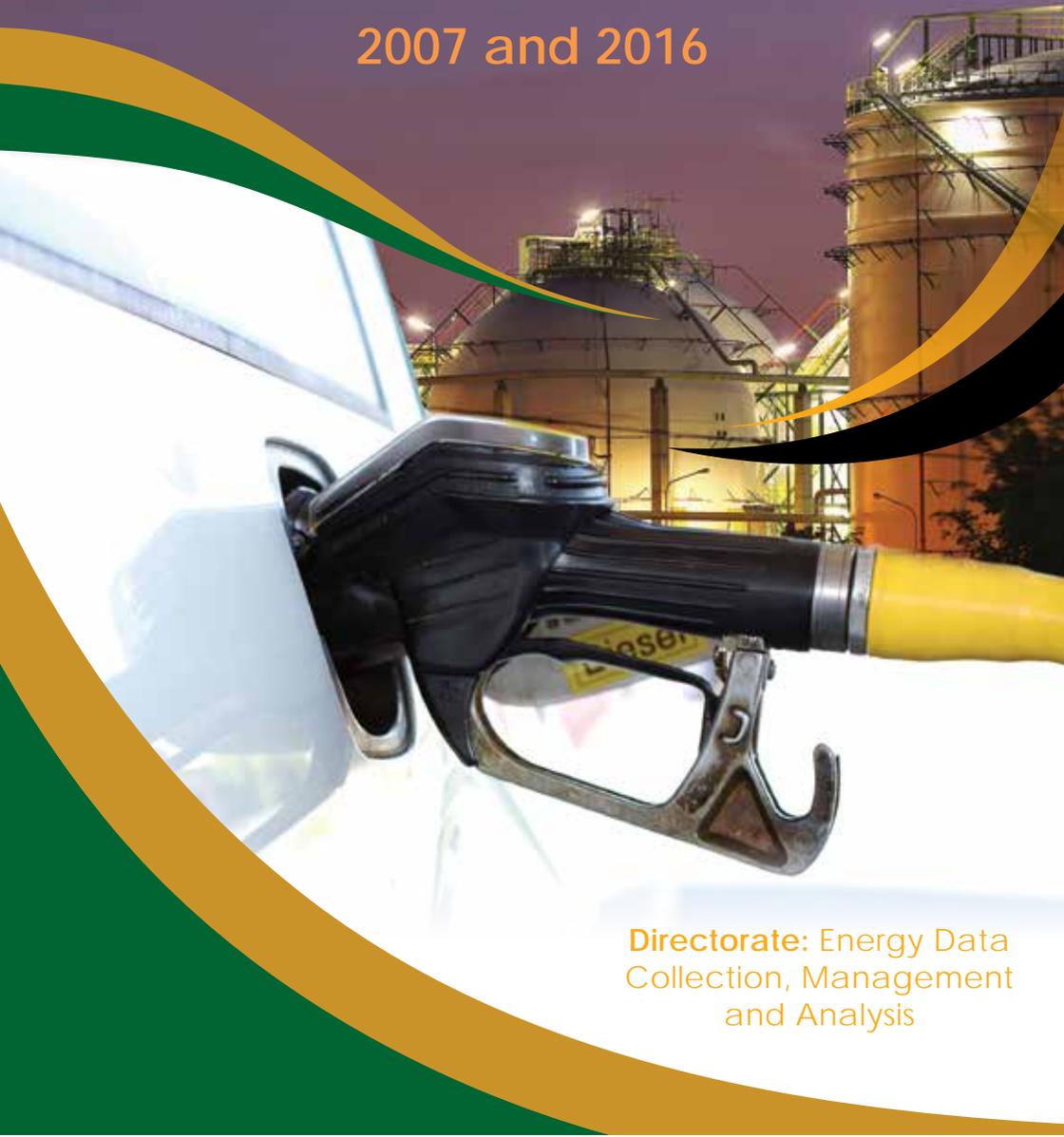


Overview of the Petrol and Diesel Market in South Africa between 2007 and 2016



Directorate: Energy Data Collection, Management and Analysis



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

Compiled by:

Ms Keneilwe Ratshomo
Email: Keneilwe.Ratshomo@energy.gov.za
and
Mr Ramaano Nembahe
Email: Ramaano.Nembahe@energy.gov.za

Published by:

Department of Energy
Private Bag X96
Pretoria
0001
Tel: (012) 406-7819/012 406 7540
192 Visagie Street, c/o Paul Kruger &
Visagie Street, Pretoria, 0001
Website: www.energy.gov.za

Department of Energy

Acting Director-General: Mr T Maqubela

Energy Policy and Planning Branch

Deputy Director-General: Mr O Aphane

Energy Planning Chief Directorate

Acting Chief Director: Ms Z Harber

Energy Data Collection, Management and Analysis Directorate

Director: Ms V Olifant

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Whereas the greatest care has been taken in the compilation of this publication, the Department of Energy relies on data provided by various sources and is not responsible for any errors or omissions emanating as a consequence of provision of inaccurate, incorrect or incomplete data from such sources. Although all the necessary steps were taken in aligning all the internal data management processes with the South African Statistical Quality Assessment Framework (SASQAF), accreditation by Statistics South Africa for the energy statistics/data used in compiling this report has not yet been granted.

FOREWORD

It gives me great pleasure to introduce the report, *Overview of the Petrol and Diesel Market in South Africa between 2007 and 2016*. This report is based on information collected from government departments, petroleum industry and research papers, and covers a broad overview and analysis of the South African petrol and diesel industry. The aim is to keep stakeholders informed about developments as well as key issues affecting the industry.

The report presents the industry in a format which provides an overview of South Africa's petrol and diesel market between 2007 and 2016. This includes sources and the overall petrol and diesel market dynamics, as well as the relationship between the two products. To clearly present and analyse consumption trends, this report is further divided into national and provincial market analyses.

The Department of Energy is working hard to ensure accurate, timely and reliable provision of data in its publications, and hopes that this report will become a source of reference among energy analysts in South Africa and abroad.

I extend my most sincere thanks and appreciation to the Energy Data Collection, Management and Analysis Directorate for the hard work that went into the compilation of this publication. I would also like to record my appreciation to all energy data providers who have helped us to accomplish the compilation of this report. Comments and inputs are welcome, and can be addressed to publications@energy.gov.za.

Mr T Maqubela

Acting Director-General
Department of Energy

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ABBREVIATIONS AND ACRONYMS

AA	Automobile Association of South Africa
BFP	Basic Fuel Price
CTL	Coal-to-liquid
DoE	Department of Energy
DSML	Demand Side Management Levy
EIA	Energy Information Administration
FSV	Fuels Sales Volume
GDP	Gross Domestic Product
GTL	Gas-to-liquid
IBLC	In-Bond-Landed-Cost
LRP	Lead Replacement Petrol
NAAMSA	National Association of Automobile Manufacturers of South Africa
NDP	National Development Plan
NERSA	National Energy Regulator of South Africa
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PPM	Parts per million
SAPIA	South African Petroleum Industry Association
SARB	South African Reserve Bank
SARS	South African Revenue Service
StatsSA	Statistics South Africa
ULP	Unleaded Petrol
US	United States

1. INTRODUCTION

Crude oil was the world's leading fuel in 2016, accounting for about a third of global energy consumption according to BP's Statistical Review of World Energy 2017. Oil also supplies approximately 95% of the energy powering the global transport systems in the form of petroleum fuels (US EIA, 2017). Similarly, South Africa's transport system depends on petroleum fuels for almost all of its energy needs, with more than 80% of the petroleum fuels consumption made up of petrol and diesel (DoE, 2017¹).

The National Development Plan (NDP) 2030 provides South Africa's vision for socio-economic growth and development. The plan recognises that the country should have adequate supply security in electricity and in liquid fuels such that economic activity, transport, and welfare are not disrupted (NDP 2030: 163). The plan envisages that, by 2030, South Africa will have an energy sector that promotes:

- Economic growth and development through adequate investment in energy infrastructure;
- The sector should provide a reliable and efficient energy service at competitive rates, while supporting economic growth through job creation;
- Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households; and
- Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change.

In this context, the South African petroleum industry has evolved over the years, as seen by a change and growth in fuel grades. This is not only in line with the NDP but also international standards in terms of environmental sustainability as well as evolving fuel and vehicle technology.

1.1. Outlook

The future of the liquid fuel sector depends on four factors, namely, demand growth, sustainable resources and environmental constraints. The increase in demand for petroleum products will be determined primarily by the growth in the country's GDP, GDP per capita, the rate of urbanisation and population growth. Currently, around 80% of global primary energy demand is met by fossil fuels, whose growth is constrained by the finite nature of these resources. The growth in the petroleum sector will depend on the sustainability of these resources as well as the introduction of non-conventional sources, such as shale oil and gas. Due to low oil resources in South Africa, the security of supply will depend on the economic and political stability in the Organization of the Petroleum Exporting Countries (OPEC) countries, as well as the substantial investment needed in South Africa's refinery capacity.

The South African economy, which grew by an estimated 0.5% in 2016, is expected to grow by 1.3% in 2017 and 2% in 2018 as economic conditions strengthen (Treasury, 2017). This is still in line with the NDP, from which the expected public investment in infrastructure could reduce bottlenecks in transport, while stronger employment growth will contribute to increased household consumption, which in turn, will increase the demand for liquid fuels in the country.

According to the US Energy Information Administration (EIA), energy demand from the transport sector is expected to remain dominated by oil. However, the growth in transport demand for liquid fuels is anticipated to slow down post 2025, as efficiency improves and displacement by gas ramp up. Natural gas is the fastest growing alternative at 6.8% per annum and is expected to overtake biofuels

¹ DoE sources fuel sales volume (FSV) data from the petroleum industry (Seven oil companies in South Africa)

in 2022 before reaching almost 7% of the transport market by 2035. The market share of biofuels in the energy sector is forecast to grow from 2.5% currently to 4% by 2035.

