

# STATISTICAL BULLETIN 2015



**Head Office** Plot No. 9330, Mass Media Off Alick Nkhata Road, P. O. Box 37631, Lusaka, Zambia. Tel: 260-211-258844 - 49

Fax: 260-211-258852

Copperbelt Office Plot No. 332 Independence Avenue P.O. Box 22281 Kitwe, Zambia Tel: +260 212 220944 Fax: +260 212 220945

Livingstone Office Plot No. 708 Chimwemwe Road Nottie Broadie P.O. Box 60292 Livingstone, Zambia Tel: +260 213 321562-3 Fax: +260 213 321576

Chinsali Office Plot No. 76 Mayadi P.O. Box 480052 Chinsali, Zambia Tel: +260 214 565170 Fax: +260 214 565171

## **OUR MANDATE**

Our mandate is to regulate the energy sector in line with the provisions of the Energy Regulation (Amended) Act 2003.

#### **OUR VISION**

"A Zambia with universal access to reliable, safe and affordable energy products and services

#### **OUR MISSION**

"To regulate the energy sector in a fair, transparent and predictable manner that safeguards the interests of all stakeholders"

# **Table of contents**

LIST (	OF A	BBREVIATIONS	iv
UNITS	OF	MEASUREMENT	iv
FORE	NOR	RD	v
1.0	LIC	ENSING STATISTICS	1
1.1	Е	Electricity sub-sector licensing	1
1.2	Р	Petroleum sub-sector licensing	1
2.0	ELE	CTRICITY SUB-SECTOR STATISTICS	2
2.1	I	nstalled generation capacity	2
2.2	G	Seneration sent out	4
2	.2.1	Generation from large hydro power plants	4
2	.2.2	ZESCO's generation from small and mini hydro power plants	4
2.3	Е	expected electricity generation projects	5
2.4	Z	ESCO electricity exports and imports	6
2.5	Е	Electricity consumption by economic sector	6
2.6	Е	Electricity tariffs and regional comparison	7
2	6.1	Electricity tariffs	7
2	.6.2	Regional comparison	9
3.0	P	PETROLEUM SUB-SECTOR STATISTICS	11
3.1	R	Retail provincial distribution	12
3.2	Р	etroleum Transportation	12
3.3	Р	etroleum feedstock imports	14
3.4	I	mports of finished petroleum products	14
3.5	R	Refinery production of petroleum products	16

3.6	Nat	tional consumption of petroleum products	16
3.7	OM	ICs market share for white petroleum products	17
3.8	Nat	tional fuel pump price and regional comparison	18
3	.8.1	National fuel pump price	18
3	.8.2	Regional Comparison	19

# **List of Figures**

Figure 1: Electricity generation from ZESCO's large hydro power plants in 2015	4
Figure 2: Generation sent out from ZESCO's small and mini hydro power plants in 2015	5
Figure 3: Electricity consumption by economic sub-sector in 2014 and 2015	7
Figure 4: Regional average electricity tariffs in 2015	10
Figure 5: Players in the fuel supply chain	11
Figure 6: Retail service provincial distribution in 2015	12
Figure 7: Petroleum feedstock imports in 2015	14
Figure 8: Government imports of petrol 2014 and 2015	15
Figure 9: Government imports of diesel 2014 and 2015	15
Figure 10: OMC market share for white petroleum products in 2014 and 2015	18
Figure 11: National year-end fuel pump prices trend, 2000 to 2015	19
Figure 12: Regional prices of petrol, diesel and kerosene in US Dollars	20
List of Tables	
Table 1: Licenses issued in the Electricity sub-sector in 2015	1
Table 2: Licenses issued in the petroleum sub-sector in 2015	2
Table 3: Installed national generation capacity	3
Table 4: Expected electricity generation projects	5
Table 5: ZESCO electricity power imports and exports in 2014 and 2015	6
Table 6: ERB approved electricity tariffs as at 31 <sup>st</sup> December 2015	9
Table 7: Actual quantities uplifts at Government fuel depots in 2015	13
Table 8: Actual quantities uplifted at Government fuel depots in 2014	13
Table 9: Refinery monthly production trend in 2015	16
Table 10: Annual and average daily consumption of petroleum products in 2014 and 2015	17

#### LIST OF ABBREVIATIONS

ERB Energy Regulation Board

HFO Heavy Fuel Oil

INDENI INDENI Petroleum Refinery Company Limited

NFT Ndola Fuel Terminal

OMC Oil Marketing Company

SAPP Southern African Power Pool

TAZAMA Pipelines Limited

ZESCO ZESCO Limited

## **UNITS OF MEASUREMENT**

bbl Barrels of oil (159 litres)
GWh Giga-Watt hour (1,000 MWh)
K Zambian Kwacha (ZMW)

km Kilometre kV Kilo Volt

kVA Kilo Volt Amperes (1,000 Volt Amps)

kW Kilo Watt kWh Kilo Watt Hour MW Mega Watt

MWh Mega Watt Hour (1,000 kWh)

MT Metric Tonne (in this document means a mass equivalent to 1,000 kg)

m<sup>3</sup> Cubic Meters

US\$ United States of America dollar



#### **FOREWORD**

I would like to welcome readers to the 2015 Energy Regulation Board (ERB) statistical bulletin publication. The report builds on the previous edition and demonstrates the ERB's continued commitment to providing energy statistical data. The report is based on information collected from market players in Zambia and is intended to satisfy the different needs of our readers with regards to energy statistical data.

