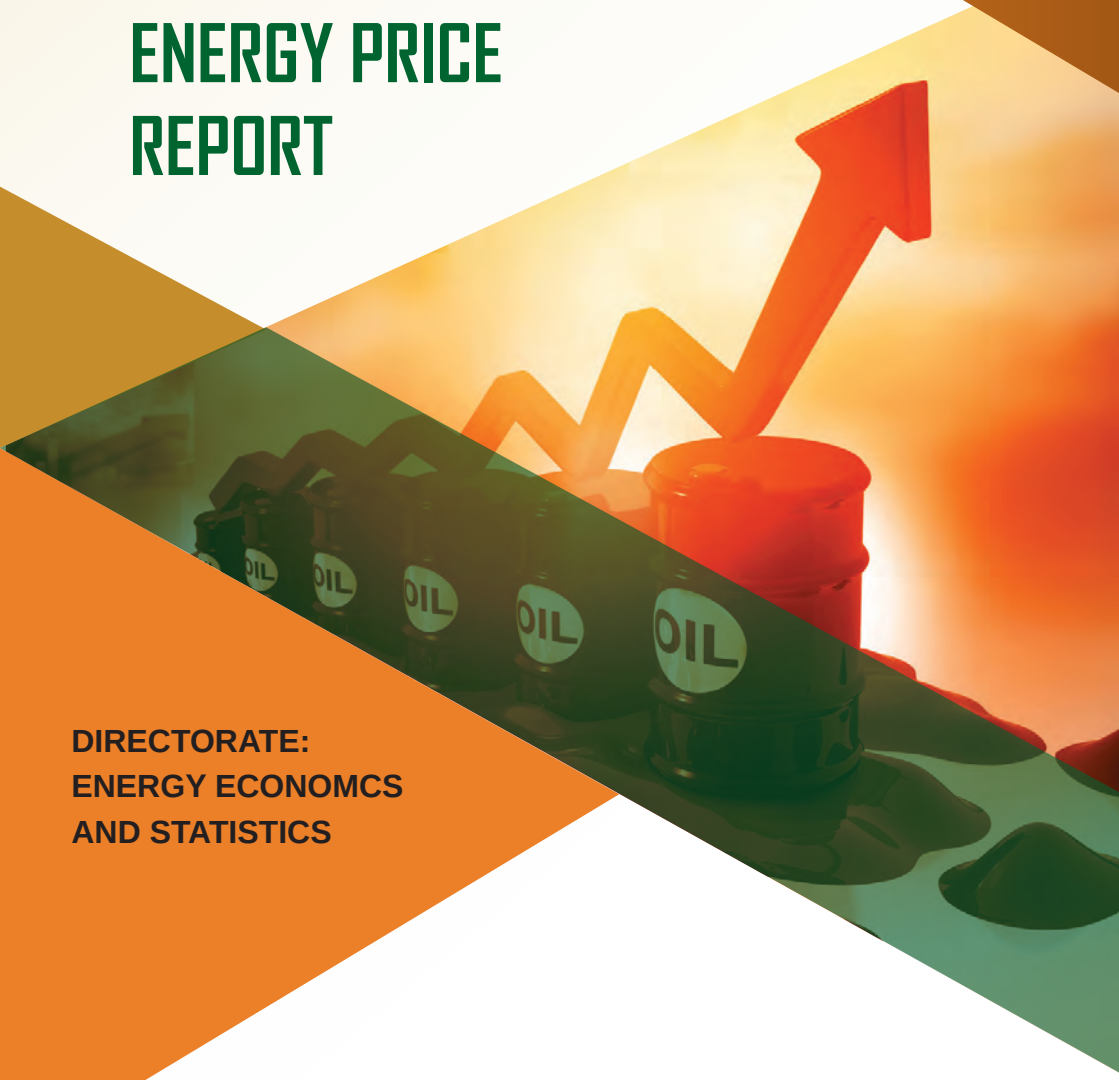
2023 SOUTH AFRICAN ENERGY PRICE REPORT



DIRECTORATE:
ENERGY ECONOMCS
AND STATISTICS

mineral resources & energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

2030 NDP

THE SOUTH AFRICAN ENERGY PRICE REPORT 2023

Directorate: Energy Economics and Statistics

Compiled by:

Ms T. Manyane
Email: Thapelo.Manyane@dmre.gov.za

Supervised by:

Mr Ramaano Nembahe
Email: Ramaano.Nembahe@dmre.gov.za

Published by:

Department of Mineral Resources and Energy

Postal Address: Private Bag X96
Pretoria
0001

Tel: (012) 406 7540

Address: 192 Visagie Street, C/o Paul Kruger & Visagie Street, Pretoria, 0001

Website: http://www.energy.gov.za

Enquiries: publications@energy.gov.za

THIS, THE 13th EDITION, PUBLISHED IN 2023

ISBN: 978-1-920435-23-3

FOREWORD

It gives me a great pleasure to introduce the 2023 edition of the Energy Price Report for South Africa. The Energy Price Report is based on the information collated from government departments, state-owned-entities, as well as oil and gas industries. This publication covers a broad overview and analysis of the South African energy prices and aims to keep stakeholders informed about energy prices and key issues affecting the energy industry.

Energy prices are a very a crucial factor in facilitating economic growth. Electricity supply shortages have constrained South Africa's growth severely in the past few years. Rolling scheduled power cuts started in 2007 and have intensified exponentially, reaching close to 9 hours daily in 2022. This severe electricity shortfall has disrupted economic activity and increased operating costs for businesses, many of which rely on costly diesel generators.

This edition presents energy prices data in a format which provides an overall picture of monthly and annual trends for common energy carriers used in South Africa. In order to clearly present and analyse the energy pricing trends, this report is divided into four main focus areas: Petroleum; Natural Gas, Coal; and Electricity.

I extend my most sincere thanks and appreciation to the Energy Economics and Statistics Directorate for the hard work that went into the compilation of this publication. I would also like to express my appreciation to all the energy data providers who have helped us to accomplish what is set out in this report.

The Department of Mineral Resources and Energy is working hard to reduce delays in the publishing of the Energy Price Report and hopes that the publication will become a standard work of reference among energy analysts in South Africa and abroad. Comments and inputs are welcome and should be addressed to publications@energy.gov.za.

Mr. J. Mbele

Director General

Department of Mineral Resources & Energy

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BFP	Basic Fuel Price
CTL	Coal-to-Liquids
DSML	Demand-Side Management Levy
DMRE	Department of Mineral Resources and Energy
GTL	Gas-to-Liquids
IP	Illuminating Paraffin
IRP	Integrated Resource Plan
IPP	Independent Power Producer
LPG	Liquefied Petroleum Gas
LRP	Lead Replacement Petrol
MRGP	Maximum Refinery Gate Price
MRP	Maximum Retail Price
MYPD	Multi Year Price Determination
OPEC	Organization of the Petroleum Exporting Countries
NERSA	National Energy Regulator of South Africa
RAF	Road Accident Fund
SADC	Southern African Development Community
SARB	South African Reserve Bank
ULP	Unleaded Petrol
US Dollar per barrel	USD/bbl

1. INTRODUCTION

Energy is a critical component and at the centre of any Country's economic development, such. Coal, Petroleum, Natural Gas, Uranium and Electricity are all fuel materials that may be used to create energy. South Africa's primary energy needs are provided by fossil fuels and heavily dominated by the extraction of raw materials and primary processing. Coal alone makes up 77% of the primary energy supply, while crude oil is about 14%, with renewables at about 8%.

With the mounting pressure to address Global warming, there are urgent measures that are needed to reduce the consumption of Fossil Fuels and move to green sources of energy. According to the National Treasury, "South Africa has climate commitments that it needs to account in an approach to meet a target of net zero emissions by 2050 . Carbon Tax is integral to lowering emissions. South Africa's exports of carbon intensive goods such as iron and steel are likely to face carbon taxes in Europe, which will reduce their competitiveness.