The Department (DoE) is in the process of finalising the Integrated Energy Plan, which will be guided by national objectives, informed by the Energy White Paper, National Energy Act and influenced by various government policies. The Integrated energy plan is aimed at determining the best way to meet current and future energy service needs in the most efficient and socially beneficial manner.

1.2. Legislation and regulations governing the petroleum industry

The DoE oversees the development of energy policy and implementation thereof. Energy policy and its subsequent legislative and regulatory frameworks are the foundation upon which the regulator and investors make decisions and consumers make choices about which energy solution to use.

As South Africa's economy opened up following the 1994 democratic election; the new government reviewed and developed policies in the energy sector driven by international trends. As a result, the *White Paper on Energy Policy* was developed in 1998, and has been used as the premier policy document which guides all subsequent policies, strategies and legislation within the energy sector. The objectives of the White Paper are to increase access to affordable energy services, improve energy governance, stimulate economic development, manage energy-related environmental and health effects and secure supply through diversity.

This was reiterated in the National Development Plan 2030, that was adopted in 2013 as the blueprint for future economic and socio-economic development strategies for the country. The plan envisages that by 2030 South Africa will have an energy sector that promotes economic growth and development through adequate investment in energy infrastructure. The plan also envisages that by 2030 South Africa will have an adequate supply of electricity and liquid fuels to ensure that economic activity and welfare are not disrupted.

Subsequently, to achieve these objectives, new policies and strategies were developed and existing policies amended. The following are legislative regulations pertaining to the petroleum sector post the promulgation of the White Paper:

- *Petroleum Products Amendment Act*: The Act was promulgated in 1977, but has since undergone a number of amendments, of which the last two were during 2003 and 2008. The objectives of the Act are for government to limit the number of licences allocated. The Act prohibits manufacturers and wholesalers from holding a retail licence, except for training purposes. Also, it aims to facilitate transformation of the South Africa's petroleum and liquid fuels industry, ensure a system for the allocation of licences, prescribe offences and penalties, provide for appeal and arbitration, as well as an annexure to the liquid fuels charter.
- *Petroleum Pipelines Act, 2003*: The Act aims to promote competition in the construction and operation of petroleum pipelines, loading facilities and storage facilities. It intends to promote the efficient, effective, sustainable and orderly development, operation and use of petroleum pipelines, loading and storage facilities. The Act also aims to facilitate investment in the petroleum pipelines industry, provide for the security of petroleum pipelines and related infrastructure as well as promote companies in the petroleum pipeline industry that are owned or controlled by historically disadvantaged South Africans, amongst others.
- *Regulations Regarding Petroleum Products Specifications and Standards for South Africa*: The aim of the regulation is to recommend the tightening of fuel specifications by further reducing the levels

of sulphur in both petrol and diesel, as well as reducing benzene and aromatic levels in petrol to levels equivalent to the Euro 5 emissions standard.

- *The Regulations on the Mandatory Provision of Energy Data:* The regulations were gazetted in 2012 to enable the DoE to collect, collate and publish quality energy data and information in an effective and efficient manner. The regulations also empower the DoE to stipulate the type, manner and form of energy data and information that must be provided by any data provider.

Aspects of the South African petroleum value chain are regulated largely under the mandate of the DoE and administered either directly or by the National Energy Regulator of South Africa (NERSA). The DoE is responsible for the setting of various price levels for petroleum products and licensing activities throughout the downstream liquid fuels value chain in terms of the Petroleum Products Act, No. 120 of 1977, as amended. NERSA sets tariffs for the infrastructure linked to the value chain, e.g. petroleum pipelines and storage facilities.

This report starts off by presenting an overview of South Africa's petrol and diesel market, which includes sources and the overall petrol and diesel market dynamics, as well as the relationship between the two products. Also included in the overview is a brief discussion on the influence of the transport sector on the fuel market and a discussion on prices. Due to lack of reliable data at a disaggregated level, the report only focuses on national and provincial analyses, as well as retail and commercial sales for petrol and diesel. Commercial sales include products sold by oil companies to independent wholesalers as well as products sold to different economic sectors.

2. OVERVIEW OF THE PETROL AND DIESEL MARKET IN SOUTH AFRICA

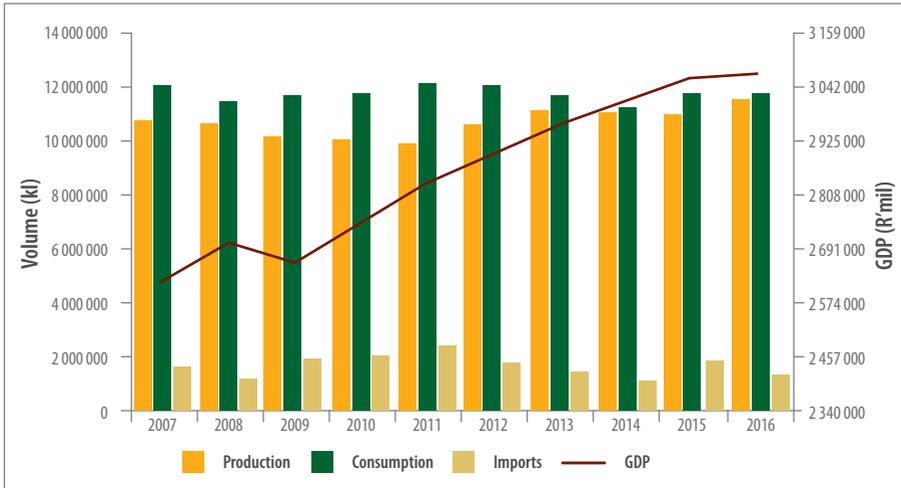
South Africa has small amounts of proved crude oil reserves, and the country's crude oil production is very small (EIA, 2013). As a result, the country imports crude oil and refined fuels to meet its liquid fuels needs. In 2016, crude oil imports were mostly from OPEC countries, with 38.1% imported from Saudi Arabia, followed by Nigeria (29.4%), Angola (19.2%), Qatar (3.3%), United Arab Emirates (3.2%) and small volumes from various producers (6.7%) (SARS trade data, 2017). Over 60% of products refined locally are produced from imported crude oil, and about 36% of the demand is met by coal-to-liquid (CTL) synthetic fuels as well as gas-to-liquid (GTL) synthetic fuels plus a very small amount of domestic crude oil (DoE, 2017)². South Africa has the second largest oil refining capacity in Africa. The current total refining capacity amounts to 703 000 barrels per day, of which 72% is from crude oil refining, with the balance coming from synthetic fuel refining (CTL and GTL) (South African Petroleum Industry Association (SAPIA), 2017). The current fuel specifications and standards published by DoE are suited to meet Euro 2 fuel standards (Clean Fuels 1).

Domestic production of petrol declined between 2007 and 2011. This was on the back of the phasing out of leaded petrol in January 2006 as well as limited resources and refinery capacity constraints with regard to octane in petrol and distillate sulphur between 2006 and 2011. Petrol production increased from 2012, reaching a peak at 11.5 billion litres in 2016. Petrol consumption³ declined slightly from 12 billion litres in 2007 to 11.7 billion litres in 2016, possibly due to the ongoing increase in prices. Petrol demand has, on average, been exceeding the domestic supply over the years. As such, the excess demand was met by imports, which peaked at 2.4 billion litres in 2011, but has since declined reaching 1.4 billion litres in 2016 (Fig. 1).

² Calculations were based on DoE 2014 Energy Balances.

³ Consumption is the FSV as reported by South Africa's seven oil companies

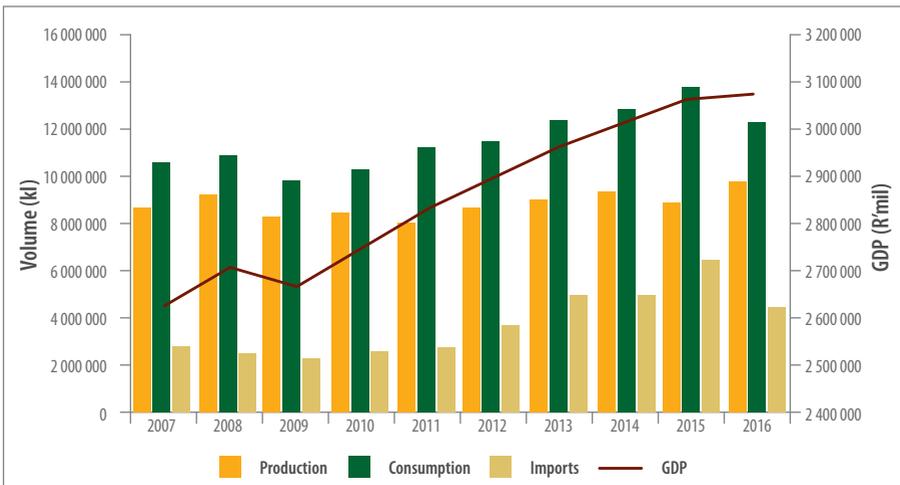
Figure 1: Supply and demand of petrol, 2007–2016



Source: Supply, demand and imports – DoE, GDP – South African Reserve Bank (SARB)

Diesel production grew at an annual rate of 1%, from 8.6 billion litres in 2007 to 9.8 billion litres in 2016. Diesel consumption grew at an average annual rate of 3%, however, declined by 10.5% year-on-year in 2016. The demand for diesel surpassed the domestic supply during the observed period. Consequently there was an upsurge of diesel imports, with an average growth rate of 10% per year between 2007 and 2016, to meet the excess demand (Fig. 2).

