identified based on their knowledge and experience of the marketing sector of the South African liquid fuels industry.

**Requirements of the interview:** This interview will take place using a structured format. Questions will be based on the current marketing and distribution makeup of the South African liquid fuels industry.

**Confidentiality:** in order not to compromise Sasol's competitive advantage no confidential information or information deemed to be intellectual property is to be divulged.

**Estimated total time:** 35 minutes

**Importance of the study:** The value of the study is that it will help South African liquid fuels businesses position themselves in the new business environment, in particular if the fuel price regulations were removed. The study will consist of a detailed analysis of the business environment. Industry driving forces and key factors for success will be identified. The benchmarking of the South African liquid fuels industry against the US industry (which is the world’s largest) will assist in identifying areas for improvement and opportunities for new marketing and distribution channels. Furthermore, the outcome of the study will be a valuable tool in planning future market strategies in a deregulated environment.

**Written notes taken during interview:** Any notes taken during the interview will be regarded as confidential and will be treated as such. Data collected will be stored securely at the Graduate School of Business for a period of 5 years and thereafter destroyed.

**Confidentiality:** The identity of the participant will remain confidential. Participants may choose to remain anonymous.

**Participation in the study:** Participation in the study is totally voluntary and subjects are free to withdraw from the study at any stage. Any decision not to participate will not result in any disadvantage.

**DECLARATION**

I.....(full names of participant)  
hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

**SIGNATURE OF PARTICIPANT**

**DATE**

.....  
**NOTE:** Potential subjects should be given time to read, understand and question the information given before giving consent.

## **Appendix 4 Ethical Clearance Approval**

Ethical clearance approval number: HSS/07001A

Please refer to ethical clearance approval certificate overleaf.

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WESTVILLE CAMPUS  
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22 JANURARY 2007

MR. K BALLIM (942411454)  
GRADUATE SCHOOL OF BUSINESS

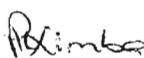
Dear Mr. Ballim

**ETHICAL CLEARANCE APPROVAL NUMBER: HSS/07001A**

I wish to confirm that ethical clearance has been granted for the following project:

**"A benchmarking of the South African Liquid Fuels Industry with that of the United States of America"**

Yours faithfully

  
.....  
MS. PHUMELELE XIMBA  
RESEARCH OFFICE

cc. Faculty Office (Christel Haddon)  
cc. Supervisor (Prof. S Lubbe)