The report provides statistics on licensing, petroleum production, and consumption. Further, it also provides statistics on electricity generation, transmission, distribution, supply, exports and imports. The statistics are accompanied by graphics that give detailed technical commentaries, notes and descriptions.

This report is available in electronic media and can be accessed from our website in pdf format.

I would like to thank you all stakeholders who were consulted and provided data and information that was used in this report. It is my sincere hope and trust that you will find this publication valuable.

Langiwe H. Lungu (Ms)

**Executive Director** 

June 2016

#### 1.0 LICENSING STATISTICS

The Energy Regulation Board (ERB) issues licenses to undertakings in order for them to conduct business in the energy sector. This is in accordance with the requirements as stipulated in the Energy Regulation Act, Chapter 436 of the laws of Zambia (the "Energy Regulation Act"). By virtue of section 8 of the Energy Regulation Act, it is an offence to operate an energy undertaking except in accordance with the provisions of the Act and under the authority of a license issued by the ERB. The Energy Regulation Act mandates the ERB to regulate the following sub-sectors:

- a. Fossil Fuels;
- b. Electricity;
- c. Renewable Energy; and
- d. Coal (Transportation).

## 1.1 Electricity sub-sector licensing

Seventeen licenses were issued in the electricity sub-sector in 2015, and 13 were standard licenses, while the rest were provisional. The provisional licenses issued comprise one (1) supply and three (3) solar licenses. Table 1 is a summary of the licenses issued in the electricity sub-sector.

Subsector	Type of License	Standard	Provisional
	Generation	2	0
	Transmission	0	0
	Supply	1	1
	Distribution	0	0
Solar	Manufacture, Supply , Installation and Maintenance <sup>1</sup>	10	3
Total		13	4

Table 1: Licenses issued in the Electricity sub-sector in 2015

## 1.2 Petroleum sub-sector licensing

There were a total of 172 licenses issued in the petroleum sub-sector in 2015. These comprised 103 standard and 69 provisional licenses as shown in Table 2.

<sup>&</sup>lt;sup>1</sup> For Manufacturing, Supply, Installation and Maintenance of Solar Energy Systems

Sub-	Type of License	Standard	Provisional	Total
sector				Issued
	Combined Licence to Distribute, Import and Export Petroleum Products	13	12	25
	Importation Of Petroleum Products (Lubricants)	11	8	19
	Refining of Petroleum Feedstock	1	1	2
	Combined Licence to Distribute, Import and Export Petroleum Products (LPG)	1	0	1
	Retail of Petroleum Products	11	11	22
Petroleum Sub-sector	Retail of Petroleum Products - LPG	1	0	1
	Road Transportation of Petroleum Products	43	27	70
	Export of LPG	22	0	22
	Export of LPG (Butane)	0	8	8
	Filling of gas cylinders	0	1	1
	Combined Licence to Distribute, Import and Export Bitumen	0	1	1
	Grand total	103	69	172

Table 2: Licenses issued in the petroleum sub-sector in 2015

## 2.0 ELECTRICITY SUB-SECTOR STATISTICS

## 2.1 Installed generation capacity

The total installed electricity generation capacity in 2015 was 2,410.66 MW broken down as follows: Hydro - 2,268.6 MW; Diesel - 92 MW; Heavy Fuel Oil (HFO) - 50 MW; and Solar - 0.06 MW. This is shown in Table 3.

Hadastaldas	Station	Machine	Installed
Undertaking	Station	Туре	Capacity (MW)
ZESCO Limited Generation Plants	Kafue Gorge	Hydro	990
	Kariba North	Hydro	720
	Kariba North extension	Hydro	360
	Victoria Falls	Hydro	108
	Lusiwasi	Hydro	12
	Chishimba Falls	Hydro	6
	Lunzua River	Hydro	14.8