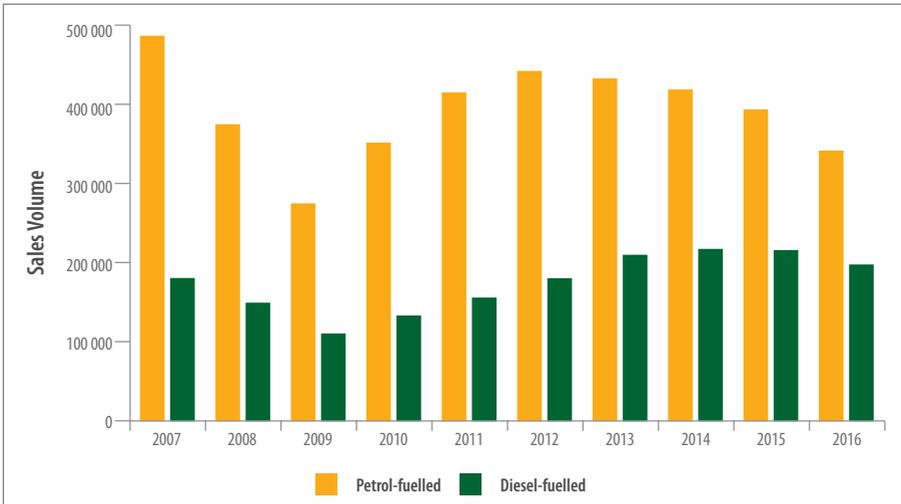
Figure 2: Supply and demand of diesel 2007–2016



Source: Supply, demand and imports – DoE, GDP – SARB

Approximately 70% of petrol and diesel was consumed by the transport sector (DoE, 2017)⁴. Within the transport sector itself, 98% of the energy consumed is derived from liquid petroleum fuels (NAAMSA, 2017). South Africa's transport sector has developed in recent years in line with global improvement of conventional fuels, changes in vehicle design and technology development. This is evidenced by a decline in the market share of petrol-fuelled vehicles sales, from 73% in 2007 to 63% in 2016, while diesel-fuelled vehicle sales increased by 10 percentage points, reaching 37% in 2016 (Fig. 3). The shift is supported by the sluggish increase in petrol consumption, while diesel consumption grew substantially and out-performed petrol consumption since 2013. These recent developments could be partly attributed to higher fuel efficiency in diesel vehicles compared to petrol-fuelled vehicles.

Figure 3: Total number of new vehicle sales in South Africa, 2007–2016



Source: National Association of Automobile Manufacturers of South Africa (NAAMSA)

The fuel pump price in South Africa is composed of a number of price elements and these can be divided into international and domestic elements. South Africa's fuel prices are heavily influenced by trends in the global oil market and are linked to the global market by the international element, Basic Fuel Price (BFP) system, which replaced the In-Bond-Landed-Cost (IBLC) system in 2003. The BFP is determined by taking into account the movement of international petroleum product prices, as well as the United States (US) Dollar/Rand exchange rate.

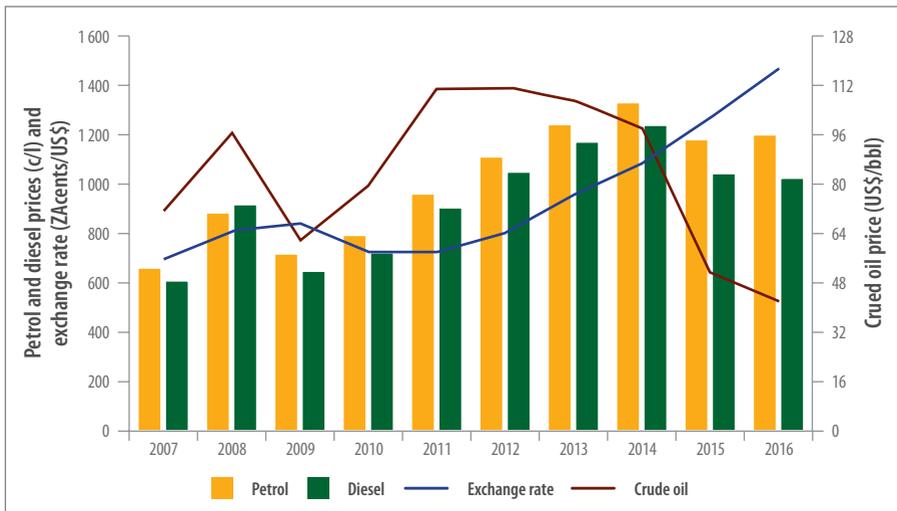
The largest component of the BFP is the price that one would be paying on international markets when physically importing product to South Africa and it includes freight, insurance, ocean loss, landing, wharfage, coastal storage, the financing of coastal storage and demurrage from refining centres in the Mediterranean, Arab Gulf and Singapore. The BFP constitutes approximately 43% of the retail fuel price in South Africa (DoE, 2017)⁵.

The remaining 57% is made up of domestic elements which are subject to government control. These elements comprise fuel tax, equalisation fund levy, customs and excise levy, Road Accident Fund, Slate levy, transport costs, wholesale margins, retail margins and service costs. The domestic elements are then added to the BFP to make the final pump price in the different pricing zones (magisterial district zones).

⁴ Calculations were based on the DoE 2014 Energy Balances.

⁵ 2016 Energy Price report published by the DoE.

Figure 4: Petrol and diesel prices, 2007–2016



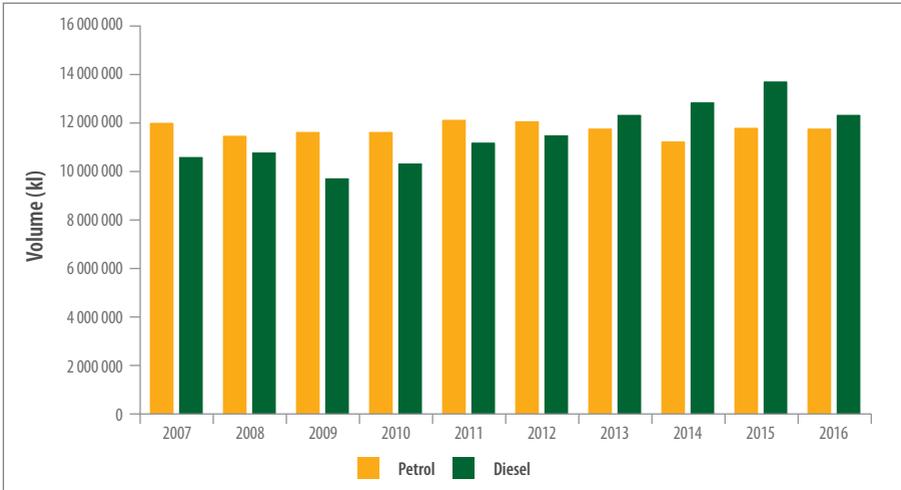
Sources: Petrol and diesel prices – DoE, Exchange rates – SARB, Crude oil prices – EIA

3. NATIONAL PETROL AND DIESEL MARKET TRENDS

3.1. Consumption per product type

South Africa’s consumption of petrol declined at a rate of 0.2% pa during the past ten years. In contrast, diesel consumption grew by an annual average of 3% during the period under review. The global economic crisis in 2009 significantly dampened demand for diesel by 10%, however, consumption recovered in the following years and surpassed petrol consumption by 0.68 billion litres in 2013 and reached a peak at 13.7 billion litres in 2015 (Fig. 5), which could be partly attributed to lower diesel prices. In 2016, diesel consumption declined by 10.5% compared with 2015.

Figure 5: Petrol and diesel consumption, 2007–2016



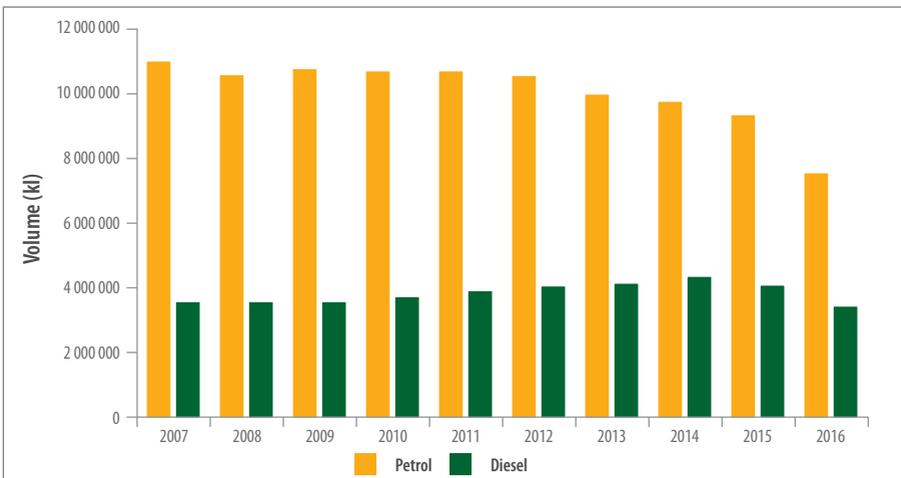
Source: DoE

3.2. Petrol and diesel consumption per trade sector

3.2.1. Retail

South Africa's retail fuel industry, which is made up of 4 600 retailers countrywide (SAPIA, 2016), accounted for most of the petrol used. However, petrol consumption declined at an annual rate of 3% from 11 billion litres in 2007 to 7.5 billion litres in 2016. Petrol market share declined from 75.8% in 2007 to 69.3% in 2016 in the retail sector. The biggest drop was in 2016 by 18.7% year-on-year. Diesel consumption increased at an average of 1% per annum, however, dropped in 2016 by 17.3% year-on-year (Fig. 6).