South Africa has experienced several challenges in the Electricity sector. South Africa has, since 2007 experienced multiple periods of rolling blackouts as the country's demand for electricity exceeds the supply. The periodical black outs have worsened lately, with Eskom, the power utility and primary power generator being unable to meet the demand of electricity. Currently, the intensity of power cuts, in the year 2022 had the biggest negative impact on economic industries such as Agriculture (0,27%) Mining (0,19%) Electricity, Gas and Water (0,18%) Manufacturing (0,09%) and Transport (0,05%) and employment on these industries continue to wane .

On the 12th of January 2023, the South African Energy Regulator, approved a 18,65% Power price hike for Eskom. This was announced based on the information and the analysis of Eskom's fifth multi-year Price Determination revenue application for the 2023/2024 and 2024/2025 financial years. The percentage increase is based on NERSA's approved tariff of 146.48c/kWh in

the 2022/23 financial year. Eskom's revenue application for 2023/2024 was considered against various challenges affecting the South African economy. Accordingly, the Energy Regulator's decision provides a balance between the sustainability of Eskom the economic wellbeing of consumers and the economy .

This report provides an overview of the latest energy pricing trends and narrative for the major energy carriers in South Africa i.e., coal, natural gas and crude oil as well as petroleum products and electricity. Energy prices are significant indicators in the cost of providing services in the economy, such as transportation which uses Oil in the form of Petrol, and Electricity, which is the most important driving factor in the economy.

This report covers monthly prices as well as trend analysis of various energy carriers for the year 2022. In South Africa, electricity prices are reviewed once a year while petroleum product prices are changed on a monthly basis due to fluctuations in international oil prices (quoted in US dollars) and the Rand/US Dollar exchange rate.

The report consists of the following sections:

- Section 2 covers prices of crude oil, and all major petroleum products (petrol, diesel, illuminating paraffin and liquid petroleum gas).
- Section 3 covers natural gas prices.
- Section 4 covers the prices of locally consumed and exported coal.
- Section 5 presents the national Eskom electricity prices. The Prices does not include the prices of electricity sold by individual/various municipalities to end-users.

Each section gives a brief introduction followed by a table of prices and graphs depicting the price movements over time. Where possible, a brief analysis of possible reasons for price fluctuations is provided.

2. CRUDE OIL AND PETROLEUM PRODUCTS

Crude Oil is the most important resource in the world as it fuels the whole economy into motion. Crude Oil is the major source of energy, as it generates heat and powers various types of vehicles. Many products that we use daily uses Crude Oil as a Component. 97% of energy required i.e. transportation is provided by Crude Oil. Almost 90% is imported while 10% is locally produced. Oil refineries are the main players as they refine Crude Oil into diesel, petrol, paraffin, jet fuel, aviation gasoline, LPG and refinery gas.

South Africa in 2022 exported refined petroleum products mostly to the neighbouring countries i.e., Namibia, Botswana, Zimbabwe, Swaziland and Lesotho. South Africa mainly imports Crude Oil from Nigeria, Angola, United Arab Emirates (UAE), Ghana and Saudi Arabia. In February 2022, Russia invaded the neighbouring nation of Ukraine. The war between these two countries caused a steady rise in prices of Crude Oil. Prices surpassed $100 per barrel for the first time since 2014. According to the International Energy Agency (IEA), Russia is the world's largest Crude oil exporter . In 2022, the steady rise of Crude oil prices was caused by fears about supply uncertainties. Consequently, the global demand of Crude Oil exceeded supply which resulted in rising prices relentlessly.

Crude Oil is traded in USD/BBL and therefore exchange rate is very important. As a result of high crude oil prices in 2022, South Africa Refineries that refine Crude Oil into petroleum products also increased their prices of products they produced to cover their own manufacturing costs as it became more expensive for them to import Crude Oil.

In light of the above, Petrol (ULP 95 and 93) retail prices are regulated by government and are changed every month on the first Wednesday of the month. The calculation of the new prices is therefor done by the Central Energy Fund (CEF) on behalf of the Department of Mineral Resources and Energy (DMRE). Petrol pump prices are composed of a number of price elements, and these can be divided into international and domestic elements.

The international element, or Basic Fuel price (BFP) represents the realistic, market-related costs of importing a substantial portion of South Africa's liquid fuels requirements. Therefore, the petrol price in South Africa is directly linked to the price of petrol quoted in US dollars at refined petroleum export orientated refining centres in the Mediterranean area, the Arab Gulf and Singapore. These prices are influenced by international crude oil prices, international supply and demand balances for petroleum products and the Rand/US Dollar exchange rate. To arrive at the final petrol pump price, the domestic elements, that is, the primary transportation costs, levies and margins are added to the Basic Fuel Price (BFP).

This section basically covers the monthly international crude oil prices as well as the breakdown of petroleum products prices sold nationally for the year 2022. The main focus of the analysis in this section is on the price movements as well as related global and national events that led to those movements.

2.1 Crude Oil

The average monthly prices of Brent crude oil and the exchange rate for 2022 are depicted in Table 2.1 below. The crude oil prices are presented in US Dollar per barrel (US$/bbl) and the exchange in Rand per Dollar (R/US$).

Table 2.1: 2022 Monthly Brent Crude Oil Prices and the Exchange Rate

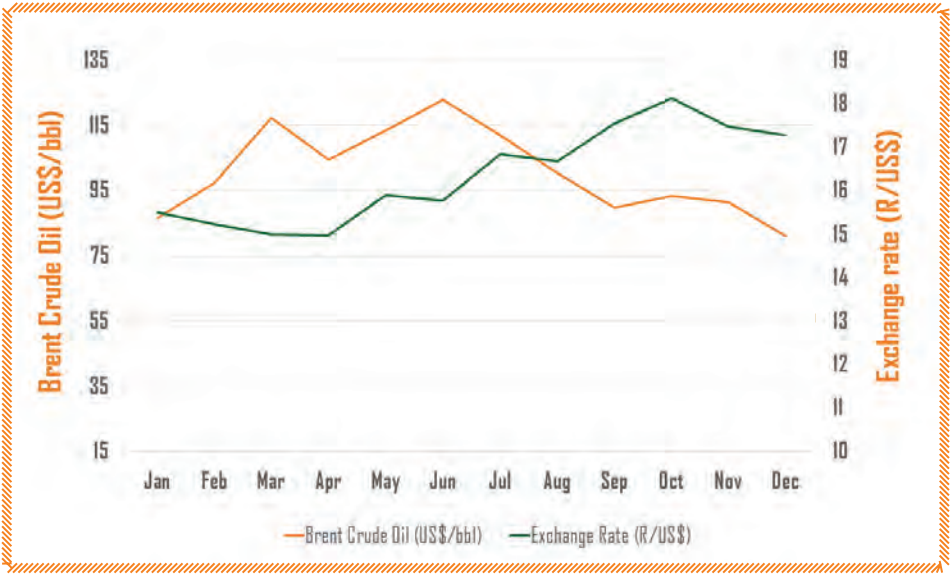
Period	Brent Crude Oil (US$/bbl)	Exchange Rate (R/US$)
Jan	86,51	15,49
Feb	97,13	15,22
Mar	117,25	14,98
Apr	104,58	14,97
May	113,34	15,90
Jun	122,71	15,77
Jul	111,93	16,84
Aug	100,45	16,68
Sep	89,76	17,54
Oct	93,4	18,12
Nov	91,42	17,47
Dec	80,92	17,28

Source: http://statista.com/statistics/262861/uk-monthly-crude-oil-prices for Brent Crude oil and South African Reserve Bank (SARB) for Exchange Rate

The Brent crude oil prices averages at $86.51/bbl in January 2022. The price of Brent crude oil increased from month to month starting from January until they reached a peak in June at $122.71/bbl. Prices decreased from the month of July until December, closing at $80,92 l/bbl. The main reason behind the dramatic movement in prices of Crude Oil was due to unsettled trade issues between Russia and Ukraine. The Oil demand was outmatching the supply as a result of the war between Ukraine and Russia.

According to the United Nations Development Programme, The Ukraine War has affected the economy of South Africa in a very negative way. The economic recovery of South Africa in 2021 has been relatively strong since the easing of COVID restrictions but Ukraine War has been a setback.