Undortokina	Station	Machine	Installed
Undertaking	Station	Туре	Capacity (MW)
	Shiwang'andu	Hydro	1
Zengamina Generation Plants	Ikelengi	Hydro	0.75
Lusemfwa Generation Plants	Mulunguish	Hydro	32
	Lunsemfwa	Hydro	24
	Total Hydro		2,268.6
	Bancroft	Diesel	20
Copperbelt Energy	Luano	Diesel	40
Generation Plants	Luanshya	Diesel	10
	Mufulira	Diesel	10
	Mwinilunga	Diesel	1.4
	Kabompo	Diesel	2.0
ZESCO Limited	Zambezi	Diesel	1.8
Generation Plants	Mufumbwe	Diesel	0.8
	Luangwa	Diesel	2.6
	Lukulu	Diesel	0.5
	Chavuma	Diesel	0.8
ZESCO Limited Generation Plants	Shang'ombo	Diesel	1.0
	Itezhi-tezhi	Diesel	1.0
	Total Diesel		91.9
Ndola Energy Generation Plants	Ndola	Heavy Fuel Oil	50
	Total HFO		50
Rural Electrification Authority Generation Plants	Samfya	Solar	0.06
	Total Solar		0.06
	Grand Total		2,410.66

Table 3: Installed national generation capacity.

Note: As at 31<sup>st</sup> December 2015, Musonda falls was being upgraded and was not operational.

## 2.2 Generation sent out

## 2.2.1 Generation from large hydro power plants

During the period under review, the total generation sent out from ZESCO Limited's (ZESCO) large hydro power plants was 12, 696.9 GWh compared to 13,637.6 GWh in 2014. This reflects a percentage decrease of 6.9 percent. The decline was due to poor rainfall in the 2014/2015 rainy season that led to low water levels and consequently reduced generation capacity from hydro power plants. Figure 1 shows generation sent out from ZESCO's major hydropower plants in 2015 compared to the same period in 2014.

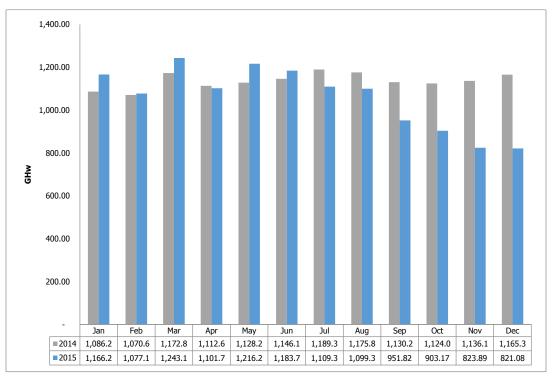


Figure 1: Electricity generation from ZESCO's large hydro power plants in 2015

## 2.2.2 ZESCO's generation from small and mini hydro power plants

The total generation sent out from small and mini hydro power plants in 2015 increased by 13.4 percent to 121.5 GWh compared to the same period in 2014 at 107.1 GWh. This increase in generation sent out was mainly attributed to the increased generation from Lunzua hydro power plant following the commissioning of a new power plant with an installed capacity of 14.8 MW in 2015. Initially, the plant was operating with a capacity of 0.75 MW. Figure 2 shows generation sent out by ZESCO's small and mini hydro power plants in 2015.

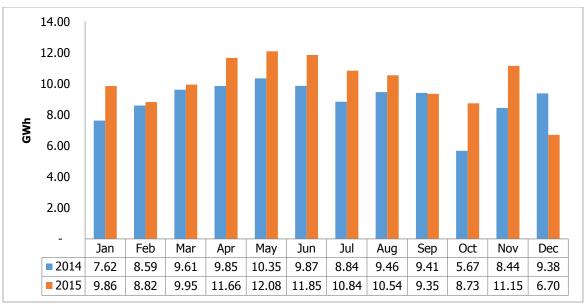


Figure 2: Generation sent out from ZESCO's small and mini hydro power plants in 2015 **Expected electricity generation projects** 

The national potential for hydropower is estimated at 6,000 MW. A number of electricity generation projects have commenced while some have been planned for construction. This is expected to increase the national installed generation capacity and promote the diversification of the energy generation mix. Table 4 shows the expected electricity generation projects.

Project Name	Туре	Capacity (MW)	Expected Completion Date
Ndola HFO expansion	HFO	50	2019
Itezhi-Tezhi hydro power plant	Hydro	120	2016
Lupuala River basin Hydro Power Plants (Mambilima and Mumbotuta hydro schemes)	Hydro	ТВА	2019
Kafue Gorge Lower Hydro Power Project	Hydro	750	2019 onwards
Batoka Hydro Power Project	Hydro	1,200	2019 onwards
Maamba coal fired power plant	Thermal	300	2016
Muchinga power generation project	Hydro	TBA	TBA
Chavuma and Chanda Falls hydro scheme	Hydro	15	ТВА
Consolidated Farming Limited	Bagasse	24	2016
EMCO Thermal Plants	Thermal	340	2018
Kalungwisha hydro power project (Kabwelume and Kundabwika falls)	Hydro	247	2019

Table 4: Expected electricity generation projects

2.3

The Table shows that a total of 444 MW will be added to the national grid by 2016.