Figure 6: Petrol and diesel consumption in the retail sector, 2007–2016

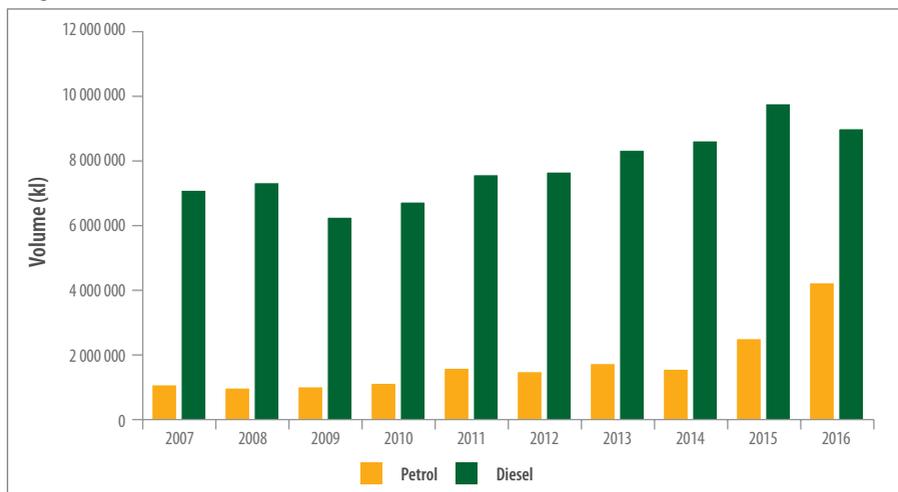


Source: DoE

3.2.2. Commercial

Most of the diesel consumed in the country was in the commercial sector, and grew by an annual average of 3.9%, from 7 billion litres in 2007 to 9 billion litres in 2016. The commercial operators use their own storage and dispensing facilities for refuelling vehicles and use diesel for stationary engines, such as small boilers and generators, as well as for heavy machinery for production purposes. Therefore, the increase in the diesel demand from the commercial sector was mainly driven by strong economic growth. The average annual consumption of petrol in the commercial markets grew at an average rate of 14% per year, from 1 billion litres in 2007 to 4.2 billion in 2016 (Fig. 7).

Figure 7: Petrol and diesel sales volumes in the commercial sector, 2007–2016



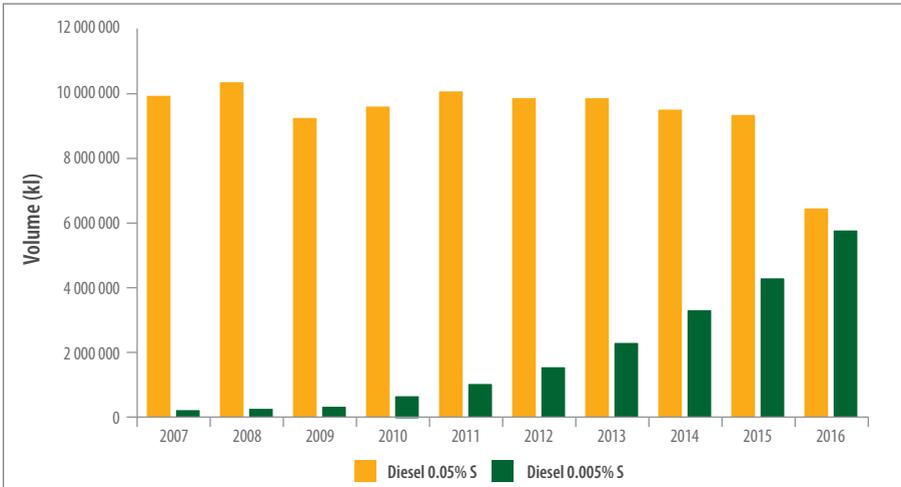
Source: DoE

3.3. Petrol and diesel consumption per grade

Petrol and diesel specifications were first regulated in 2006 in South Africa following the phase-out of lead, the introduction of benzene and aromatics specifications and the reduction of sulphur in diesel, to reduce vehicle emissions. Diesel sulphur was reduced from 3 000 parts per million (ppm) (0.3%) to a standard grade of 500 ppm (0.05%) maximum sulphur content, and is also available in a lower sulphur grade of 50 ppm (0.005%) maximum sulphur (DoE, 2017).

Consumption of diesel with a maximum sulphur content of 3 000 ppm, declined drastically after the promulgation of the regulations in 2006. The consumption of the standard grade (500 ppm) declined on average at a rate of 2.6% per annum, and drastically falling by 30% year-on-year in 2016 (Fig. 8).

Figure 8: Consumption per grade of diesel, 2007–2016

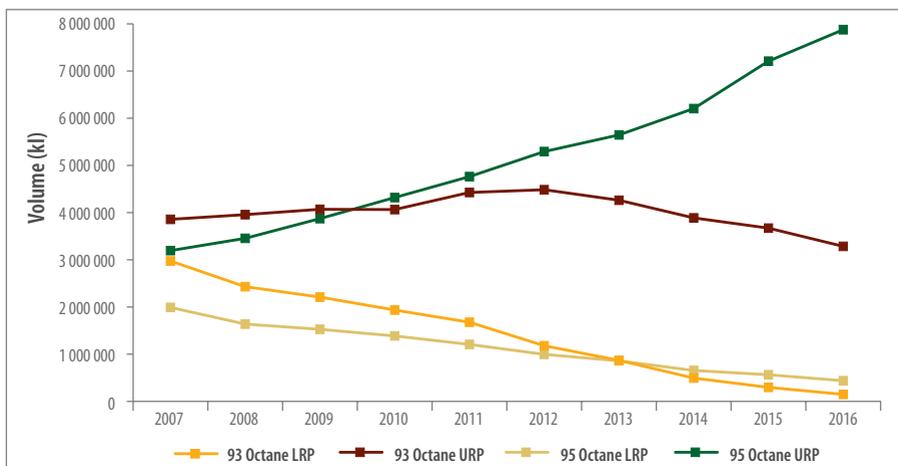


Source: DoE

The diesel 50 ppm maximum sulphur grade was introduced in the market in 2006 and its consumption has since grown by 36.2% per annum, from 298 million litres in 2007 to 5.7 billion litres in 2016. The diesel 50 ppm grade was specifically introduced to accommodate the increasing number of new technology diesel vehicles entering the South African market. These vehicles are designed to operate on cleaner diesel fuel specifications, which have a maximum sulphur level of 50 ppm. The lower sulphur diesel is also produced to accommodate new technology particle filter equipped vehicles which may only use diesel fuel with a sulphur level not exceeding 50 ppm.

Emission-reduction enabling fuels have been available in South Africa since 1996, when unleaded petrol was introduced; however, new vehicle emissions have only been controlled for all new vehicle sales since the beginning of 2008 Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965).

Figure 9: Consumption per grade of petrol, 2007–2016



Source: DoE

Consumption of lead replacement petrol (LRP) products declined over the years, with a concomitant increase in unleaded petrol (ULP). The market share of ULP increased from 59% in 2007 to 95% in 2016, with the 95 octane grade dominating the market since 2009 at 33% to 67% in 2016 (Fig. 9).

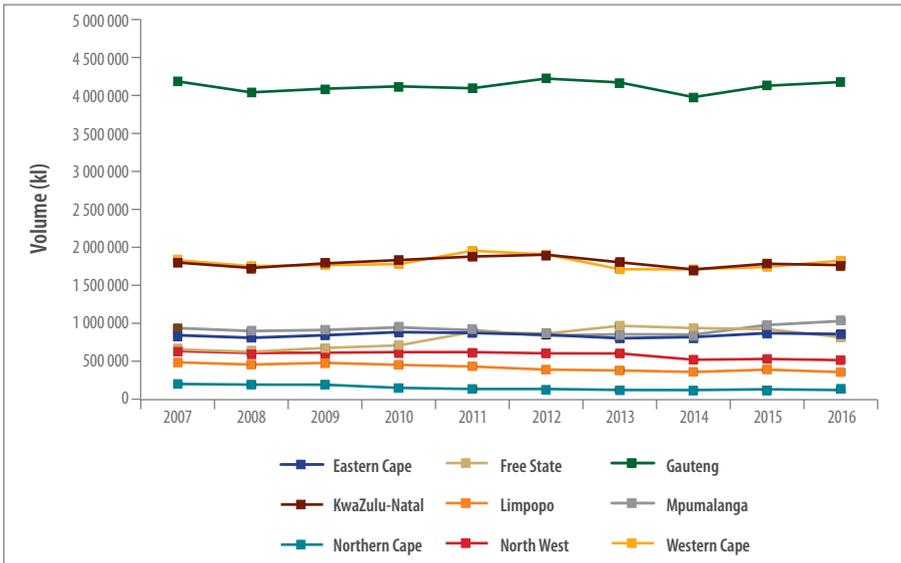
4. PROVINCIAL PETROL AND DIESEL MARKET TRENDS

4.1. Petrol consumption per province

South Africa is characterised by provincial extremes in climate, population and economy. According to Statistics South Africa, the arid Northern Cape Province, the largest of the nine provinces, accounts for 30.5% of the total land area, however, contributes just 2.2% of South Africa's GDP and comprises about 2.2% of the population. The industrial powerhouse of Gauteng has just 1.4% of total land area, produces 34.1% of South Africa's GDP and comprises about 23.7% of the population. Gauteng, together with KwaZulu-Natal and the Western Cape, account for 20% of the total land area, but produce just over 60% of South Africa's GDP and comprise 54.7% of the population (Stats SA, 2017). These geographic and socio-economic differences result in distinct nodes of high transport demand and high traffic volumes that are spatially remote from each other within South Africa.

Consequently, petrol consumption per province was dominated by Gauteng, which consumed on average 36% of the total consumption, followed by KwaZulu-Natal and the Western Cape, both at 15.7%. The rest of the provinces consumed petrol below 1 billion litres over the years. The Northern Cape's petrol use declined at an annual rate of 6.2% in the last ten years, resulting in the province ranking last in the country's petrol consumption (Fig. 10).