Figure 2.1: 2022 Monthly Brent Crude Oil Prices and the Exchange Rate



Source: http://statista.com/statistics/262861/uk-monthly-crude-oil-prices for Brent Crude oil and South African Reserve Bank (SARB) for Exchange Rate

The Rand appreciated against the dollar in the first quarter of the year 2022. The exchange rate against the rand/dollar significantly changed in the month of April from which the rand started depreciating on each month until it reached a peak in October at R18,12(R/US$). The Rand strengthened in the last two months of the year 2022. The exchange rate between the Rand/Dollar closed at R17,25 in December 2022. The Rand started well in the first quarter of 2022 as a result of a rise in interest rates following a surge in consumer price inflation in South Africa. The weakening of the Rand after the first quarter of 2022 was the results of severe load shedding and catastrophic floods results in KwaZulu Natal which severely damaged one of the nations' major transportation hubs.

2.2 Petroleum Products

The Prices of fuel in South Africa are adjusted on a monthly basis, informed by international and local factors. International factors include the fact that South Africa imports both crude oil and finished products at a price set at the international level, including importation costs. The main reasons for the fuel price adjustments on a monthly basis are due to the contribution of the Rand/US Dollar exchange rate, the prices of crude oil as well as import prices of petroleum products.

2.2.1 Petrol

The table below shows the Monthly prices of Petrol (ULP)93 and Petrol (ULP) 95 for both Coast and Gauteng respectively. Prices of Petrol were generally at an increasing rate since January until July where all prices reached their highest. Prices started dropping from August until December.

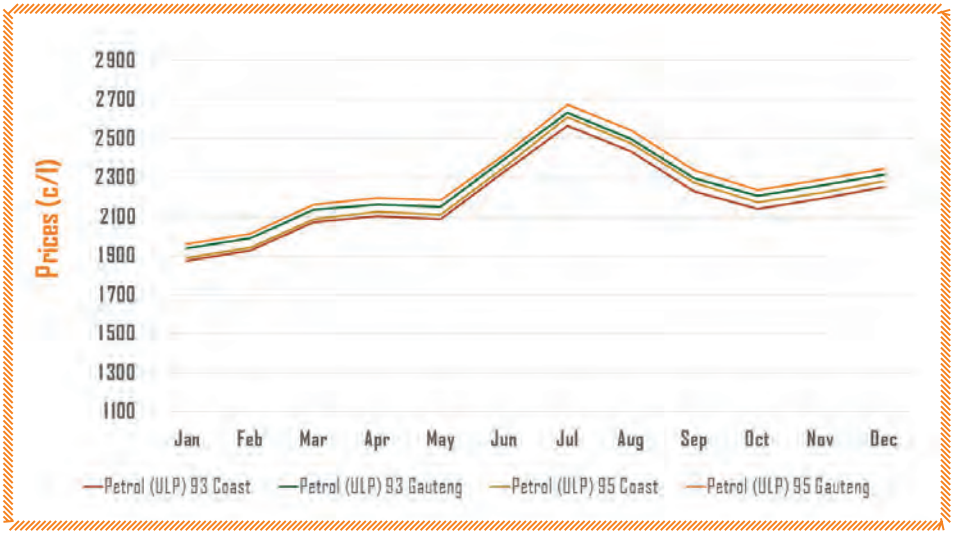
Table 2.2: 2022 Monthly Petrol ULP 93/95 Prices in cents per litre

Period	Petrol (ULP) 93	Petrol (ULP) 95	Brent Crude Oil (US$/bbl)	Exchange Rate (R/US$)
	Petrol (ULP) 93 Coast	Petrol (ULP) 93 Gauteng	Petrol (ULP) 95 Coast	Petrol (ULP) 95 Gauteng
Jan	1874	1936	1889	1961
Feb	1927	1989	1942	2014
Mar	2073	2135	2088	2160
Apr	2101	2163	2124	2196
May	2086	2151	2109	2184
Jun	2329	2394	2352	2417
Jul	2566	2631	2609	2674
Aug	2434	2499	2477	2542
Sep	2230	2295	2273	2338
Oct	2141	2206	2171	2236
Nov	2192	2257	2222	2287
Dec	2251	2316	2281	2346

Source: Department of Mineral Resources and Energy (DMRE)

The Fuel prices rose at a steady pace from January 2022. This was experienced as a result of the war between Russia and Ukraine in February 2022. The restlessness between these two countries caused the prices of Petrol in South Africa to keep rising until July where all the prices reached a peak. ULP 93 and ULP 95 for Coast increased by R2,37 per litre and R2,57 per litre respectively in July. Then prices started decreasing going into August and reached a low in October 2022. From October going into November, they started rising again, closing in December at R22,51 per litre (ULP 93) and R22,82 per litre (ULP95) in the coastal region.

Figure 2.2: 2022 Monthly Petrol ULP 93/95 prices in cents per litre



Source: Department of Mineral Resources and Energy (DMRE)

The elements that make up the price of unleaded petrol 95 are depicted in Table 2.3 below. The difference between the retail price of ULP 93 and ULP 95 in the inland region is around 25 c/l on average and is mainly due to the 10 c/l Demand-Side Management Levy (DSML) charged on ULP 95 as well as quarterly adjustments of octane/grade BFP differentials.

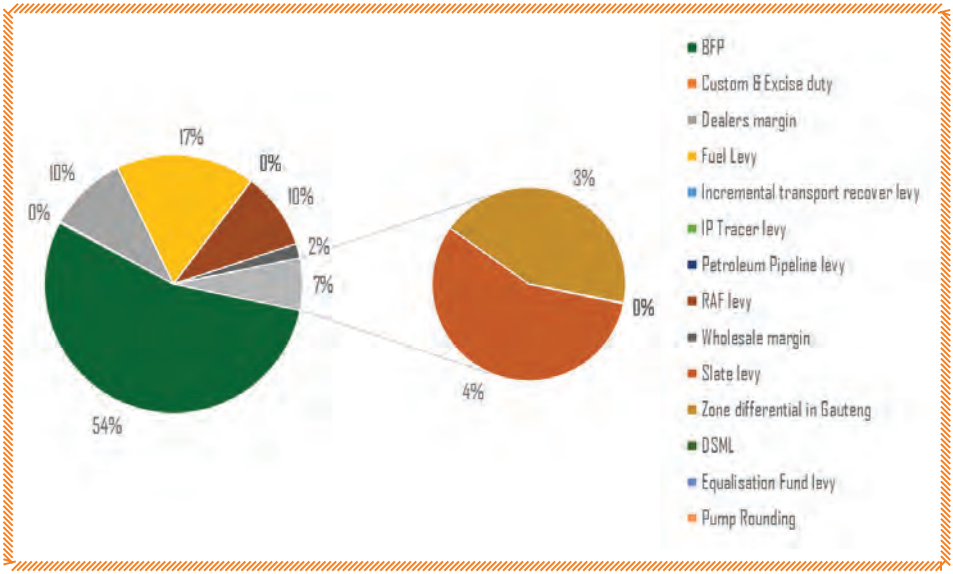
Table 2.3: 2022 Petrol ULP 95 monthly levies, taxes and margins in cents per litre

Period	BFP	Custom & Excise duty	Dealers margin	Fuel Levy	Incremental transport recover levy	IP Tracer levy	Petroleum Pipeline levy	RAF levy	Wholesale margin	Slate levy	Zone differential in Gauteng	DSML	Equalisation Fund levy	Pump Rounding
Jan-20	903,47	4,00	211,60	393,00	0,00	0,00	0,33	218,00	35,70	43,86	57,40	10,00	0,00	0,30
Feb-20	969,63	4,00	211,60	393,00	0,00	0,00	0,33	218,00	35,70	30,70	57,40	10,00	0,00	0,30
Mar-20	1100,27	4,00	211,60	393,00	0,00	0,00	0,33	218,00	35,70	46,06	57,40	10,00	0,00	0,30
Apr-20	1278,71	4,00	211,60	244,00	0,00	0,00	0,33	218,00	35,70	52,62	63,70	10,00	0,00	0,20
May-20	1264,41	4,00	211,60	244,00	0,00	0,00	0,33	218,00	35,70	52,62	63,70	10,00	0,00	0,20
Jun-20	1484,41	4,00	211,60	244,00	0,00	0,00	0,33	218,00	35,70	52,62	63,70	0,00	0,00	0,20
Jul-20	1689,41	4,00	211,60	319,00	0,00	0,00	0,33	218,00	35,70	52,62	63,70	0,00	0,00	0,20
Aug-20	1482,41	4,00	211,60	394,00	0,00	0,00	0,33	218,00	35,70	52,62	63,70	0,00	0,00	0,20
Sep-20	1247,75	4,00	216,90	394,00	0,00	0,00	0,33	218,00	35,70	83,28	63,70	0,00	0,00	0,20
Oct-20	1145,75	4,00	216,90	394,00	0,00	0,00	0,33	218,00	35,70	83,28	63,70	0,00	0,00	0,20
Nov-20	1209,89	4,00	216,90	394,00	0,00	0,00	0,33	218,00	35,70	70,14	63,70	0,00	0,00	0,20
Dec-20	1234,49	4,00	221,90	394,00	0,00	0,00	0,33	218,00	40,50	83,28	63,70	0,00	0,00	0,20

Source: Department of Mineral Resources and Energy (DMRE)

To identify the contribution of each component to the final retail price of petrol, all the components are illustrated in Figure 2.3 below with their percentage (%) contributions. The Basic Fuel Price (BFP) and the fuel levy had the largest portion in the final retail price of Petrol ULP 95 in 2022, contributing 54% and 17% respectively. There was no increase in the Road Accident Fund levies for the year 2022 as per Budget Speech that was delivered by the Minister of Finance on 23 February 2022.

Figure 2.3: 2022 Petrol ULP 95 monthly levies, taxes and margins



Source: Department of Mineral Resources and Energy (DMRE)

2.2.2 Diesel

In 2022, the most expensive month for diesel users was November, costing R24,84 per litre for Diesel 0,05% Sulphur in the coastal region, R25,49 per litre for Diesel 0,05% Sulphur and R25,74 per litre for Diesel 0,005% Sulphur in the Inland region.

Table 2.4: 2022 Monthly diesel wholesale prices in cents per litre

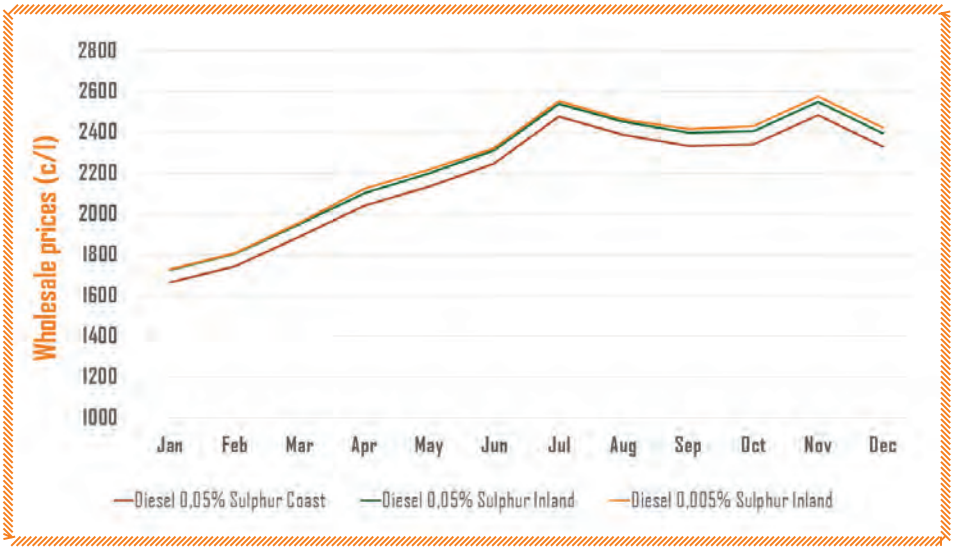
Period	Diesel 0,05% Sulphur		Diesel 0,005% Sulphur
	Diesel 0,05% Sulphur Coast	Diesel 0,05% Sulphur Inland	Diesel 0,005% Sulphur Inland
Jan	1663	1725	1728
Feb	1743	1804	1807
Mar	1887	1948	1955
Apr	2039	2101	2124
May	2134	2199	2215
Jun	2244	2309	2322
Jul	2475	2540	2552
Aug	2387	2452	2461
Sep	2331	2396	2416
Oct	2341	2406	2431
Nov	2484	2549	2574
Dec	2327	2392	2422

Source: Department of Mineral Resources and Energy (DMRE)

Diesel 0,05 Sulphur in the coastal region and Diesel 0,05 Sulphur in the inland region started at a price of R16,63 per litre and R17,25 per litre respectively in January 2022. Diesel prices experienced a rise each month since January until reaching a peak in July 2022 with R24,75 per litre and R25,40 per litre respectively. Prices then started decreasing steadily until they spiked again in November 2022 to a price of R24,84 per litre and R25,89 per litre for Diesel 0,05% Sulphur Coast and Diesel 0,05% Sulphur Inland respectively.

Prices declined from November going into December and ended at a price of R23,27 per litre and R23,92 per litre for Diesel 0,05% Sulphur in the coastal region and Diesel 0,05% Sulphur in the inland region respectively. The year 2022 experienced more price fluctuations of diesel as compared to petrol due to limited global supply of diesel and a higher demand.

Figure 2.4: 2022 Monthly diesel wholesale prices in cents per litre



Source: Department of Mineral Resources and Energy (DMRE)

Table 2.5 below depicts the elements that make up the final price of 0.05% Sulphur Diesel. Unlike petrol, certain components that comprise the final petrol price are not applicable to diesel, like the dealers' margin, since diesel is regulated up to the wholesale level.

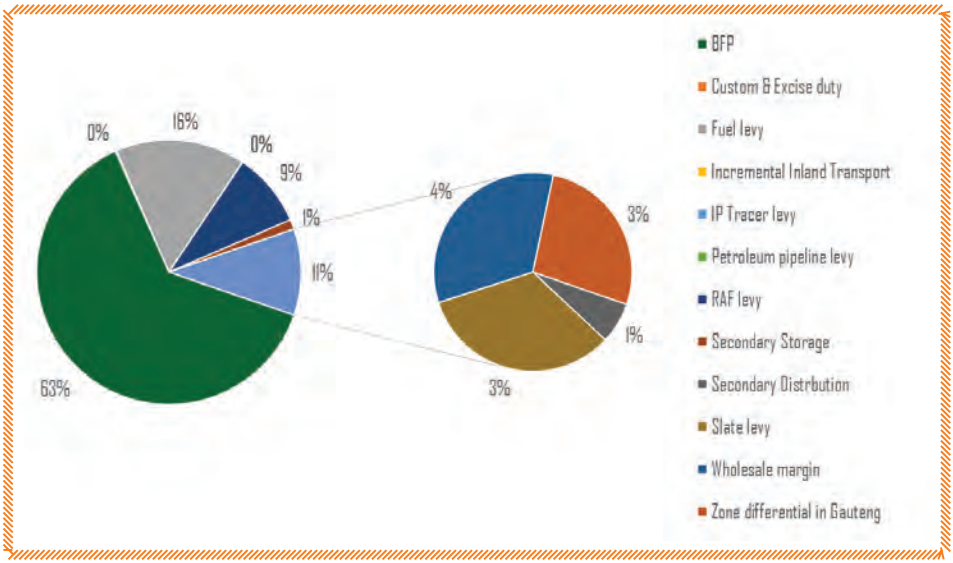
Table 2.5: 2022 Diesel 0.05% Monthly Levies, Taxes and Margins in cents per litre

Period	BFP	Custom & Excise duty	Fuel levy	Incremental Inland Transport	IP Tracer levy	Petroleum pipeline levy	RAF levy	Secondary Storage	Secondary Distribution	Slate levy	Wholesale margin	Zone differential in Gauteng
Jan	885,63	4,00	379,00	0,00	0,10	0,33	218,00	30,70	17,94	43,86	80,22	64,90
Feb	978,63	4,00	379,00	0,00	0,10	0,33	218,00	30,70	17,94	30,70	80,22	64,90
Mar	1107,63	4,00	379,00	0,00	0,10	0,33	218,00	30,70	17,94	46,06	80,22	64,90
Apr	1402,63	4,00	230,00	0,00	0,10	0,33	218,00	30,70	17,94	52,62	80,22	64,90
May	1497,63	4,00	230,00	0,00	0,10	0,33	218,00	30,70	17,94	52,62	80,22	67,90
Jun	1607,63	4,00	230,00	0,00	0,10	0,33	218,00	30,70	17,94	52,62	80,22	67,90
Jul	1763,63	4,00	305,00	0,00	0,10	0,33	218,00	30,70	17,94	52,62	80,22	67,90
Aug	1600,63	4,00	380,00	0,00	0,10	0,33	218,00	30,70	17,94	52,62	80,22	67,90
Sep	1513,63	4,00	380,00	0,00	0,10	0,33	218,00	30,70	17,94	83,28	80,22	67,90
Oct	1523,63	4,00	380,00	0,00	0,10	0,33	218,00	30,70	17,94	83,28	80,22	67,90
Nov	1679,63	4,00	380,00	0,00	0,10	0,33	218,00	30,70	17,94	70,14	80,22	67,90
Dec	1508,63	4,00	380,00	0,00	0,10	0,33	218,00	28,80	16,90	83,28	83,83	67,90

Source: Department of Mineral Resources and Energy (DMRE)

To identify the contribution of each component to the diesel wholesale price, all the components are shown in Figure 2.5 below. In 2022, the BFP was the largest contributor to the total wholesale price of diesel at 63%. The second largest contributor to diesel wholesale price was fuel levy contributing 16%.

Figure 2.5: 2022 Diesel 0.05% Monthly Levies, Taxes and Margins



Source: Department of Mineral Resources and Energy (DMRE)

2.2.3 Illuminating Paraffin

The Single Maximum National Retail Price for Illuminating Paraffin is changed on the first Wednesday of each month and is promulgated in the Government Gazette. The Department of Mineral Resources and Energy started to regulate the maximum retail price for Illuminating Paraffin, excluding the price of any form of packaging since January 2010. However, the prices analysed in this section are wholesale prices and not the Single Maximum National Retail Price.

Table 2.6: 2022 Monthly Illuminating Paraffin Prices in cents per litre

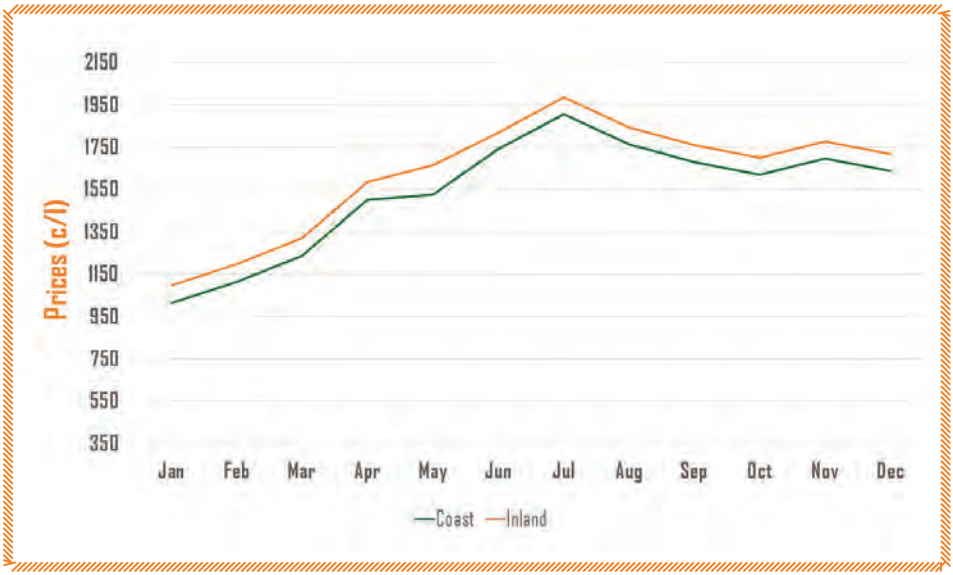
Period	Illuminating Paraffin	
	Coast	Inland
Jan	1015	1097
Feb	1116	1198
Mar	1237	1319
Apr	1503	1585
May	1525	1664
Jun	1741	1820
Jul	1907	1986
Aug	1763	1842
Sep	1681	1760
Oct	1620	1699
Nov	1697	1776
Dec	1639	1718

Source: Department of Mineral Resources and Energy (DMRE)

Prices for Illuminating Paraffin started at R10,15 per litre and R10, 97 per litre for in the coastal and inland regions respectively. Prices were on an uptrend since the start of the year January until they reached a peak in July as with the rest of other petroleum products. Prices peaked by R19, 07 per litre in the coastal region and R19, 86 per litre in the inland region. Prices started declining from July going into August until October. Slight increase in prices was experienced in November

with prices standing at R16, 97 per litre and R17, 76 per litre in the coastal and inland regions respectively. Prices closed in December at a lower price of R16, 39 per litre for in the coastal and R17, 18 per litre in the inland region. Volatility in the Crude Oil market influenced the increase in prices of Illuminating Paraffin.

Figure 2.6: 2022 Monthly Illuminating Paraffin Prices in cents per litre



Source: Department of Mineral Resources and Energy (DMRE)

2.2.4 Liquid Petroleum Gas (LPG)

Two levels of the LPG value chain are subject to price regulation in South Africa. The first is the refinery level, where LPG is sold from the refinery gate by producers at a regulated maximum price determined by the Department of Mineral Resources and Energy. The second level of the value chain subject to price regulation is the retail level, where the Department of Mineral Resources and Energy also regulates the price of LPG sold through cylinders. The maximum retail price can be defined as *"the price of LPG as per prescripts of the Regulation in respect of the Refinery Gate Price of Liquefied Petroleum Gas, Regulation No. 1029 of 31 July 2002 or its successors"*.

Table 2.7 and Figure 2.7 depicts only the regulated maximum retail gate prices for LPG. The Petroleum Products Act stipulates that any person selling LPG from any outlet to a customer is required to do so at a price that is equal to or less than the Maximum Retail Prices (MRP) of LPG.

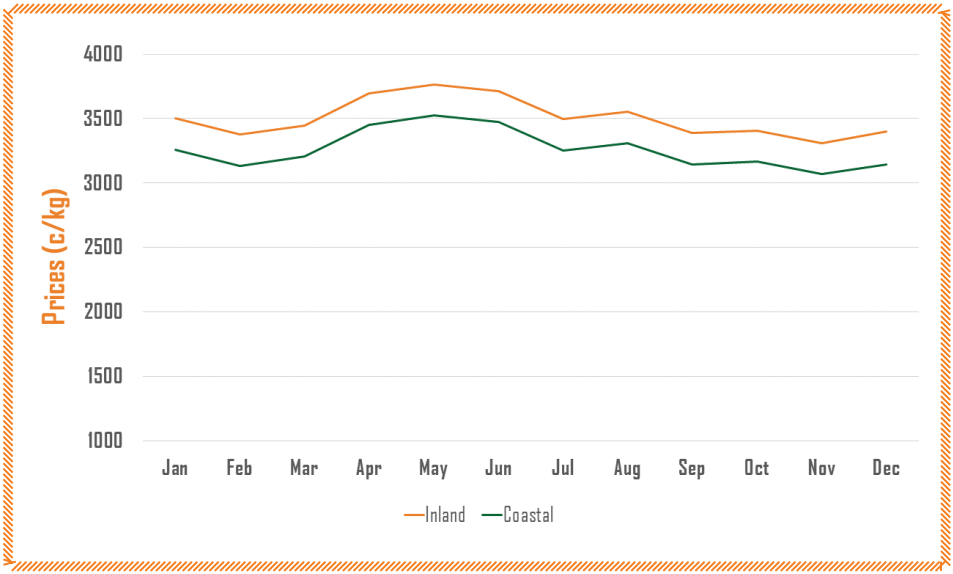
Table 2.7: 2022 Monthly Regulated Maximum Retail Prices for Liquefied Petroleum Gas in cents per kilogram

Period	Regulated Maximum Retail Prices	
	Inland	Coastal
Jan	3500	3259
Feb	3376	3134
Mar	3446	3204
Apr	3696	3454
May	3765	3523
Jun	3714	3472
Jul	3496	3255
Aug	3553	3311
Sep	3388	3146
Oct	3407	3166
Nov	3309	3068
Dec	3403	3146

Source: Department of Mineral Resources and Energy (DMRE)

The same factors that affect all other petroleum products also affect LPG in the same way, for example, Crude oil prices and exchange rates. Prices of LPG started at R35, 00 per kilogram in the inland region and R32, 59 per kilogram in the coastal region in January. The price of LPG in February then decreased by R1,24 per kilogram in the inland region and the coastal region saw a decrease of R1,25 per kilogram in the same month. Prices started increasing from March and they peaked for three consecutive months of April, May and June and later started declining steadily from July until the end of the year. Prices closed at R34, 03 per kilogram in the inland region and R31, 46 per kilogram in the Coastal region.

Figure 2.7: 2022 Monthly Regulated Maximum Retail Prices for Liquefied Petroleum Gas in cents per kilogram



Source: Department of Mineral Resources and Energy (DMRE)

3. NATURAL GAS

The Gas Industry in South Africa is undergoing rapid expansion, with neighbouring countries like Mozambique and Namibia having the availability of Natural Gas. The three largest users of natural gas are industrial, domestic and power generation. Of all the three, the use of natural gas for power generation has risen the most. Natural Gas powers, heats and cools industries, homes and businesses, and it can be a good partner to renewable energy sources. It can also be used as a lower – carbon fuel for ships, trucks, busses and trains.

The tariffs depicted in Table 3.1 are grouped into six customer categories of average annual consumption measured in Rand per Gigajoule.

Table 3.1: 2022 Monthly Natural Gas Prices in Rand per Gigajoule

	Maximum price	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
		33 GJ	333 GJ	3 333 GJ	33 333 GJ	333 333 GJ	1 054 093 GJ
Jan	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Feb	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Mar	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Apr	63,94	63,94	63,94	63,94	63,94	63,94	63,94
May	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Jun	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Jul	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Aug	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Sep	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Oct	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Nov	63,94	63,94	63,94	63,94	63,94	63,94	63,94
Dec	63,94	63,94	63,94	63,94	63,94	63,94	63,94

Source: SASOL

Explanatory Notes:

1. According to the Regulatory Agreement, in terms of Section 36 of the Gas Bill, Sasol Gas has to comply to the Market Value Pricing principle which are defined as follows:

    a) The cost of the alternative fuel delivered to the customer's premises or anticipated place of use (in the case of Greenfields customers) plus;

    b) The difference between all the operating costs of the customer's use of the alternative fuel and all the operating costs of using natural gas; plus

    c) The difference between the Net Present Value (NPV) of the capital costs of the customer's continued use of the alternative fuel and the NPV of the capital costs involved in switching to natural gas, as would be reflected in the customer's accounts.

2. Gas prices are negotiated with customers individually. The prices above are indicative of pipeline gas sold by Sasol Gas and are exclusive of VAT.

3. Since April 2014, the above-mentioned indicative gas prices are subject to monthly adjustment in accordance with the applicable adjustment formula The maximum Gas Energy Prices ("GE") are determined in accordance with the Methodology to Approve Maximum Prices of Piped-Gas in South Africa promulgated by NERSA in October 2011 (the "Methodology"). In terms of the said Methodology, the maximum energy prices are referenced to price indicators of certain energy sources.

The legal basis for the National Energy Regulator of South Africa (NERSA) to regulate prices of piped gas is derived from the National Energy Regulator Act, 2004 (Act No. 40 of 2004), read with the Gas Act, 2001 (Act No. 48 of 2001) ('the Gas Act'). In terms of section 4(g) of the Gas Act, the Energy Regulator must, as appropriate, in accordance with this Act, regulate prices in terms of Section 21(1)(p) in the prescribed manner.

The prices of Natural Gas remained the same throughout the year 2022 for all different kinds of classes. Sasol Gas maximum price application is made in terms of the Energy Price Indicators Approach. In terms of this approach, the maximum price for gas is referenced to price indicators of certain relevant energy sources (i.e. coal, electricity, heavy fuel oil, LPG and diesel). On 24 February 2022, The National Energy Regulator decided to approve the following multiyear transmission tariffs for Sasol Gas (Pty) Limited for the period of 1 July 2021 to 30 June 2022 and 1 July 2022 to 30 June 2023 Tariff (R/GJ):

	July 2021/June 2022	July 2022/June 2023
Zone 1	R6,94/GJ	R7,61/GJ
Zone 2	R20,41/GJ	R20,43/GJ
Zone 3	R7,26/GJ	R7,82/GJ

The National Energy Regulator does not have the mandate to set gas prices, but approves maximum prices, from which discounts are allowed and should be applied in compliance with section 22 of the Gas Act. The approved tariffs are maximum tariffs exclusive of VAT.

In approving the maximum prices of gas NERSA:

- will not set actual prices, but will review applications for maximum piped-gas prices prepared by licensees or applicants;
- may request licensees or applicants to amend maximum prices; and
- may approve or decide not to approve maximum gas prices.

The National Energy Regulator only approves a price ceiling, implying that the actual prices charged to customers should not exceed the maximum price. Actual prices are determined based on contractual negotiations between a licensee and its customers, and the negotiated price should comply with Section 21(1)(p) of the Gas Act.

4. COAL

Coal is the most widely used primary fuel internationally, accounting for about 36% of the total fuel consumption of the world's electricity production. Coal contributes about 57% of South Africa's primary energy supply . Approximately 37% of the run-of-mine coal produced is exported. Of the total supply available for the country, 83% is used in the transformation stages where majority is used to produce electricity (74%) while 28% is used to produce petroleum products . The remainder of South Africa's coal production feeds the various local sectors including industry, transport and other sectors.

Table 4.1 below shows the average local and export prices of anthracite and bituminous coal from 2012 to 2021

Table 4.1: Annual average local and export coal prices in Rand per ton

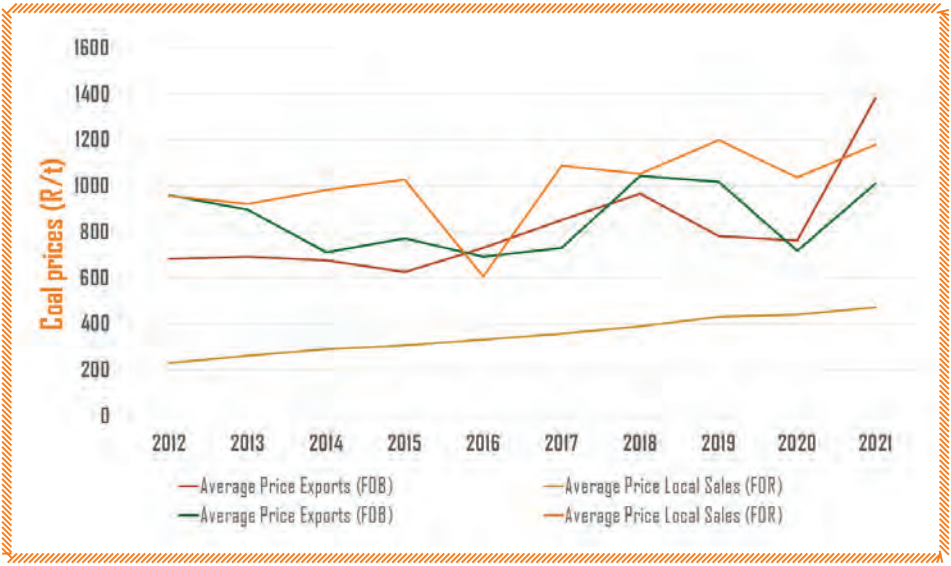
Period	Coal Bituminous		Coal Anthracite	
	Average Price Exports (FOB)	Average Price Local Sales (FOR)	Average Price Exports (FOB)	Average Price Local Sales (FOR)
2012	682,62	231,68	961,39	957,20
2013	692,50	263,20	898,57	923,07
2014	677,74	292,46	712,64	984,52
2015	627,65	308,65	773,99	1028,79
2016	732,62	332,81	694,35	608,65
2017	852,61	359,66	732,83	1088,18
2018	966,74	391,91	1044,75	1054,73
2019	783,66	432,19	1020,26	1200,75
2020	764,25	443,09	719,67	1037,50
2021	1385	475	1013	1182

Source: Department of Mineral Resources and Energy (DMRE)

Explanatory Notes:

1. FOB: Free On Board.
2. FOR: Free On Road.
3. The prices are exclusive of VAT

Figure 4.1: Annual Average Local (FOR) and Exports Prices (FOB) in Rand per ton, 2012 - 2021



Source: Department of Mineral Resources and Energy (DMRE)

Figure 4.1 above shows an increase in the overall prices of Coal, for both Coal Bituminous and Coal Anthracite each with local sales and prices of exports. The average prices for local sales on Coal Bituminous increased by 7,2% whilst the average prices for local sales on Coal Anthracite increased by 13,9%. The average Export prices for Coal Bituminous increased by 81% while the average Export prices for Coal Anthracite increased by 40,7%.

South Africa exports about 40 – 50% of Coal to India, with India being the largest export market for SA Coal. Europe is the second largest destination for South African Coal after India. The higher prices of coal in South Africa for 2022 was driven by supply shortages at Indian Coal-fired power stations.

5. ELECTRICITY

The electricity industry in South Africa is regulated by NERSA in terms of the Electricity Regulation Act, 2006 and the National Energy Regulatory Act, 2004. NERSA does not only provide licences, regulatory rules, guidelines and codes, but also determine Eskom's revenue requirement based on the requirements of the Electricity Pricing Policy.

The electricity generated by Eskom, together with imports and that produced by Independent Power Producers (IPPs), is supplied in bulk to distributors, both metros and municipalities, as well as distributed to industrial, commercial, residential and other customers in the licensed areas of supply. Eskom also supplies a number of international customers, including electricity utilities in the SADC region.

Eskom generates its revenue from different electricity users. Table 5.1 shows various types of electricity users from 2011/12 to 2020/21. The electricity usage includes electricity used for domestic and street lighting, commercial, industrial, international, mining and farming.

Table 5.1: Annual Average Eskom Prices by Customer Category in cents per kilowatt hour (2011/2012 to 2020/2021)

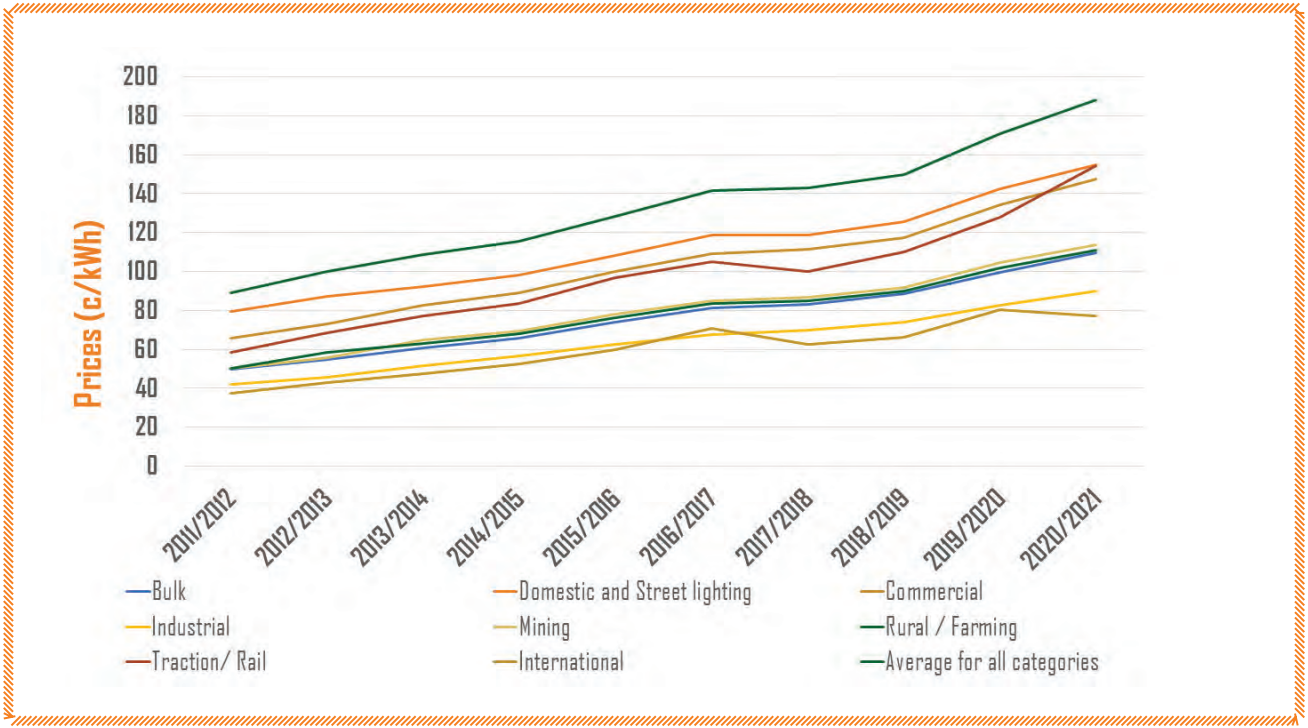
	Bulk	Domestic and Street lighting	Commercial	Industrial	Mining	Rural / Farming	Traction/ Rail	International	Average for all categories
2011/2012	49,96	79,52	65,92	42,13	50,11	89,22	58,23	37,53	50,27
2012/2013	54,59	87,05	73,24	45,56	55,74	99,75	68,66	42,72	58,49
2013/2014	60,67	92,41	82,67	51,79	64,66	108,75	77,34	47,56	62,82
2014/2015	65,92	98,06	89,16	56,81	69,52	115,66	83,63	52,55	67,91
2015/2016	74,11	108,11	100,07	62,64	78,01	128,19	96,60	59,82	76,24
2016/2017	81,38	118,60	109,09	67,71	84,80	141,70	104,95	70,77	83,60
2017/2018	82,94	118,56	111,25	70,02	86,91	142,78	100,10	62,42	85,06
2018/2019	88,53	125,73	117,30	73,99	91,64	149,79	110,17	66,13	90,01
2019/2020	99,62	142,29	134,15	82,79	104,41	170,52	127,81	80,51	101,86
2020/2021	109,44	154,57	147,52	90,03	113,77	187,91	154,17	76,93	111,04

Source: Eskom

Explanatory Notes:

1. The data in this table is from various Eskom Statistical Yearbooks and Annual Reports.
2. The price data in this table is only applicable to Eskom's direct sales to the categories as listed. Sales by local authorities to the Domestic, Commercial and Industry categories are not included in this table.
3. The prices are in c/kWh for each of a number of sales categories.
4. Prices are exclusive of VAT

Figure 5.1: Annual Average Eskom Prices by Customer Category in cents per kilowatt hour (2011/2012 to 2020/2021)



Source: Eskom

Eskom's tariffs are adjusted on an annual basis – previously on the 1st of January, but due to the change in Eskom's financial year; price adjustments now take place on the 1st April every year. The average tariff adjustments for the past 10 years are indicated in Table 5.2 below:

Table 5.2: Eskom's Average Tariff Adjustment

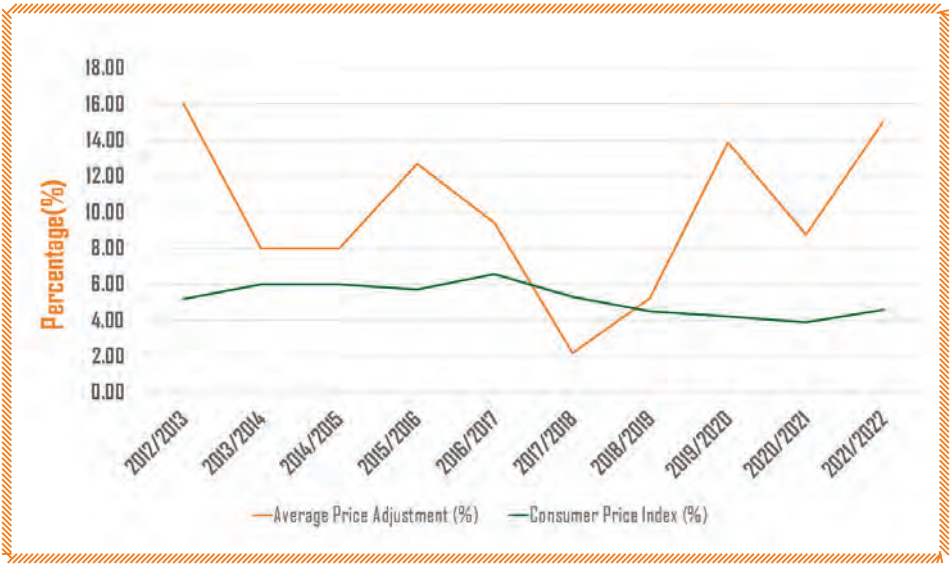
	Average Price Adjustment (%)	Consumer Price Index (%)
2012/2013	16,00	5,20
2013/2014	8,00	6,00
2014/2015	8,00	6,00
2015/2016	12,69	5,70
2016/2017	9,40	6,59
2017/2018	2,20	5,30
2018/2019	5,23	4,5
2019/2020	13,87	4,2
2020/2021	8,76	3,9
2021/2022	15,06	4,6

Source: Eskom

Explanatory Notes:

1. Eskom's tariffs are adjusted on an annual basis, on the 1st of April every year.
2. Eskom's average price tariffs are adjusted at the end of the financial year (end of April) from 2005 to 2015
3. Eskom's average tariff adjustment figures are published on Eskom's website.
4. The adjustments are according to Eskom's financial year end, which is end of the March.

Figure 5.2: Annual Eskom Average Tariff Adjustment, 2012/2013 to 2021/2022



Source: Eskom

Figure 5.2 above depicts the Average Tarrif Adjustment against Consumer Price Index for the past 10 Years. The year 2017/2018 is the only year that had the electricity price udjustment that was lower than the Consumer price index. In all other years, electricity tarriff adjustments were always higher than the Consumer price index . The higher electricity could be attributed to contiunous rolling blackouts and the constrained capacity at Eskom. From 2019 to 2022, prices of Electricity have been on an upward trend, with the CPI slowly rising below Electricity prices. As decicted in the above figure, the everage price of electricity more than doubled as compared to the CPI in the last 3 years (2019/21-2021/22).

In terms of Section 4 of the National Energy Regulator Act, 2004 (Act No.40 of 2004), NERSA's mandate is to regulate the electricity industry in terms of the Electricity Regulation Act, 2006 (Act No. 4 of 2006). The Energy Regulator determines Eskom allowed revenue on a multi-year basis. The Multi Year Price Determination (MYPD) incorporates some of the Rate of Return (RoR) and

incentive based principles through the introduction of the transmission and distribution service incentive schemes and the Energy Efficiency Demand Side Management (EEDSM) schemes. The RoR methodology states that the revenue to be earned by Eskom should be equal to the efficient cost to supply electricity plus a fair return on the rate base.

Table 5.3: Eskom's allowed revenues decisions

MYPD	2020/2021	2021/2022	2022/2023
Total expected revenues from all customers (R'm)	221 843	214 598	235 800
Negotiated price agreement and International customers (R'm)	16 736	31 111	13 926
Revenues from tariffs based sales (R'm)	205 107	245 709	249 726
Forecast sales to tariff customers (GWh)	184 898	183 856	170 485
Standard average tariff (c/kWh)	110,93	133,64	146,48
Percentage tariff increase (%)	8,10%	15,06%	9,61%

Source: Eskom's Tariffs and Charges Booklet 2022/2023

REFERENCES

1. *Competition Commission (2022). Market Inquiry into the LPG Sector Final Report. Pretoria, South Africa (Accessed January 2023)*
2. *Daniel Liberto, C. (2022). Crude Oil. Available at: https://www.investopedia.com/terms/c/crude-oil.asp (Accessed: January 2023)*
3. *Energy.gov.za. (2022). Energy Sources: Petroleum | Department: Energy | Republic of South Africa. Available at: http://www.energy.gov.za/files/petroleum_frame.html*
4. *Eskom (2022). Integrated Results 2022. Available at: http://www.eskom.co.za/IR2022/Pages/default.aspx .*
5. *Eskom Tariffs & Charges Booklet 2022/2023. Available at: www.eskom.co.za/tariffs*
6. *Stats Sa.gov.za. Available at http:/www.statssa.gov.za (Accessed: December 2022)*
7. *Gusev, M. (2019). Monthly Crude Oil Prices. Available at: http://southafrica.opendataforafrica.o.rg/iaeapfb/monthly-crude-oil-prices (Accessed: December 2022).*
8. *Nersa.org.za (2022). Available at: http://www.nersa.org.za/Admin/Document/Editor/file/News%20and%20Publications/Media%20Releases%20Statements/Media%20Statement%20-%20Decision%20on%20Eskom's%20Revenue%20Application%20for%20the%20201919%20Financial%20Year.pdf .*
9. *U.K. (2022). COLUMN-South African coal loses Europe but gains South Asia: Russell. Available at: https://uk.reuters.com/article/column-russell-coal-safrica/column-south-african-coal-loses-europe-but-gains-south-asia-russell-idUKL4N1PS2W7 .*
10. *www.statista.com available at: https://www.statista.com/statistics/262861/uk-brent-crude-oil-monthly-price-development/ (2022)*
11. *Ceicdata.com. Available at: http://ceicdata.com/en/indicator/south-africa/exchange-rate-against-usd.(Accessed: December 2022)*
12. *www.reservebank.co.za available at: http://resbank.co.za/en/home/publications (Accessed: December 2022)*

APPENDIX B: FUEL PROPERTIES

Table B.4: Calorific Values of Various Fuels

Carrier	Calorific Value	Calorific Value Unit	Density
LPG	26.7	MJ/l	0.54
Paraffin Power	37.5	MJ/l	0.81
Gas SASOL	18.0	MJ/m^3	-
Diesel	38.1	MJ/l	0.84
Electricity	3.6	MJ/kWh	-
Gas	41.0	MJ/m^3	-
Heavy Fuel Oil	41.6	MJ/l	0.98
Petrol	34.2	MJ/l	0.72
Paraffin Illuminating CSS StatsSA) Data	37.0	MJ/l	0.79
Aviation Gas	33.9	MJ/l	0.73
Jet Fuel	34.3	MJ/l	0.79
Coal Eskom Average	20.1	MJ/kg	-
Coal (General purpose)	24.3	MJ/kg	-
Coal (Coking)	30.1	MJ/kg	-
Coke	27.9	MJ/kg	-
Coke oven gas	17.3	MJ/m^3	-
Blast furnace gas	3.1	MJ/m^3	-
Bagasse (wet)	7.0	MJ/kg	-
Bagasse fibre (dry)	14.0	MJ/kg	-
Biomass (wood dry typical)	17.0	MJ/kg	-
Gas Sasol - methane rich	35.0	MJ/m^3	-

APPENDIX C: UNIT CONVERSIONS

Table C.5: Energy Unit Conversion Factors

From \ To	J	kWh	toe	Btu
1 J	1	0.278 x 10-6	0.2388 x 10-6	0.948 x 10-3
1 kWh	3.6 x 106	1	0.86 x 10-6	3.412 x 103
1 toe	42 x 109	11630	1	39.68 x 106
1 Btu	1.055 x 103	0.293 x 10-3	0.252 x 10-9	1

Note: toe = ton oil equivalent

Table C.6: Unit Prefixes

Prefix	Symbol	Power
Kilo	k	10^3
Mega	M	10^6
Giga	G	10^9
Tera	T	10^{12}
Peta	P	10^{15}
Exa	E	10^{18}

Department of Mineral Resources and Energy

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

www.energy.gov.za

ISBN: 978-1-920435-23-3