## 2.4 ZESCO electricity exports and imports

ZESCO participates in the trading of power through the Southern African Power Pool (SAPP) cross border trading and other bilateral markets. In the period under review ZESCO exports declined by 6.4 percent to 1,175.95 GWh from 1,256.25 GWh recorded in 2014. On the other hand, power imports increased from 12.82 GWh in 2014 to 785.15 GWh in 2015, reflecting a 6,024 percent increase. ZESCO's power exports and imports are summarized in Table 5.

	2014		2	015
Month	Exports (GWh)	Imports (GWh)	Exports(GWh)	Imports (GWh)
Jan	151.61	1.04	111.32	0.83
Feb	159.28	0.95	128.72	0.98
Mar	160.58	1.08	138.36	2.61
Apr	114.67	1.05	99.53	30.87
May	60.41	1.12	110.54	26.58
Jun	68.68	1.04	103.49	18.55
Jul	102.14	1.19	103.11	64.67
Aug	97.02	1.14	96.55	72.79
Sep	94.06	1.11	86.35	120.28
Oct	80.81	1.12	84.70	132.57
Nov	89.61	1.00	58.90	157.25
Dec	77.38	1.01	54.39	157.16
Total	1,256.25	12.82	1,175.95	785.15

Table 5: ZESCO electricity power imports and exports in 2014 and 2015

## 2.5 Electricity consumption by economic sector

The total national electricity consumption increased by 6.8 percent to 11,449.9 GWh in 2015 from 10,720.5 GWh in 2014. This was on account of increased economic activities in the various sectors of the economy. Figure 3 depicts the proportion of electricity consumption by economic sub-sector in 2015 compared to 2014.

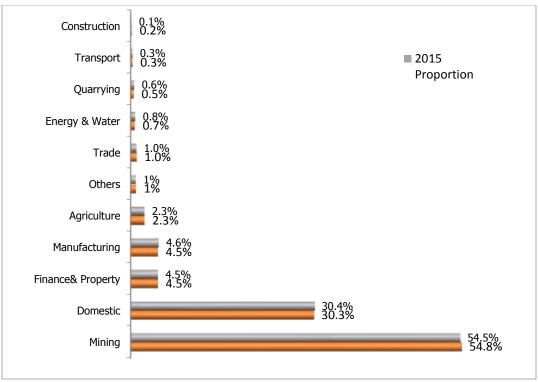


Figure 3: Electricity consumption by economic sub-sector in 2014 and 2015

## 2.6 Electricity tariffs and regional comparison

## 2.6.1 Electricity tariffs

Electricity tariffs are determined by the ERB after a utility makes an application. During the period under review, the ERB approved ZESCO electricity tariff following an application lodged in August 2015. The ERB reviewed the application from ZESCO and made a determination in December 2015. The ERB approved electricity tariffs for the various customer categories is depicted in Table 6.

Catogory	Consumption	umption Unit		ffs (K)
Category	Consumption	Offic	Previous	Approved
	R1 - consumption band up to 300 kWh per month	Energy charge/kWh)	0.15	0.15
Metered Residential(Prepaid) (capacity 15 kVA)	R2 - consumption in excess of 300 kWh in a month.	Energy charge/kWh)	0.51	1.54
		Fixed Monthly Charge	18.23	18.23
Commercial Tariffs	Commercial	Energy charge/kWh)	0.31	0.88
(capacity 15 kVA)		Fixed Monthly Charge	55.09	156.47
Social Services	Schools, Hospitals, Orphanages, churches, water pumping & street lighting	Energy charge K/kWh	0.28	0.81
		Fixed Monthly Charge	47.91	139.41
		MD charge/kVA/Month	13.97	48.05
		Energy charge /kWh	0.20	0.70
	MD1- Capacity	Fixed Monthly Charge	136.82	470.65
	between 16 - 300 kVA	Off-peak MD charge/kVA/Month	6.98	24.03
		Off-peak energy charge/kWh	0.15	0.52
Maximum Demand Tariffs		Peak MD charge/kVA/Month	17.46	60.06
		Peak Energy Charge/kWh	0.25	0.87
		MD charge/kVA/Month	26.13	89.9
	MD2- Capacity 301 to 2,000	Energy charge /kWh	0.17	0.58
	kVA	Fixed Monthly Charge	273.62	941.25
		Off-peak MD charge/kVA/Month	13.07	44.95

Catagony	Consumntion	Unit	Tariffs (K)	
Category	Consumption	Unit	Previous	Approved
		Off-peak energy charge/kWh	0.13	0.43
		Peak MD charge/kVA/Month	32.67	112.37
		Peak Energy Charge/kWh	0.21	0.72
		MD charge/kVA/Month	41.75	115.23
		Energy charge /kWh	0.14	0.38
	MD3- Capacity	Fixed Monthly Charge	579.74	1,600.10
	2,001 to 7,500 kVA	Off-peak MD charge/kVA/Month	20.87	57.61
		Off-peak energy charge/kWh	0.1	0.28
		Peak MD charge/kVA/Month	52.19	144.04
		Peak Energy Charge/kWh	0.17	0.47
		MD charge/kVA/Month	41.98	115.87
		Energy charge /kWh	0.12	0.32
	MD4-Capacity	Fixed Monthly Charge	1,159.50	3,200.22
	above 7500 kVA	Off-peak MD charge/kVA/Month	20.99	57.93
		Off-peak energy charge/kWh	0.09	0.24
		Peak MD charge/kVA/Month Peak Energy	52.48	144.83
			0.14	0.4

Table 6: ERB approved electricity tariffs as at 31<sup>st</sup> December 2015

## 2.6.2 Regional comparison

Figure 4 shows how the average tariffs in Zambia compared with countries within SADC and COMESA regions. Zambia had one of the lowest electricity tariffs in the region. The highest average tariffs were USc 16.04/kWh for Tanzania followed by Namibia and Swaziland at USc 15.00/kWh and USc 11.72/kWh respectively. Meanwhile, Angola had the lowest electricity tariffs at USc 3.10/kWh.

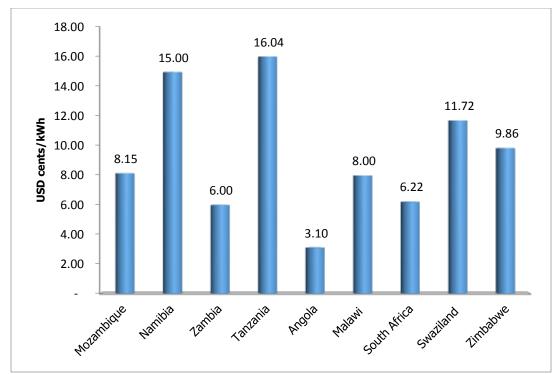


Figure 4: Regional average electricity tariffs in 2015<sup>2</sup>

<sup>&</sup>lt;sup>2</sup> Source RERA (August, 2015) Note: Tariffs are for comparative purposes only as the actual end user tariffs depend on the market structure in each country. Namibia and South Africa tariffs relate to wholesale tariffs.

## 3.0 PETROLEUM SUB-SECTOR STATISTICS

The petroleum sub-sector is one of the key drivers of the economy. The petroleum supply chain involves importation of comingled petroleum feedstock by the Government from a feedstock supplier. The petroleum feedstock is then offloaded at the tank farms in Dar-es-Salaam and later transported to the Refinery through the Tazama pipeline before distribution for consumption, as illustrated in Figure 5. There is also a proportion of unleaded petrol and diesel which is imported by road as finished product by both the Government and Oil Marketing Companies (OMCs).

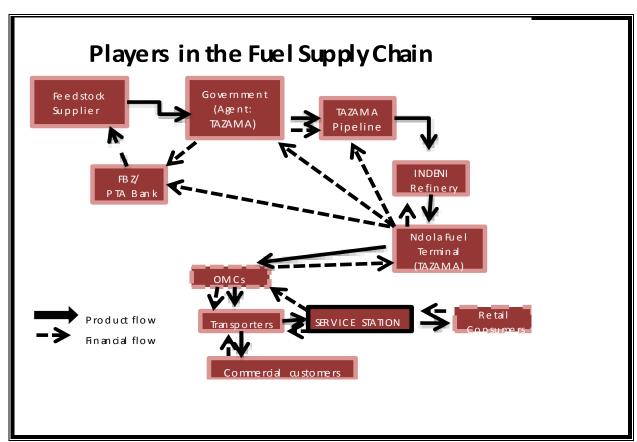


Figure 5: Players in the fuel supply chain

## 3.1 Retail provincial distribution

There were a total of 308 retail service stations across the country with the majority (106) being in Lusaka province reflecting 34 percent of the total national retail service network. This was followed by the Copperbelt province with 90 retail sites representing 29 percent, while the least was Northern Western Province with 7 retail sites (2%). Figure 6 shows the distribution of retail service stations per province in the country during the period under review.

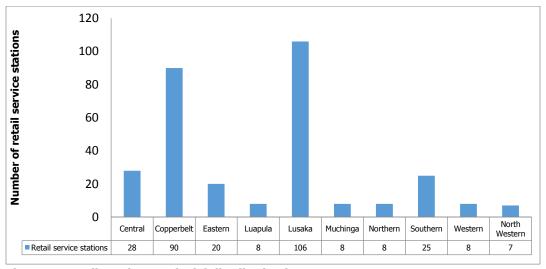


Figure 6: Retail service provincial distribution in 2015

#### 3.2 Petroleum Transportation

The petroleum products in the country are transported mainly via road except for isolated cases, where the rail is used. In order to transport petroleum products, trucks have to meet the license conditions.

TAZAMA Pipelines Limited (TAZAMA) sells petroleum products through Government fuel depots designated in selected provincial towns. Currently, there is one terminal, the Ndola Fuel Terminal (NFT) and three Government fuel depots namely: Lusaka, Mpika, and Solwezi fuel depots. A total of 500,463 m³ of petrol and 820,572.26 m³ of diesel were uplifted from all Government fuel depots during the period under review. This reflects on average 39 and 64 trucks of petrol and diesel uplifted daily respectively. The highest number of trucks uplifted per day was recorded in December at 45 trucks for petrol and in November at 76 trucks for diesel. Meanwhile, the lowest was recorded in February with 34 trucks for petrol while January for diesel at 35 trucks. Table 7 shows the actual quantities uplifts at all Government depots for petrol and diesel in the period under review.

Month/ Product	Petrol		Diesel		
2015	Quantity (M <sup>3</sup> )	Average No Trucks/Day	Quantity (M <sup>3</sup> )	Average No Trucks/Day	
January	37,963	35	47,084	43	
February	33,506	34	49,371	50	
March	42,500	39	62,119	57	
April	41,350	39	61,670	59	
May	39,300	36	66,460	61	
June	41,780	40	71,452	68	
July	42,579	39	77,561	71	
August	43,161	40	74,860	69	
September	41,592	40	75,442	72	
October	44,776	41	78,538	72	
November	43,340	41	79,971	76	
December	48,617	45	45 76,046		
Grand Total	500,463	39	820,572	64	

Table 7: Actual quantities uplifts at Government fuel depots in 2015

Table 8 shows the average combined tanker uplifts per day for 2014 from all Government depots month by month. In 2014, on average 33 and 57 trucks of petrol and diesel were uplifted daily.

Product	P	etrol	Diesel		
Month (2014)	Quantity (M³)	Average No Trucks/Day	Quantity (M <sup>3</sup> )	Average No Trucks/Day	
January	33,210	31	49,515	46	
February	30,754	31	46,370	47	
March	31,393	29	52,833	49	
April	34,460	33	55,209	53	
May	35,635	33	63,744	59	
June	33,583	32	64,690	62	
July	37,216	34	67,790	62	
August	35,545	33	69,876	64	
September	35,743	34	68,457	65	
October	38,715	36	74,163	68	
November	31,831	30	58,843	56	
December	38,712	36	59,649	55	
<b>Grand Total</b>	416,799	33	731,138	57	

Table 8: Actual quantities uplifted at Government fuel depots in 2014

## 3.3 Petroleum feedstock imports

Zambia has no known reserves of crude oil and imports all its fuel requirements, as petroleum feedstock and petroleum products. A cargo of petroleum feedstock typically comprises of Crude oil, Naphtha, and Gasoil. The Government procures a cargo of petroleum feedstock on average, every six weeks. During the period under review, the country imported a total of 643,180 MT compared to 559,916 MT in 2014. The amount of petroleum feedstock imported per cargo varied and ranged between 89,100 MT to 95,187 MT in the period in 2015 as shown in Figure 7.

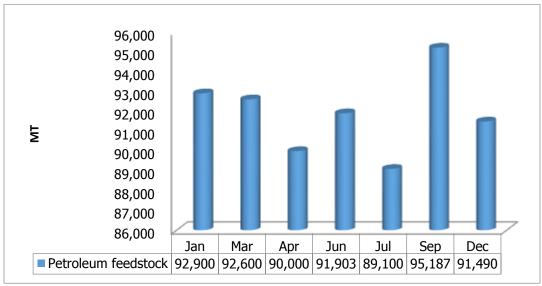


Figure 7: Petroleum feedstock imports in 2015

## 3.4 Imports of finished petroleum products

The Government through TAZAMA imports finished petroleum products via road. Currently, only petrol and diesel are imported by the Government. Figure 8 shows the Government imports of petrol for the years, 2014 and 2015.

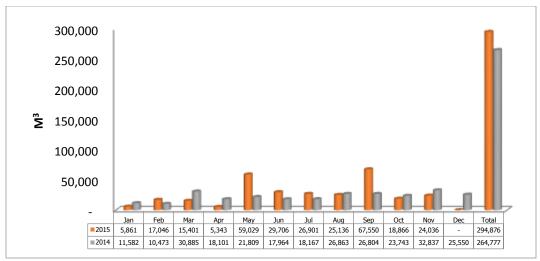


Figure 8: Government imports of petrol 2014 and 2015

Government imports of petrol increased by 11.4 percent from 264,777  $\text{m}^3$  in 2014 to 294,876  $\text{m}^3$ . In 2015, the highest number of imports was recorded in the month of September at 67,550  $\text{m}^3$ , and November at 32,837  $\text{m}^3$  in 2014. On the other hand the lowest was in December at 0 $\text{m}^3$  in 2015, and February at 10,473  $\text{m}^3$  in for 2014.

The monthly imports trends for diesel are shown in Figure 9. Government imported a total 519,948  $\text{m}^3$  of diesel in 2015, compared to 389,183  $\text{m}^3$  in 2014, reflecting an increase of 33.6 percent. The highest number of imports was recorded in December at 79,560  $\text{m}^3$  in 2015, and February at 53,657  $\text{m}^3$  in in 2014. On the other hand the lowest imports were recorded in June at 0  $\text{m}^3$  in 2015 and 10,473  $\text{m}^3$  in February in 2014.

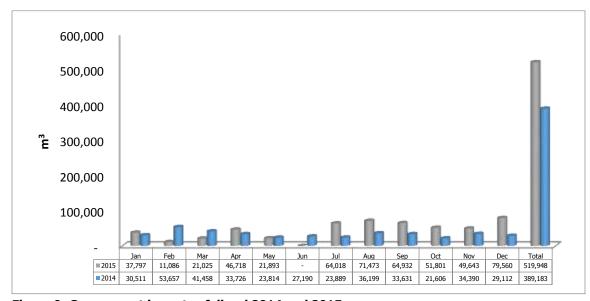


Figure 9: Government imports of diesel 2014 and 2015.

## 3.5 Refinery production of petroleum products

The imported comingled petroleum feedstock is processed at INDENI Petroleum Refinery Company Limited (INDENI). The refinery supplies almost all the national fuel requirements except for about 56 percent of petrol and diesel, which is met through importation of finished petroleum products. Table 9 shows the production trend of petroleum products for the period under review.

Month/Product	Petrol (m³)	Diesel (m³)	Kerosene (m³)	Jet A1 (m³)	Butane/LPG (m³)	HFO (m³)
January	16,116	25,914	7,403	154	1,168	14,222
February	13,632	25,691	6,666	3,253	642	19,873
March	9,083	15,655	4,262	2,027	272	11,632
April	13,420	28,085	6,093	5,153	1,150	20,629
May	10,811	29,151	5,238	4,495	1,869	17,774
June	7,204	22,262	2,973	1,720	1,193	11,984
July	8,187	25,339	3,540	-	461	11,696
August	13,155	26,294	5,967	-	749	12,647
September	15,119	25,672	5,840	-	1,636	13,757
October	17,143	27,966	5,613	-	1,059	15,196
November	6,839	11,051	2,696	-	658	6,969
December	3,720	21,057	989	-	298	11,026
Total	134,429	284,137	57,280	16,802	11,155	167,405

Table 9: Refinery monthly production trend in 2015

The Table shows that Diesel was the most produced petroleum product at  $284,137 \, \text{m}^3$ , followed by Heavy Fuel Oil at  $167,405 \, \text{m}^3$ , while the least produced was Butane/LPG at  $11,155 \, \text{m}^3$ . The Refinery produced  $134,429 \, \text{m}^3$ , 57,  $280 \, \text{m}^3$ , and  $16,802 \, \text{m}^3$  of Petrol, Kerosene and Jet A1 respectively.

#### 3.6 National consumption of petroleum products

The petroleum products mainly consumed in Zambia are Diesel (ordinary and Low Sulphur Gasoil), Unleaded Petrol, Kerosene and Jet A-1. On average there was a general increase in the consumption of all petroleum products except for LPG. The National consumption of petroleum products in 2015 compared to 2014 is shown in Table 10.

Product	Total Co	nsumption	Average Daily Consumption		
	2014	2015	2014	2015	
Diesel (L)	834,019,884	974,306,739	2,284,986	2,669,334	
Unleaded Petrol (L)	406,082,745	488,699,028	1,112,555	1,338,901	
Kerosene (L)	17,328,134	23,018,840	47,474	63,065	
Heavy Oil (Kg)	116,821,210	129,149,452	320,058	353,834	
Jet A1 (L)	47,860,872	55,546,653	131,126	152,183	
LPG (Kg)	3,680,149	3,229,726	10,083	8,849	

Table 10: Annual and average daily consumption of petroleum products in 2014 and 2015

The Table shows that diesel was the most consumed petroleum product, followed by unleaded petrol and the least consumed was LPG in both periods. In 2015 the total consumption of diesel was 974,306,739 litres (2,669,334 litres per day) compared to 834,019,884 (2,284,986 litres per day) in 2014 reflecting an increase of 16.8 percent. Similarly, there was 20.3 percent, 32.8 percent, 10.6 percent and 16.1 percent increase for petrol, kerosene, HFO and Jet A1 respectively. However, LPG consumption declined by 12.2 percent.

#### 3.7 OMCs market share for white petroleum products

Market share refers to the percentage of the total volume of sales of an OMC to the total sales in the industry in a specified period of time. The OMCs are charged with the responsibility to distribute petroleum products in Zambia. There were a total of 42 licensed OMCs as 31<sup>st</sup> December 2015. Figure 10 shows the market share for white petroleum products in 2014 and 2015.

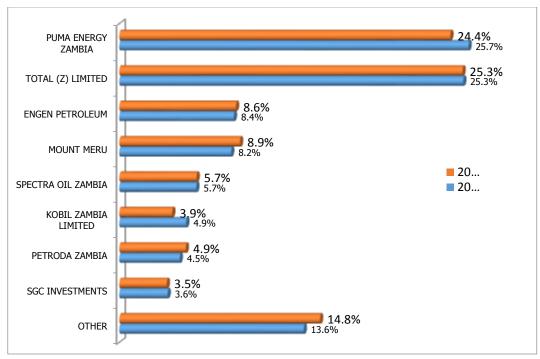


Figure 10: OMC market share for white petroleum products in 2014 and 2015

During the period under review, the combined market share for the largest two (Puma Energy and Total Limited) was 49.7 percent, a decline by 1.3 percentage points from 51 percent in 2014. This was attributed to a fall in market share of Puma Energy. This was partially attributed to the reduced mining activities. Meanwhile, all the OMCs recorded an increase in market share except for Kobil Zambia and SGC Investments.

## 3.8 National fuel pump price and regional comparison

## 3.8.1 National fuel pump price

There are two major determinants of pump prices, the cost of crude oil on the international oil market and the exchange rate of the kwacha against the US dollar. Figure 11 depicts the trend in the national fuel end year prices for petrol, diesel and kerosene for the period 2000 to December 2015. In general pump prices have been increasing since 2000. However, the 2015 year end pump prices registered a decline, compared to the 2014 year end prices. Prices of petrol reduced from K9.89/litre to K9.87/litres, from K9.19/litres to K8.59/litres for diesel and from K6.77/litres to K6.12/litres for kerosene. This reduction was attributed to the fall of crude oil prices on the international market.

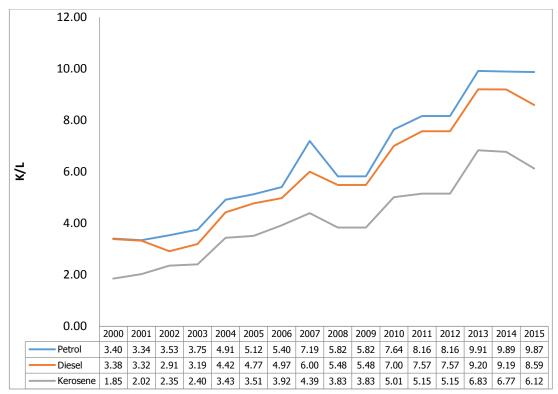


Figure 11: National year-end fuel pump prices trend, 2000 to 2015<sup>3</sup>

## 3.8.2 Regional Comparison

Generally the price for petrol ranged from US\$0.74/litre to US\$1.30/litre, while diesel ranged from US\$0.74/litre to US\$1.20/litre. Zimbabwe had the highest price of petrol at US\$1.30/litre, while the price of diesel was highest in Malawi at US\$1.20/litre. Meanwhile the lowest was Namibia at US\$0.74/litre for both petrol and diesel. The prices of kerosene were highest in Namibia at US\$2.15/ litre, and lowest in South Africa at US\$0.48/litre. The regional prices of petrol, diesel and kerosene as at 31st December 2015 are shown in Figure 12.

19

<sup>&</sup>lt;sup>3</sup> Prices in 2015 are as 30<sup>th</sup> June 2015

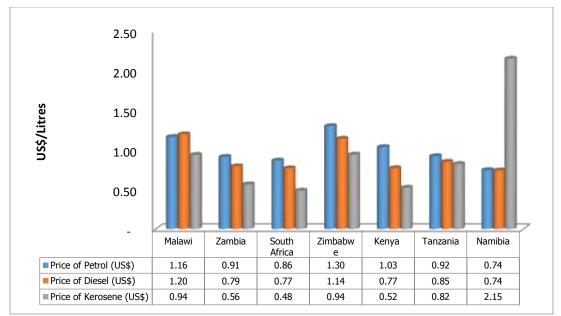


Figure 12: Regional prices of petrol, diesel and kerosene in US Dollars<sup>4</sup>

\*\*\*\*

<sup>&</sup>lt;sup>4</sup> Prices for petrol and diesel in Figure 5 are for the year end (December 2015)