Figure 10: Petrol sales volumes per province, 2007–2016

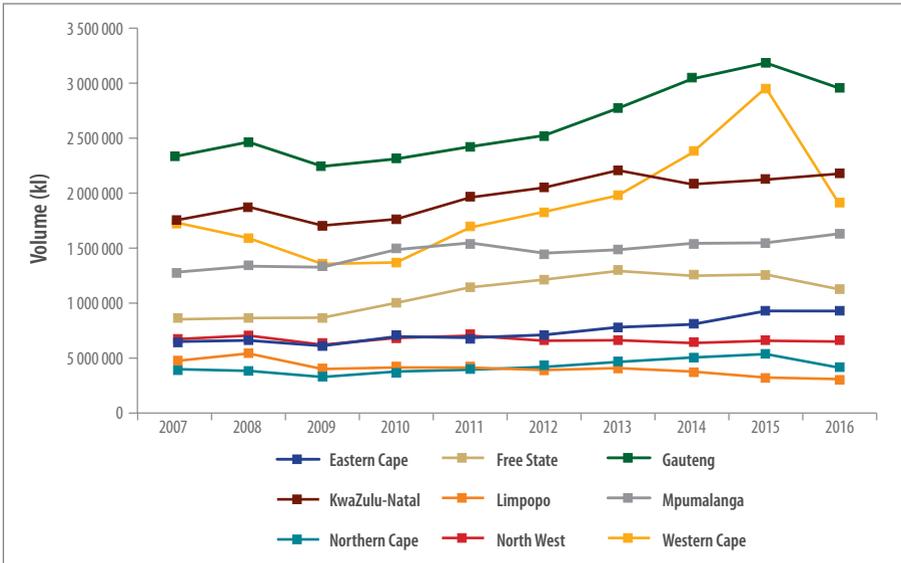


Source: DoE

4.2. Diesel consumption per province

Diesel consumption per province was also dominated by Gauteng at 23.3%, followed by KwaZulu-Natal and the Western Cape at 17.5% and 16.5%, respectively. Most of the other provinces exhibited a positive trend in diesel consumption, except for Limpopo, where demand declined at a rate of 4.7% per year (Fig. 11).

Figure 11: Diesel sales volumes per province, 2007–2016



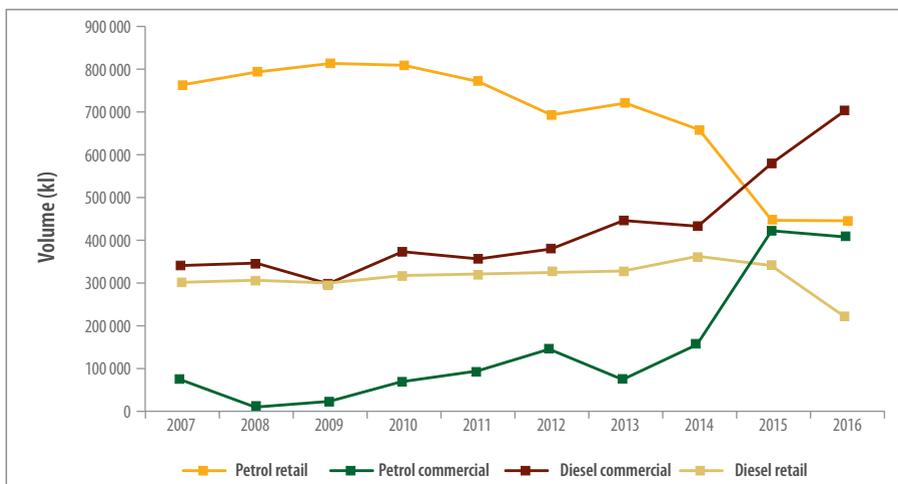
Source: DoE

4.3. Provincial petrol and diesel consumption per trade sector

4.3.1. Eastern Cape

Fuel consumption in the Eastern Cape was dominated by petrol, however, the share market declined from 56.5% in 2007 to 48 in 2016. Petrol use in the retail sector declined at an average annual rate of 6.3% from 2007 to 2016, while commercial consumption increased by an annual average rate of 30% during the same period. Diesel use in retail was stable for the majority of the period, but drastically declined in 2016 by 35% year-on-year (Fig. 12).

Figure 12: Petrol and diesel consumption per trade sector in the Eastern Cape, 2007–2016

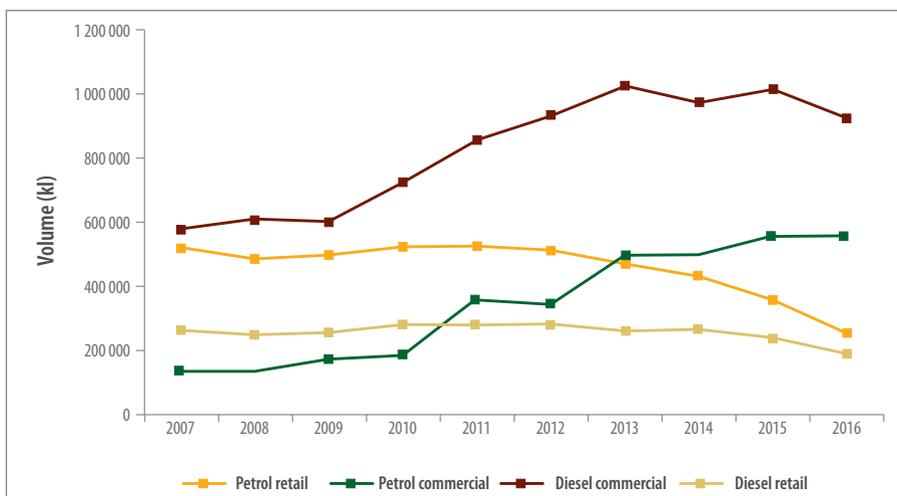


Source: DoE

4.3.2. Free State

In the Free State, diesel accounted for the majority of fuel demand, with the market share growing from 56.5% in 2007 to 58% of total consumption in 2016. Overall, diesel consumption in the commercial sector grew at an annual rate of 6.8% due to higher mining and agricultural activities as well as the demand from Eskom. On the other hand, demand in the retail sector declined annually by 1.9% per year. Petrol consumption in the retail sector declined at an average rate of 5.6% per annum, while the commercial use of petrol grew at an annual rate of 18.5%, from 140 million litres in 2007 to 560 million litres in 2016 (Fig. 13).

Figure 13: Petrol and diesel consumption per trade sector in Free State, 2007–2016

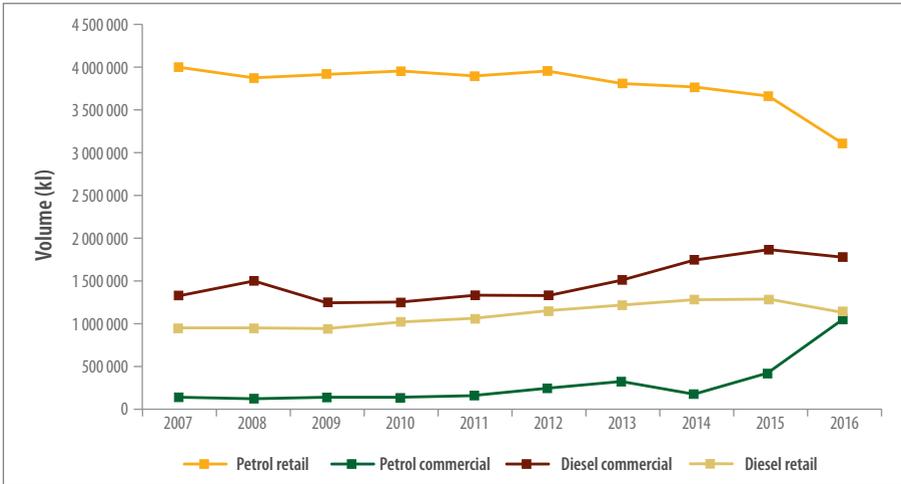


Source: DoE

4.3.3. Gauteng

Fuel consumption in Gauteng was dominated by petrol throughout the years, despite a drop in its market share from 64.2% in 2007 to 58.6% in 2016. Petrol consumption in the retail sector declined from 4 billion litres in 2007 to 3 billion litres in 2016, while diesel consumption grew by an average annual rate of 3.5% in the same sector. The commercial sector was dominated by diesel consumption which grew by an average of 3.7% per year, while petrol consumption grew by 17.8% per year (Fig. 14).

Figure 14: Petrol and diesel consumption per trade sector in Gauteng, 2007–2016

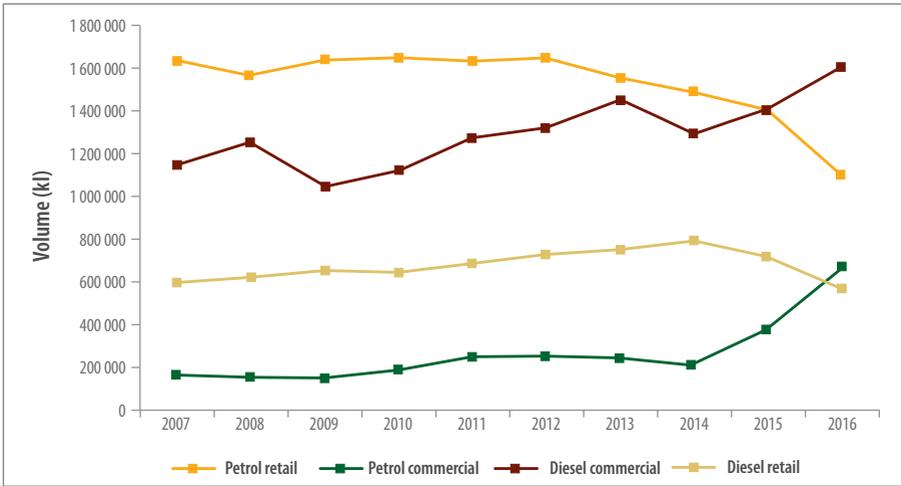


Source: DoE

4.3.4. KwaZulu-Natal

Petrol use in KwaZulu-Natal was overtaken by diesel use in 2011 and its market share has since declined to 44.8% in 2016, from 50.7% in 2007. Petrol use in the province followed the national trend, which was characterised by a negative growth in retail, while consumption in the commercial sector grew at a faster rate. Diesel consumption in the commercial sector increased at an average of 3.4% per year, while diesel consumption in the retail sector increased by 1.2% per year (Fig. 15).

Figure 15: Petrol and diesel consumption per trade sector in KwaZulu-Natal, 2007–2016

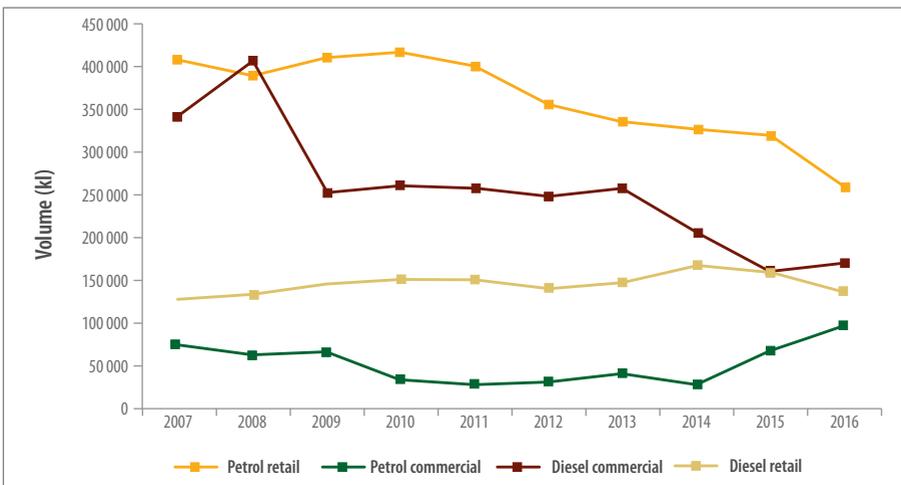


Source: DoE

4.3.5. Limpopo

Petrol consumption decreased by 4.5% per annum in the retail sector. In commercial use, petrol consumption decline initially reaching its lowest of 28 million litres in 2011, but then started to increase reaching 97 million litres in 2016. Diesel consumption in the commercial sector declined at an average annual rate of 8.3% while consumption in the retail sector increased slightly by 1.5%, on average (Fig. 16).

Figure 16: Petrol and diesel consumption per trade sector in Limpopo, 2007–2016

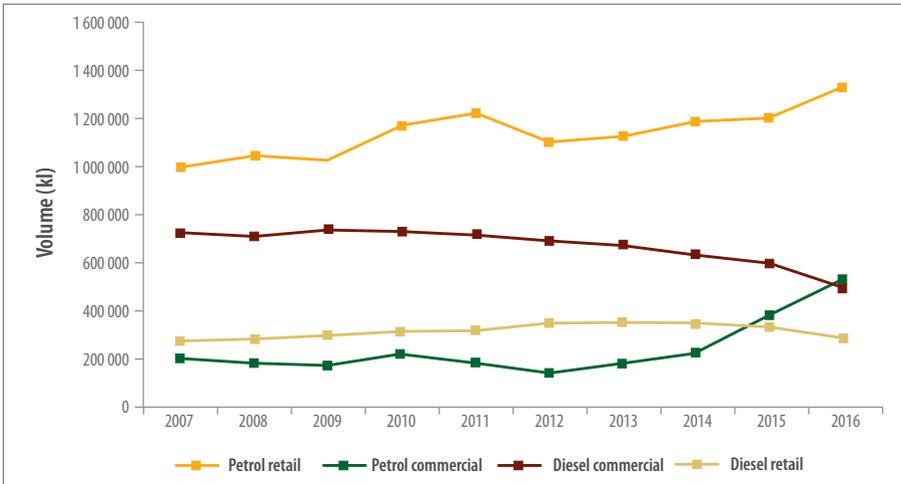


Source: DoE

4.3.6. Mpumalanga

Diesel consumption in Mpumalanga grew by 2.5% and 1.8% per annum in the commercial sector and retail sector, respectively, from 2007 to 2016. As a result, diesel use averaged at 62% of the total fuel consumption in the province, mainly due to consumption by Eskom. In retail, petrol use declined from 729 million litres in 2007 to 503 million litres in 2016, while consumption in the commercial sector grew by an annual rate of 8.2% during the study period (Fig. 17).

Figure 17: Petrol and diesel consumption per trade sector in Mpumalanga, 2007–2016

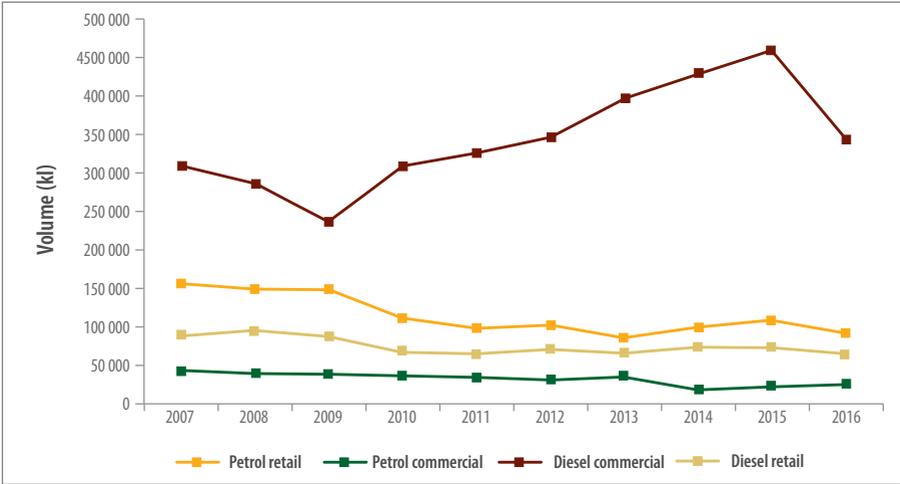


Source: DoE

4.3.7. Northern Cape

The demand for fuel in the Northern Cape has always been dominated by diesel during the past ten years, due to the mining activities in the province, with its market share growing from 66.5% to 77.3% between 2007 and 2016. Diesel consumption in the commercial sector grew by an annual rate of 4.9%, while use in the retail sector decreased by 3.1% per year. Petrol consumption in the retail sector declined by an annual average of 5.8%, from 157 million litres in 2007 to 94 million litres in 2016, while commercial use dropped by 8% per annum, on average (Fig. 18).

Figure 18: Petrol and diesel consumption per trade sector in the Northern Cape, 2007–2016

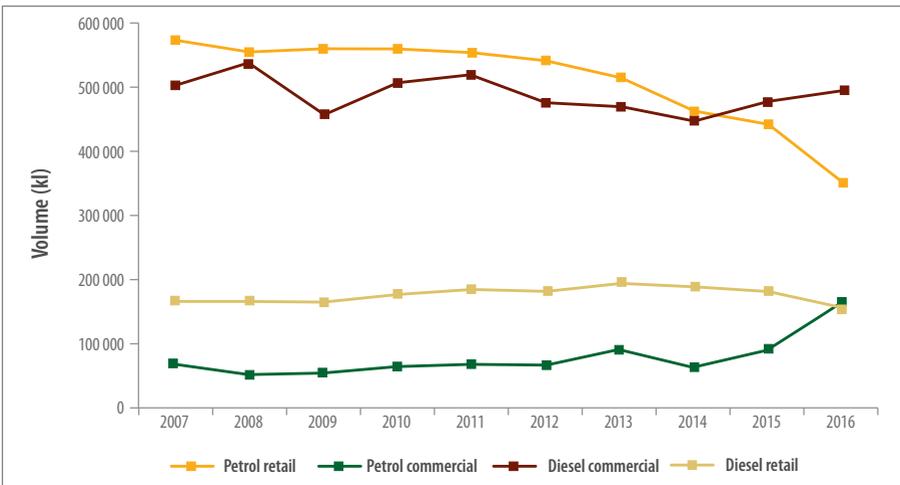


Source: DoE

4.3.8. North West

Fuel consumption in the North West was dominated by diesel over the study period. On average, diesel consumption in the commercial sector experienced a slight drop by 0.9% on average per annum, while use in the retail sector remained stable. Petrol consumption declined at an annual rate of 4.4% in retail and grew by 8.4% in the commercial sector (Fig. 19).

Figure 19: Petrol and diesel consumption per trade sector in the North West, 2007–2016

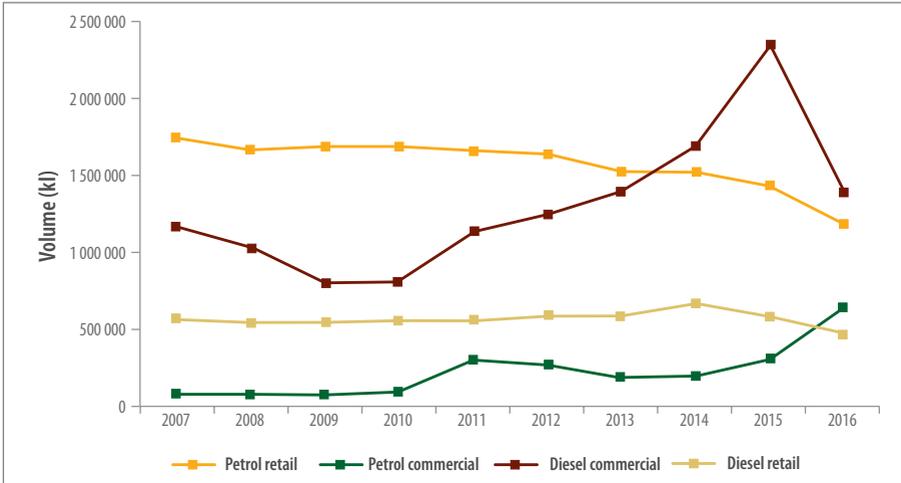


Source: DoE

4.3.9. Western Cape

Fuel consumption in the Western Cape was dominated by petrol at the beginning of the study period, but over the years, petrol use declined and diesel eventually dominated the market in 2013, reaching 51% in 2016. Petrol consumption in the province declined by an annual rate of 3.3% in the retail sector and increased by 21.4% in the commercial sector. Diesel consumption in the commercial sector had a growth rate of 7.8%, while the use of diesel in the retail sector was stable during the study period (Fig. 20).

Figure 20: Petrol and diesel consumption per trade sector in Western Cape, 2007–2016



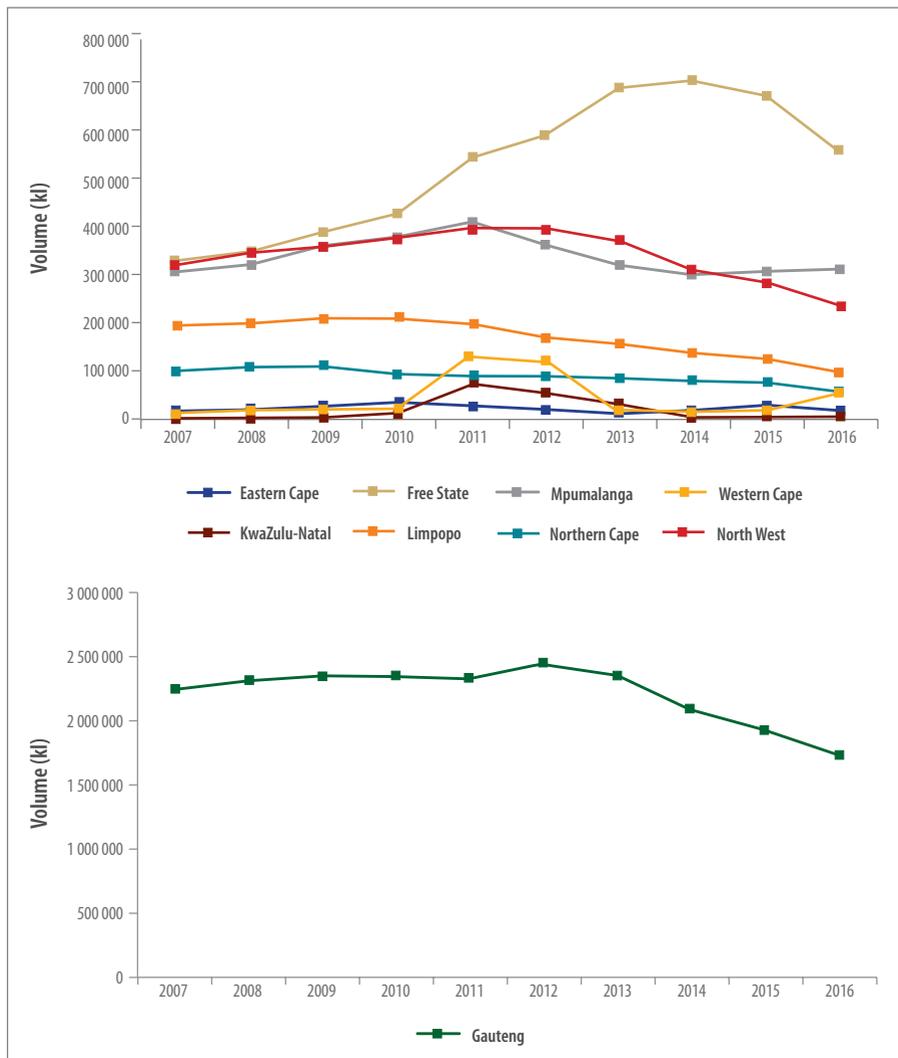
Source: DoE

4.4. Provincial petrol and diesel consumption per grade

4.4.1. Petrol

The selection of octane ratings available at the pumps in South Africa can vary from region to region with ULP 93 mainly found in the inland regions and ULP 95 mainly found in the coastal regions. ULP 93 is mainly used in the inland regions because it is cheaper than ULP 95. Evidently, the consumption of ULP 93 was mainly in the Free State, Gauteng, Limpopo, Mpumalanga and North West, the Highveld. Gauteng was the leading consumer throughout the period, however, its market share declined from 63.5% to 56.5% between 2007 and 2016. This could be attributed to increasing sales of modern engines, with turbos and superchargers that only run on higher octane fuel as well as a consumer perception that ULP 95 lasts longer than ULP 93. Consumption in the Free State increased at an annual rate of 8.5%, despite the decline in the last two years by 4% and 17%, respectively. The rest of the Highveld provinces lagged behind (Fig. 21).

Figure 21: 93 Unleaded Petrol (ULP) consumption per province, 2007–2016

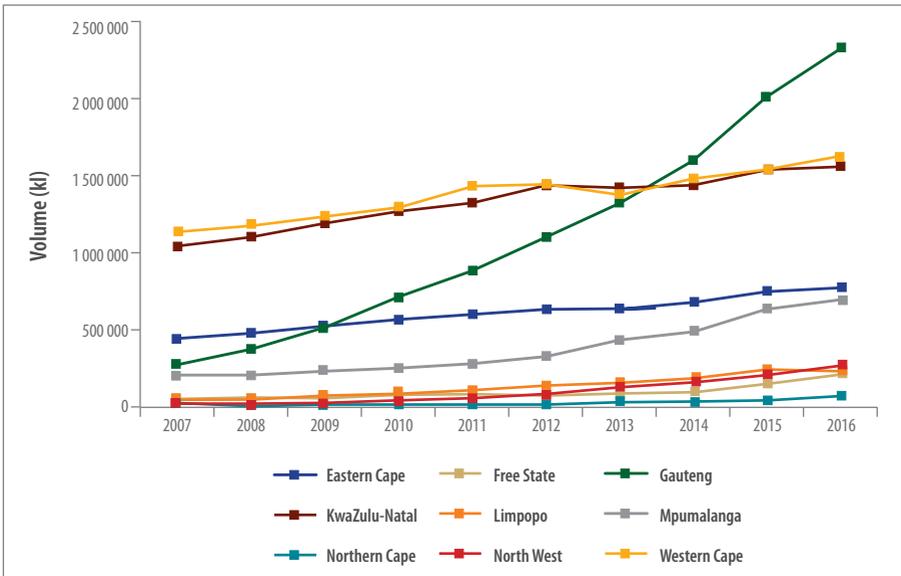


Source: DoE

South Africa's provinces along the coast predominantly demand higher octane fuel. According to the Automobile Association of South Africa (AA), the higher demand of ULP 95 in the coastal areas is mainly because of the lower altitude which is more suitable for the use of high octane fuel. From the beginning of 2006, ULP 95 was made available in the inland regions. However, a Demand Side Management Levy (DSML) is charged on ULP 95 sold in the inland area. This levy was implemented into the price structure of ULP 95 in January 2006 when this grade was introduced into the inland market for the first time. Most vehicles in the inland market are not required to run on ULP 95 and the unnecessary use thereof in the inland area could result in "octane waste" with negative economic consequences. A DSML was introduced to curtail the demand thereof in the inland area.

There seems to be minimal or no impact of the DSML as Gauteng's consumption of ULP 95 grew at 23.5% per year, from 273 million litres to 2.4 billion litres between 2007 and 2016. The rest of the inland regions followed a positive trend, with North West growing at a rate of 36.5% while the Free State, Limpopo and Mpumalanga grew by 19%, 21% and 15% per annum, respectively. The coastal regions continued to dominate the consumption of ULP 95, until overtaken by Gauteng in 2014. The Western Cape and KwaZulu-Natal grew annually by 3.8% and 4.5%, respectively (Fig. 22).

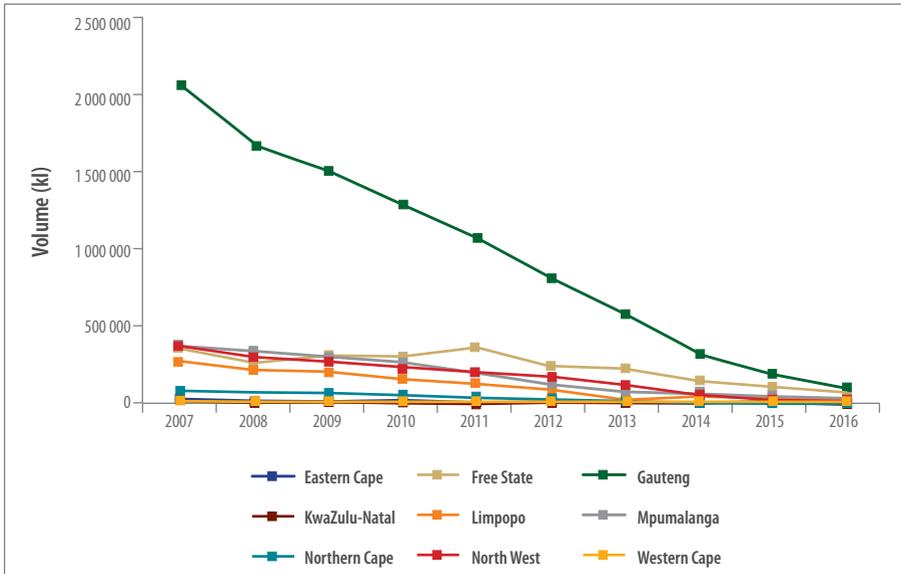
Figure 22: 95 Unleaded Petrol (ULP) consumption per province, 2007–2016



Source: DoE

Leaded petrol was first introduced in the 1920s, but in recent years there has been a move away from this petrol grade. This is due to leaded petrol being a main contributor to urban pollution and a health risk, particularly for young children. Lead replacement motorists still have the choice of two grades of petrol, although the octane grades differ between the coastal and high-altitude inland stations. Premium, or super, was replaced with the new Lead Replacement Petrol (LRP), with an octane grade of 95 at the coast and 93 inland. The use of LRP 93 octane in Gauteng declined by 32.6% from 1.6 billion litres in 2007 to 73 million litres in 2016. The rest of the provinces followed a similar trend as old technology cars that require leaded petrol are being phased out (Fig. 23).

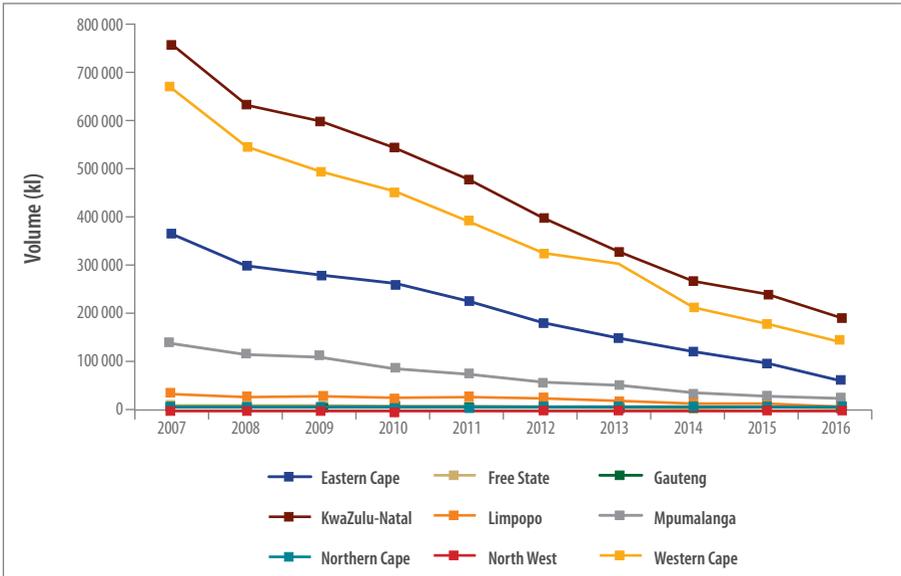
Figure 23: 93 Lead Replacement Petrol (LRP) consumption per province, 2007–2016



Source: DoE

The LRP 95 grade, which was mostly demanded in the coastal regions, declined in the past ten years. The use of the LRP 95 declined by 15% and 17.9% per year in both KwaZulu-Natal and the Eastern Cape, respectively, and declined by 16.5% in the Western Cape. Inland, Mpumalanga led consumption of the LRP grade, but the demand dropped annually by 22%. Limpopo was another significant consumer in the inland region, and similarly, demand declined by 17% over the years (Fig. 24).

Figure 24: 95 Lead Replacement Petrol (LRP) consumption per province, 2007–2016

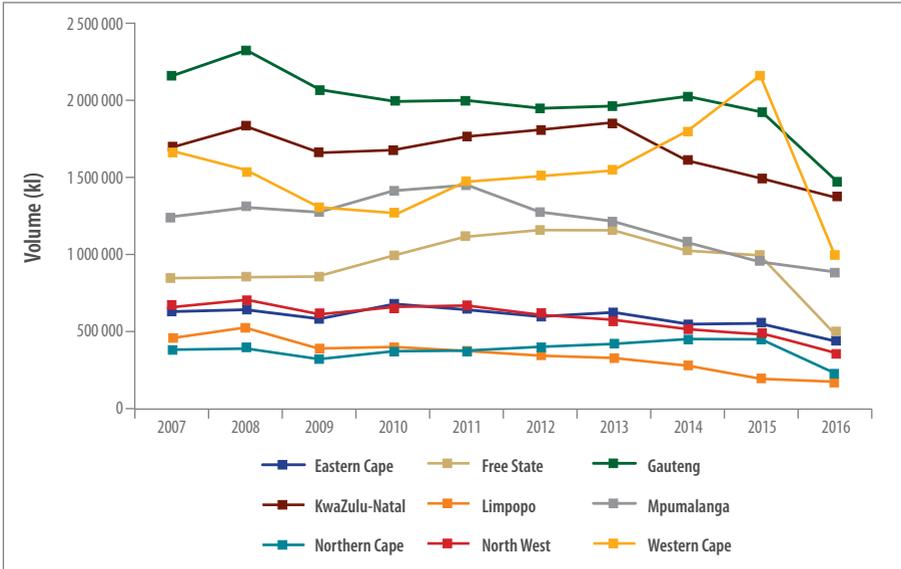


Source: DoE

4.4.2. Diesel

The consumption of diesel with a maximum sulphur content of 0.3% drastically dropped in 2006 in all the provinces and has since been replaced by cleaner fuel. The use of diesel with a maximum content of 0.05% escalated in 2006, phasing out the higher sulphur diesel. Gauteng's consumption of the standard grade peaked in 2008 and decreased thereafter. The rest of the provinces showed a similar trend until the end of the study period, except for the Western Cape (Fig. 25).

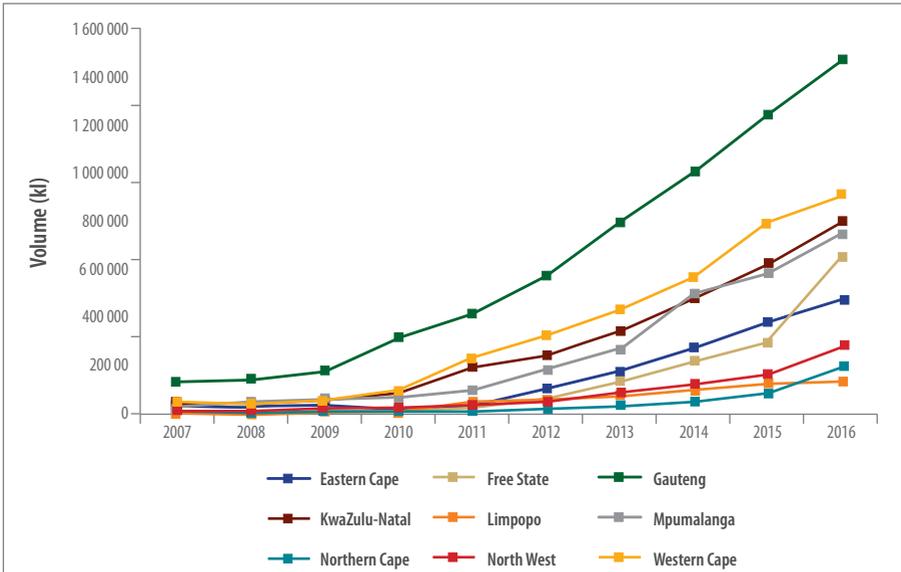
Figure 25: 500 ppm sulphur diesel consumption per province, 2007–2016



Source: DoE

The consumption of diesel with a maximum sulphur content of 0.005% was dominated by Gauteng. The demand for diesel with a lower sulphur content in Gauteng increased from 142 million litres to 1.5 billion litres between 2007 and 2016, mainly due to a rise in diesel-fuelled vehicles. The rest of the provinces experienced substantial growth, with the Northern Cape taking the lead with a growth rate of 63.8% per annum (Fig. 26).

Figure 26: 50 ppm sulphur diesel consumption per province, 2007–2016



Source: DoE

5. CONCLUSION

South Africa's petrol and diesel supply growth was steady during the past 12 years due to capacity constraints in the country. Consequently, supply was overtaken by demand about half way through the study period. This led to a staggering increase in imports of both crude oil and refined products to satisfy the country's consumption. The increase in demand was driven by an increase in the domestic economy.

The transformation in the transport sector, driven by research and development in efficiency and cleaner fuel, has led to the beginning of a structural shift in the liquid fuels market. Over the years, the market share of petrol declined in the country, with a concomitant rise in the market share of diesel. This has been due to an increase in the uptake of diesel-fuelled vehicles as opposed to petrol-fuelled ones, largely attributed to the fact that diesel-fuelled vehicles are more fuel efficient combined with the relative lower price of diesel as compared to petrol over the last few years.

The retail sector accounted for the majority of the petrol traded, however its market share declined in favour of diesel trade in the sector. Diesel continuously dominated the commercial sector during the study period. Provincially, Gauteng led the consumption of both petrol and diesel followed by KwaZulu-Natal and the Western Cape, respectively. This was in line with the prevailing contribution of the three provinces to the country's GDP.

Each province displayed different trends in fuel consumption per trade sector. However, petrol traded in the retail sector dominated majority of the provinces. Fuel in the Free State, Mpumalanga, and Northern Cape was mainly consumed in the commercial sector, mainly due to higher mining activities in these regions.

The use of cleaner fuels has increased over the past 12 years in all regions. Simultaneously, lead replacement petrol consumption continuously declined while consumption of diesel with 0.3% maximum sulphur was completely phased out from 2008. The use of petrol is closely linked to disposable income for individuals, whereas diesel usage is closely linked to economic activities.

The intervention of the South African Government with the objective to ensure sustainability and security of supply of energy in the country will result in investment in the petroleum sector. Also, increasing collaboration between government, business and labour in implementing the NDP will help to realise faster economic growth and job creation, and in turn, will result in an increase in demand for liquid fuels.

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APPENDIX A: DATA SCOPE

The report was compiled with data from the following sources:

Fuel Sales Volume (FSV) data: The datasets were collected by the DoE from the seven oil companies in South Africa.

Petrol and diesel trade data: The datasets were collected by the DoE from the South African Revenue Service (SARS).

SA Gross Domestic Product (GDP) data: The datasets were collected by the DoE from the SARB.

DoE Annual Energy Balances: SA Energy Balances are compiled and published annually by the DoE.

Vehicle sales data: The datasets were collected by the DoE from the NAAMSA.

South African petrol and diesel prices: The datasets were published on the DoE's website.

Crude oil prices: The datasets were collected by the DoE from the United States EIA.



Physical address:

Matimba House
192 Visagie Street
C/o Paul Kruger & Visagie Streets Pretoria

Postal address: Private Bag X96
Pretoria 0001

Telephone number: +27 12 406 7540

Fax number: +27 12 323 5646

E-mail address: publications@energy.gov.za

Website: www.energy.gov.za

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energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA