ELECTRICITY CONTROL BOARD

ESI STATISTICAL BULLETIN

INDEPENDENT POWER PRODUCERS **(IPPS)** IN NAMIBIA

2017

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VISION STATEMENT

To be a leading regulator for achieving optimum viability and competition in the Namibian energy industry, whilst upholding the principle of fairness, integrity and transparency

MISSION STATEMENT

To exercise control over and regulate the Namibian energy industry in a sustainable manner, in the interest of all stakeholders with regards to price, quality, reliability, viability and safety.

VALUES

Professionalism

To conduct every task to a standard of excellence and maintain the highest level of competence and personal integrity/efficiency so as to ensure the satisfaction of all stakeholders.

Integrity

To be a transparent, open, honest and fair in all dealings and communication with stakeholders.

Accountability

To be accountable and act in accordance with government policy and accept full responsibility for decisions and actions.

Innovation

To innovate through continuance learning, knowledge sharing and team work while delivering excellent service.

Sustainability

To ensure the endowment of Namibia's energy resources are available to present and future generations by considering our economic, environmental and social responsibility.

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Foreword

"Namibia continues to face electricity shortages, mostly between peak demand and peak supply thus relying heavily on imports from neighbouring countries for security of supply"

Namibia is a stable country, with sound policies and a well-run legal system. The economic and social goals for Namibia are embodied in Vision 2030, National Development Plans (NDPs 1-5) and the Harambee Prosperity Plan. These plans, set the goals, targets and strategies for Namibia to move on a path towards economic prosperity. The Government of the Republic of Namibia recognizes the importance of developing the country's energy sector in order to develop the targeted economic growth and transform Namibia into an industrialized nation.

Availability and reliability of electricity and electricity services are crucial to the development of all sectors of the economy and to achieve the country's economic and social development goals. Despite various new generation sources having been commissioned during the reporting period, Namibia continues to face electricity shortages, mostly between peak demand and peak supply thus relying heavily on imports from neighbouring countries for security of supply.

The Government recognized the need for promulgating a National Independent Power Producer (IPP) Policy in order to streamline the IPP regime in the country and to open the Namibian power market to domestic and international investors in a clear, fair, and transparent manner. The IPP Policy expresses the Government's commitment to encourage private investments in Namibia's power sector and outlines the power market model, pricing regime, procurement approach, and the requirements for the IPPs to develop and implement power generation projects.

The IPPs that sells direct to NamPower, accounts for 1% of electricity contributed in the national grid in 2017. Although a small figure, this is a notable development given the relatively short period during which IPPs have been in operation. An in-depth analysis of IPPs in Namibia are presented in this bulletin and I therefore invite you the reader to send us your feedback and suggestions to help us improve this publication according to your information needs.

Foibe L. Namene
Chief Executive Officer

Editorial note on the Status of Independent Power Producers (IPPs) in Namibia

"REFiT is a programme that was created to unlock the potential of Renewable Energy, hence attracting potential IPPs"

For a country to realize development and modernized society, includes reliable and sustainable electricity supplies. In other words, a country needs to attain a firm security of electricity supply. Many countries today including Namibia has decided that using Government debt to provide for investment in additional electricity generation is not affordable for the Government. If new electricity supplies are to be acquired for Namibia using non-governmental funds, it is either to continue purchasing electricity from neighboring countries who have surplus generation capacity hence subjecting itself to supply and price vulnerability or attract private investors to develop power plant projects using their own funds.

Renewable power production plays a significant role in energy systems. The shift to clean energy offers an opportunity to prevent the worst impacts of climate change, while lessening the toll that fossil fuels have on communities and vital ecosystems. Namibia is well placed to lead the clean energy development. The country is endowed with natural resources required for renewable energy supplies from the sun, wind and biomass. These renewable energy resources provide the country with a competitive advantage in terms of supporting clean energy for socio-economic development.

From the White Paper on Energy policy of 1998 all National Development Plans (NDPs), Vision 2030, Harambee Prosperity Plan, the National Integrated Resource Plan (NIRP) and policy initiatives such as the IPP policy, Renewable Energy Policy, Energy Policy etc. all provides unequivocal support for the growth of Renewable Energy in Namibia. This is a clear testament that Namibia is gearing up for renewables energy revolution.

A study on Namibia IPP and Investment Market Framework Technical Assistance commissioned by the ECB in 2006 highlighted several recommendations to improve IPP regime in the country. Some of the key recommendations was for the ECB to take some regulatory steps to attract investors as well as to modify a single-buyer market model that was perceived as bias to the investors and entrending Namibia monopoly.

After the study was commissioned, nearly 10 years later there was no operational IPPs in Namibia, until the end of 2013, when the Ministry of mines and Energy, ECB and NamPower commissioned a study called Renewable Energy Feed-In Tariffs (REFiT). REFiT is a programme that was created to unlock the potential of Renewable Energy, hence attracting potential IPPs. REFiT was designed to accelerate investments in renewable energy technologies by offering long-term contracts to renewable energy independent power producer. The capacity of 70MW is expected to be generated through the REFiT programme which translates to 14 IPPs each generating 5MW per plant.

The REFiT rules and tariffs were developed and published in 2015. Below is a list of REFIT tariffs published in 2015 for various technologies:

Solar PV	*1.37N$/kWh*
Biomass	*1.28N$/kWh*
Wind	*1.08N$/kWh*
CSP	*1.96N$/kWh*

Although these tariffs were predetermined, they were however indexed, which means annual inflationary increases are allowed. Many of these IPPs are selling electricity to off-takers such as NamPower and the REDs, in which they are feeding into the national grid while others are generating for own consumption.

By the end of 2017, at least 1% of electricity in the national grid was contributed by the renewable energy from IPPs. Below are the figures showing how energy contribution into the national grid from renewables have grown since the year 2015.

	2015		2016		2017	
	GWh	**%**	**GWh**	**%**	**GWh**	**%**
NamPower	1536	36%	1421	32%	1660	36%
Eskom	982	23%	1956	43%	2090	45%
Other regional	1754	41%	1117	25%	821	18%
IPP (RE)	2	0.05%	12	0.3%	39	1%
Total	**4274**		**4506**		**4610**	

Source: Electricity Control Board Database 2017.

List of Operational IPPs in 2017 and their technologies

	LICENSEE	CAPACITY (MW)	TECHNOLOGY	STATUS	LOCATION
1	Ejuva One Solar Energy (Pty) Ltd	5	Solar	Operational since 27/09/2017	Omaheke Region
2	Ejuva Two Solar Energy (Pty) Ltd	5	Solar	Operational Since 27/09/2017	Omaheke Region
3	Momentous Solar One (Pty) Ltd	5	Solar	Operational since 24/01/2018	!Karas Region
4	HOPSOL Power Generation (Pty) Ltd	5	Solar	Operational since 28/06/2016	Otjozondjupa Region
5	Aloe Investments No.27 (Pty) Ltd	5	Solar	Operational since 14/07/2017	!Karas Region
6	Ombepo Energy (Pty) Ltd	5	Wind	Operational since 08/09/2017	!Karas Region
7	Osona Sun Energy (Pty) Ltd	5	Solar	Operational since 01/09/2016	Otjozondjupa Region
8	Metdecci Energy Investment (Pty) Ltd	5	Solar	Operational since 28/06/2017	Erongo Region
9	Omburu Sun Energy (Pty) Ltd	4.5	Solar	Operational since 08/05/2016	Erongo Region
10	HOPSOL Power Generation (Pty) Ltd	5	Solar	Operational since 24/11/2016	Otjozondjupa Region
11	OLC Arandis (Pty) Ltd	3.8	Solar	Operational since 12/06/2017	Erongo Region
12	ALCON Pty Ltd	5	Solar	Operational since 17/11/2017	!Karas Region

From the table above, a total of 57.8MW capacity has been installed into the country. This is a clear indication that, ECB are headed in the right direction. ECB therefore need to join all efforts to create an investor friendly environment to attract more private investments to promote economic and social growth in our country.

Please note that an electronic copy of this publication is also available at our website: www.ecb.org.na

For the purpose of improved quality of this publication, user feedback and suggestions are most welcome and should be forwarded to our Statistician Mr Moyo Mathias at mmoyo@ecb.org.na

Mathias Moyo
Statistician

Acronyms

BoN	Bank of Namibia
CENORED	Central Northern Regional Electricity Distribution Company
Central Namibia	Khomas and Omaheke Regions, including City of Windhoek and Okahandja Municipality
CoW	City of Windhoek
ECB	Electricity Control Board
ERONGO RED	Erongo Regional Electricity Distribution Company
ESI	Electricity Supply Industry
LAs	Local Authorities
LPU	Large power user
NamPower DX	NamPower Distribution (in Central and Southern Namibia)
NORED	Northern Regional Electricity Distribution Company
NP	NamPower
NSA	Namibia Statistics Agency
OPE	Oshakati Premier Electric
REDs	Regional Electricity Distributers
Southern Namibia	Hardap and //Karas Regions
IPP	Gross Domestic Product
GDP	SMES (Small Medium Enterprise)

Conversion Factors

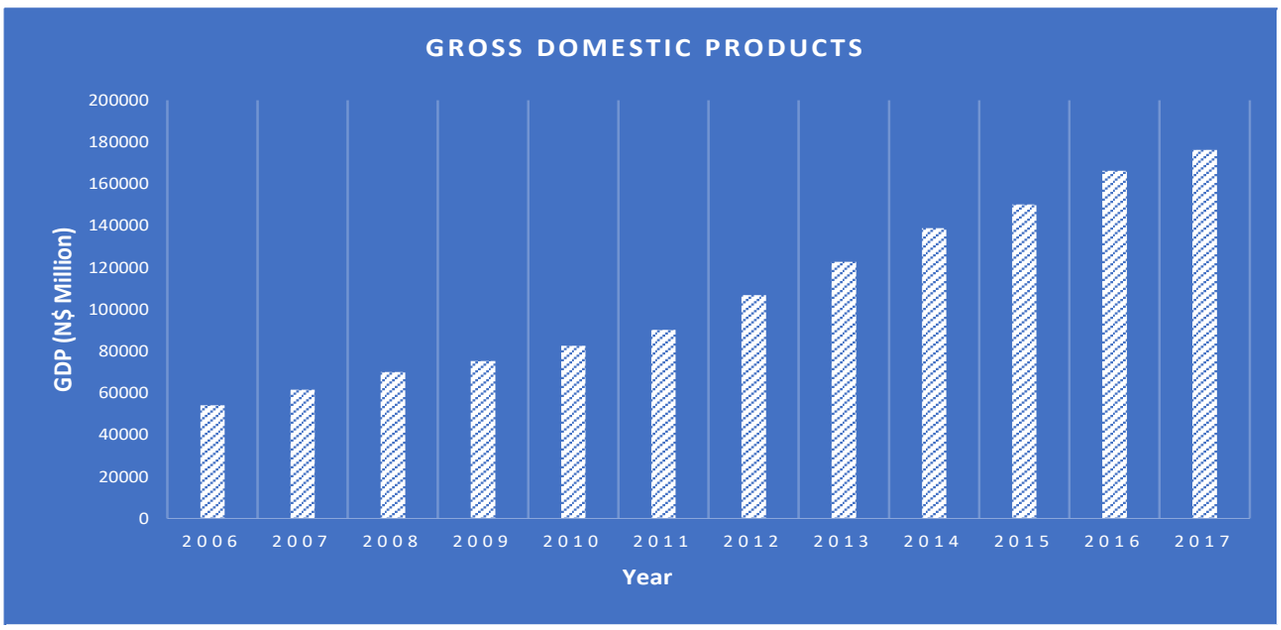
1 000 W	=	1 kW
1 000 kW	=	1 MW
1 000 MW	=	1 GW
1 000 kWh	=	1 MWh
1 000 MWh	=	1 GWh

Terminologies

Domestic	Means household connections with a single/three phase conventional credit meters, prepaid single/ three phase meters
Commercial	Means business and light industry connections with a single/ three phase conventional credit meters, prepaid single/three phase meters
Large Power Users (LPU)	Means industrial connections with demand meters
Consumer	Means an end user of electricity who consumes such electricity
Customer	Means a person to whom electricity is delivered by a licensee and includes a consumer
Price/Tariff	Means the amount of money expected, required or given in payment for electricity
Average Monthly Bill	Means a bill for money owed for electricity used per month
Revenue	Means a return or yield made by a company for electricity sales
Electricity Demand	Means the amount of electricity that consumer will want to purchase at a given price
Electricity Access	Means a household that has access to at least one type of electricity service, as well as clean cooking facilities
Generation Capacity	Means is the maximum electricity output a generator can produce under specific conditions
Licence	Means an official document obtained/issued to authorize to generate / trade / transmit / supply /distribute / import / export electricity
Licensee	Means the holder of a licence

1. AGGREGATED ECONOMIC INDICATORS

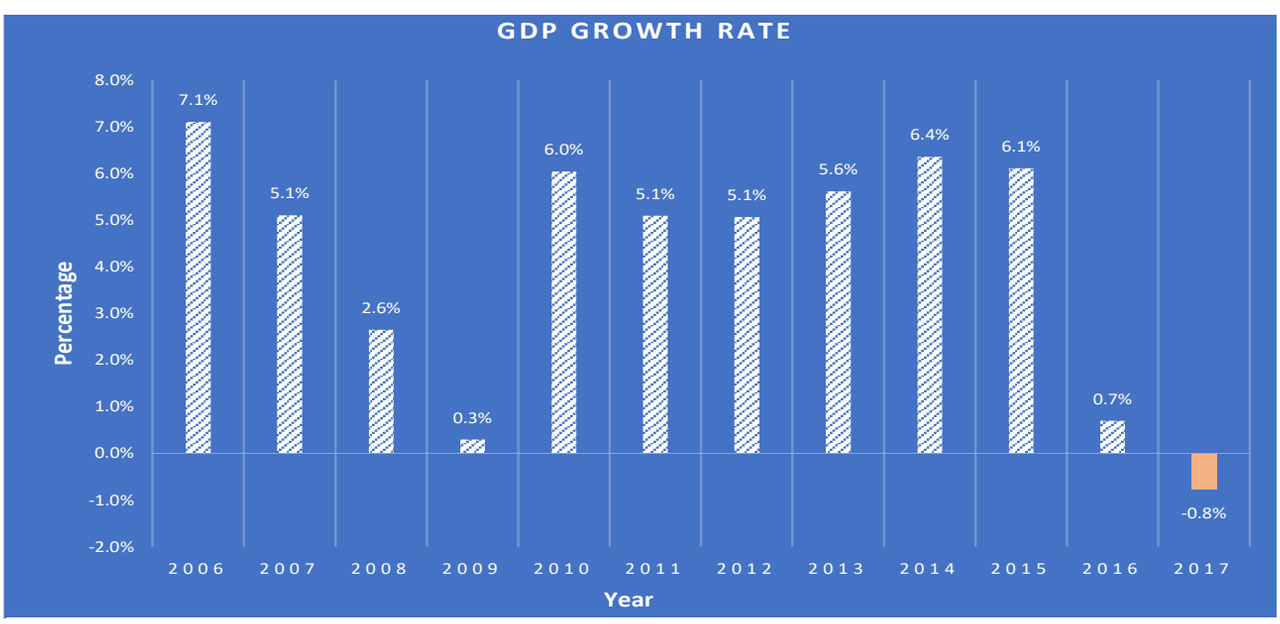
Figure 1: Gross Domestic Product per Capita (GDP)



Source: NSA National Accounts 2017

According to Namibia Statistics Agency, Namibia's economy in 2017 has been estimated to have registered a contraction in real value added of 0.8 percent compared to a slow growth 0.7 percent recorded in 2016. The contraction was a result of a weak perfomance in the secondary and tertiary industries that recorded declines in real value added of 6.7 percent and 1.1 percent respectively. However, on a backdrop of good rainfall and increase in production of major export commodities, the primary industries in 2017 registred a strong growth of 10.7 percent in real value added.

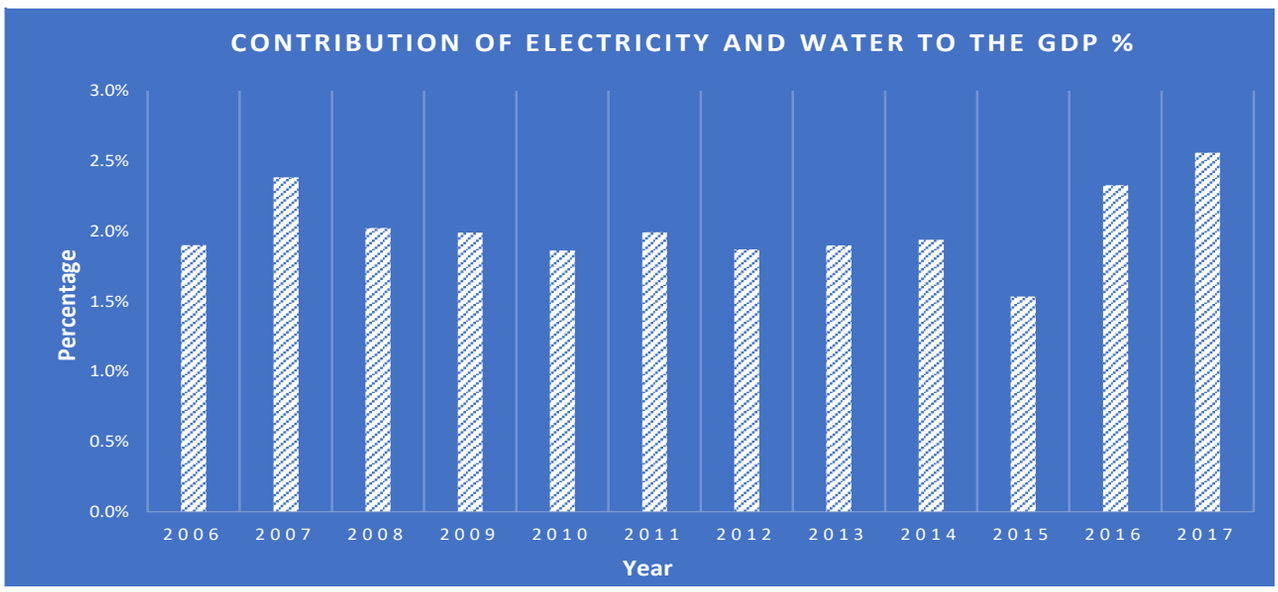
Figure 2: GDP Growth Rate



Source: NSA National Accounts and Bank of Namibia Forecasts Database 2016

Figure 2 above shows that there was a contraction in the 2017 GDP growth rate of 0.8 percent (-0.8%). The biggest contributor to the contraction was the secondary and tertiary industries of which in the secondary industry was the construction sector that recorded a decline in real value added of 25.6 percent and in tertiary industry was the wholesale and retail with a decline of 7.1 percent, hotels and restaurants with a decline of 2.0 percent, education with a decline with 1.2 percent, and health sector with 1.3 percent.

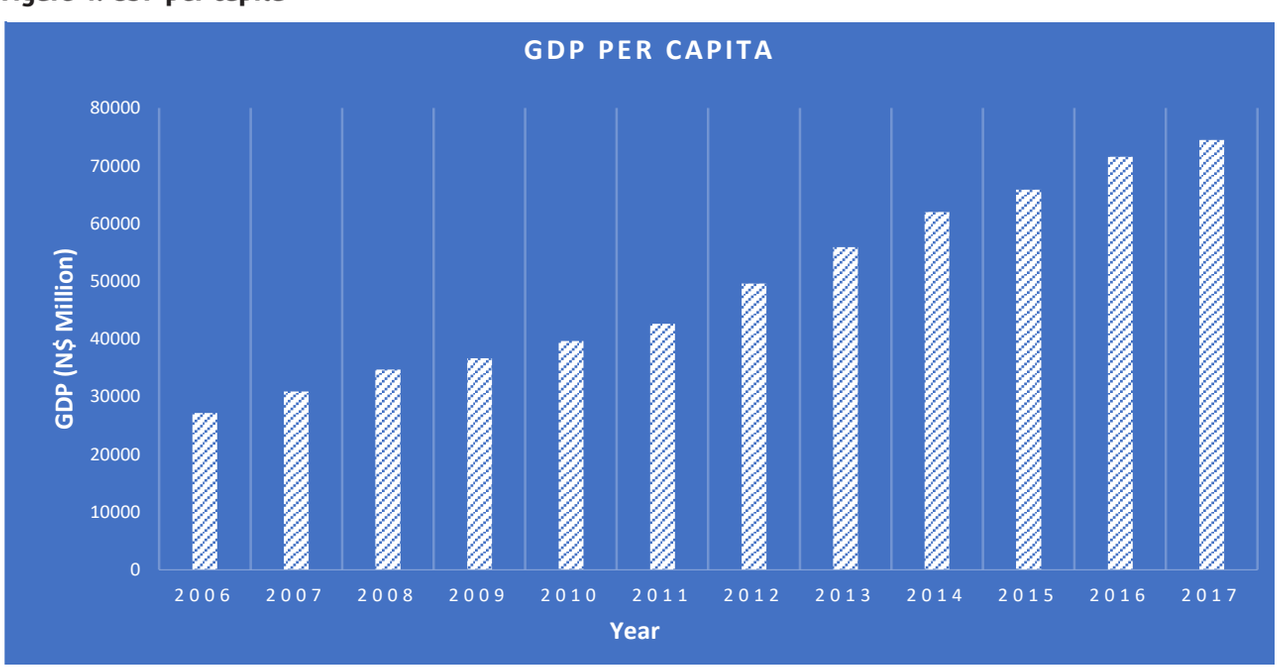
Figure 3: Electricity and Water Sector Contribution to GDP



Source: NSA National Accounts 2017

The contribution of electricity and water (Utility) sector to the Namibian GDP as shown in figure 3 has always flactuated around 2 percent. The highest contribution was in 2017 with a contribution of 2.6 percent.

Figure 4: GDP per Capita

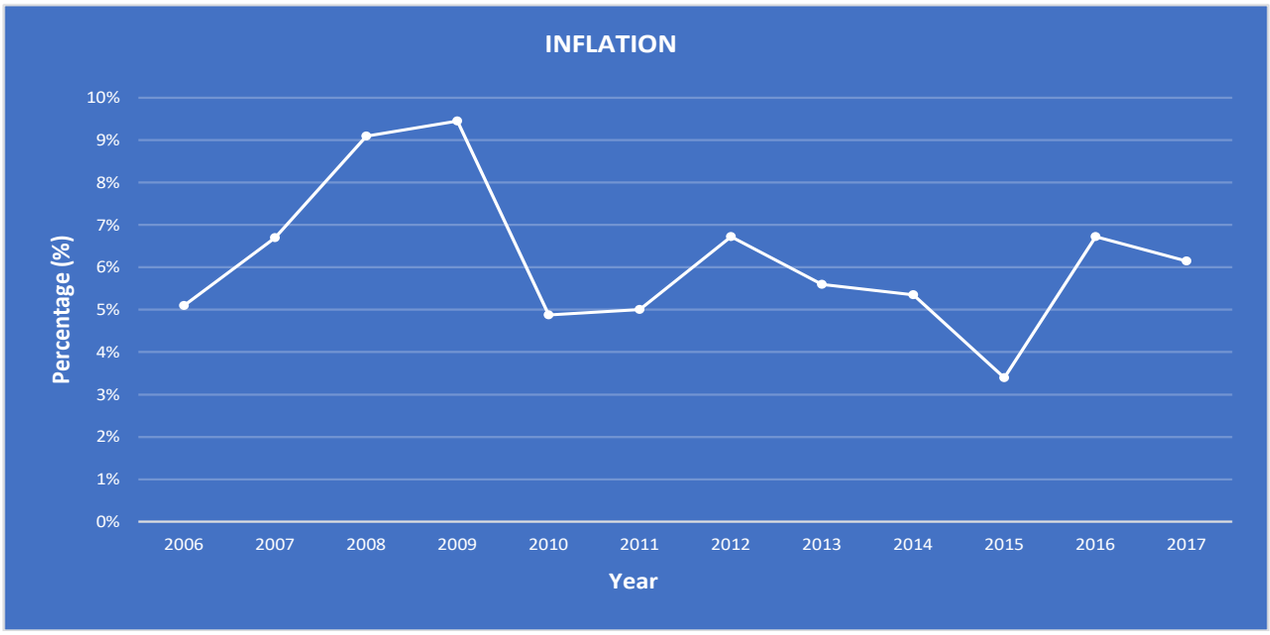


Source: NSA National Accounts 2017

The GDP per Capita allows to measure a country's standard of living. It measures a country's economic output that accounts for its number of citizen. Namibia is doing very well in terms of its GDP per Capita due to her small population size. Over the years from 2006, Namibia's GDP per capita have been growing exponential, however, there was a slow growth in Namibia's GDP per Capita for 2017 due to the economic contration, the GDP per Capita

grew with only 4% from N$71 000 in 2016 to about N$74 000 in 2017.

Figure 5: Consumer Price Index (Inflation)



Source: NSA National Accounts 2017

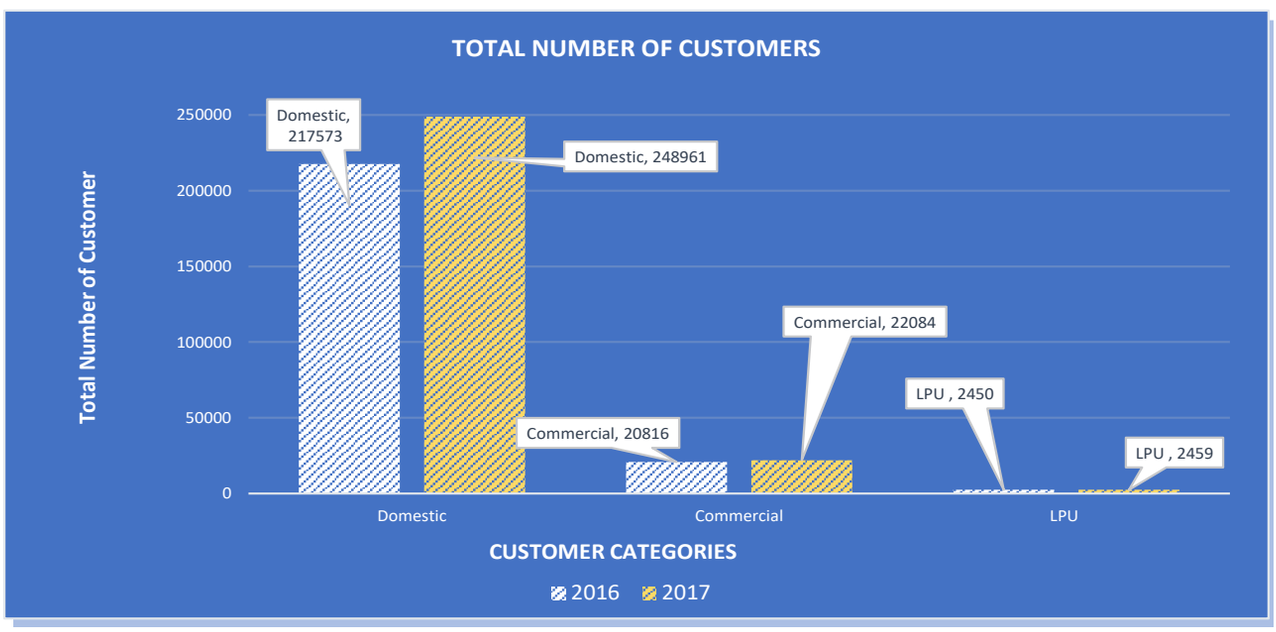
The average inflation for 2017 was 6.1 percent compare to the average of 6.7 percent recorded in 2016. The main contributor to the lower inflation rate were the categories of food and alcoholic beverages with 5.6 percent, alcoholic and tobacco with 4.6 percent, clothing and foot wear -0.4 percent, furnishing, household equipment and routine maintenance with 4.6 percent each, health with 5.7 percent, recreation and culture with 4.1 percent.

2. SUMMARY STATISTICS FOR ELECTRICITY DISTRIBUTION SECTOR

2.1 Customer numbers

In Namibia, electricity users are divided into three main categories namely domestic (Residential), commercial and large power users (industrial). Tariffs in the country are also divided into these categories, making it possible to make comparisons. For the purpose of this publication, customer numbers are defined as active supply points to a property and Large Power Users (LPU) are defined as customers connected with demand meters. In the charts below, the number of customers in each of these categories is provided, as was recorded since 2006 to date, for the different REDs and LAs operating in the regions indicated.

Figure 6: Total Number of Customers per category

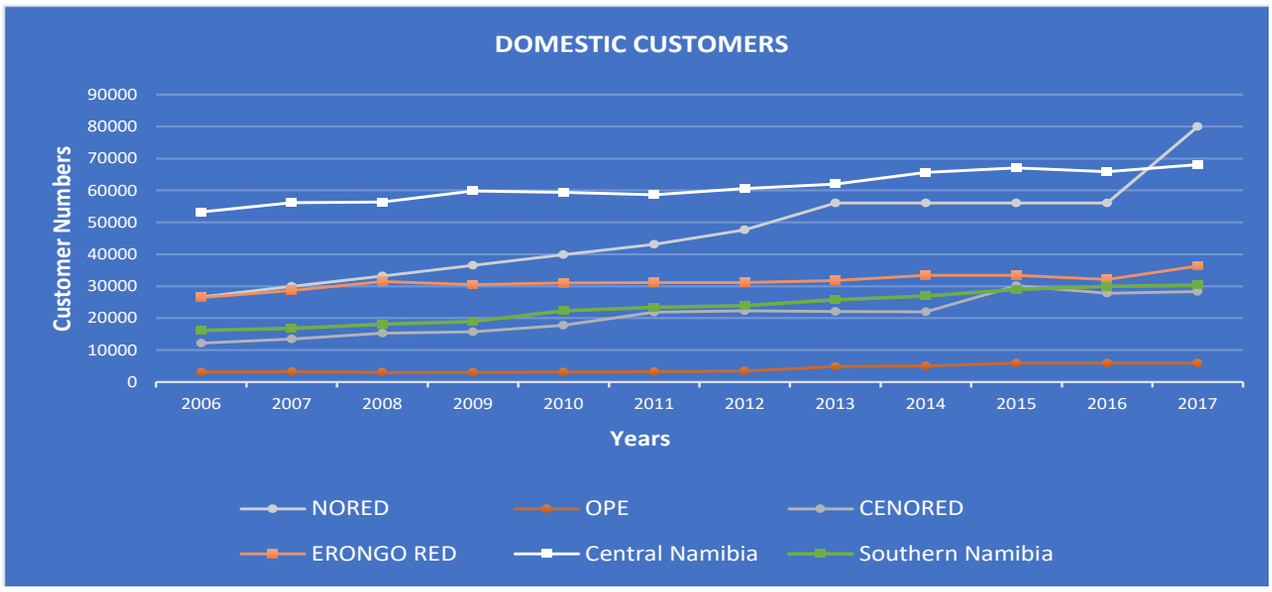


Source: Electricity Control Board Database 2017.

Domestic (Household/residential) customers in Namibia as shown in figure 6 above, are the highest in terms of numbers; this shows that most of the electrification efforts in Namibia are geared towards electrifying the households. Domestic customers are the only customer category that have recorded a significant increase in the number of customers, an increase of more than 31 000 Households were electrified during the period from 2016 to 2017.

Further analysis on number of customers in different customer categories per licensee area are illustrated below from figure 7 – 9.

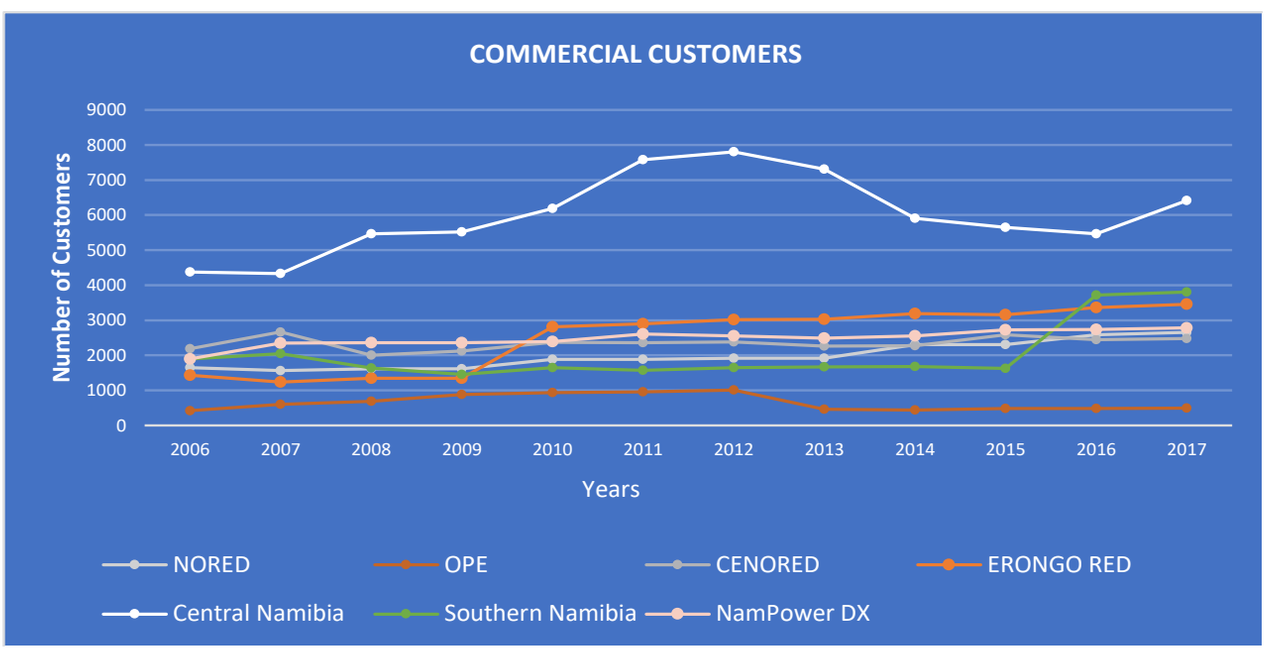
Figure 7: Number of Domestic Customers



Source: Electricity Control Board Database 2017.

There was a notable increase in the number of domestic customers in Namibia, particularly in the NORED distribution areas. NORED domestic customers increased with about 43%, Erongo RED with a 12% and the rest of the distribution areas increased with an average of about 1.5% from 2016 to 2017. The high increase in the number of domestic customers in NORED are mainly attributed to the new connections of the Mass Housing Programmes in all the NORED towns. The total number of domestic customers in Namibia increased with 14% from 218 000 in 2016 to 249 000 customers in 2017.

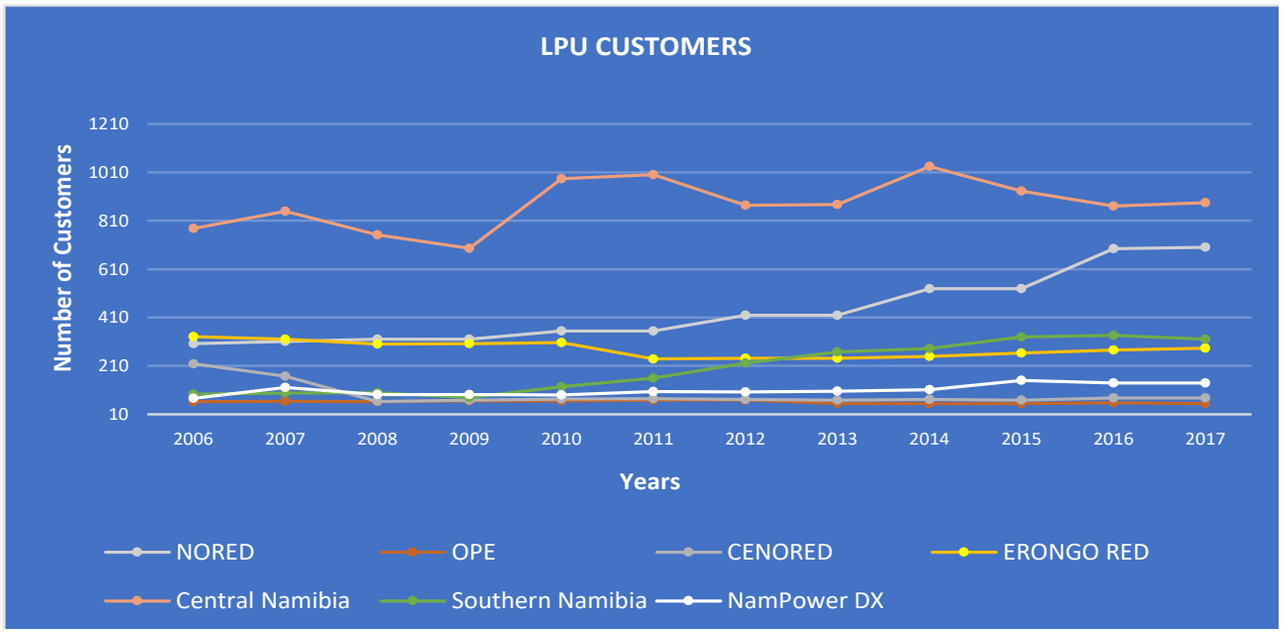
Figure 8: Number of Commercial Customers



Source: Electricity Control Board Database 2017.

Commercial customer numbers, as shown in Figure 8 above shows that most distribution areas except in Central Namibia have recorded below 4 000 customers for the period under review. It is important to note the upward trend in the Central Namibia, an increase of about 17%, particularly in Windhoek is attributed to an increased number of new electricity connections for new business units due to a high growing demand of SMEs in the city. There was a slight increase of 6% in the total number of commercial customers in Namibia from 20 800 in 2016 to 22 000 in 2017.

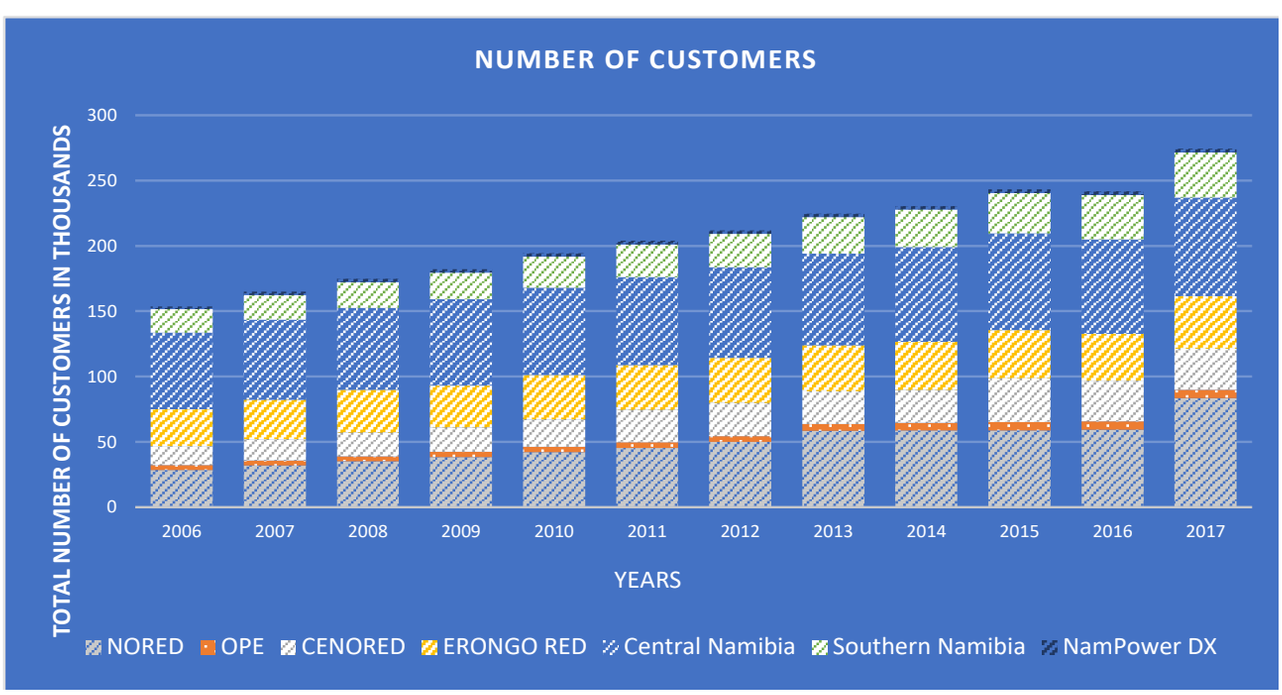
Figure 9: Number of Large Power User Customers (LPU)



Source: Electricity Control Board Database 2017.

The majority of LPU customers were recorded in Central Namibia and the least number of customers were recorded in OPE for the period under review. As it can be seen from figure 9 above, there was little to no change during the period from 2016 to 2017 in most of the distribution areas in Namibia. It must also be noted that these figures are for all maximum demand billed customers of the licensees, such as Shopping Malls, Large schools etc. The total number of Large Power User customers in Namibia grew slightly with a 0.4 % from 2 450 customers in 2016 to 2 459 in 2017. The slow increase was likely due to the economic downturn in the country that is affecting the business fraternity.

Figure 10: Total Number of Customers

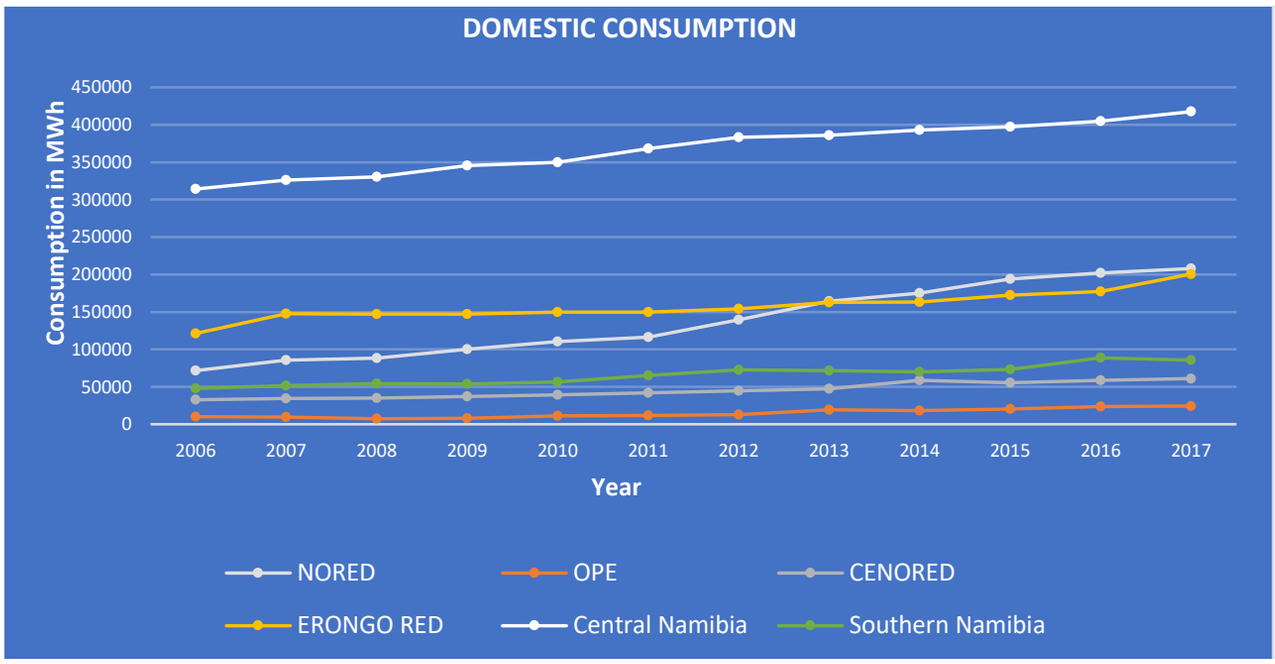


Source: Electricity Control Board Database 2017.

Figure 10 above, shows that since 2006 there has been a 5% average growth annually of electrification of grid connected consumers in the country. Most of the distribution areas in Namibia have experienced positive growths in their electrification effort. The total number of electricity customers in Namibia increased with 13% from 241 000 in 2016 to 274 000 in 2017.

2.2 Electricity Consumption Profiles

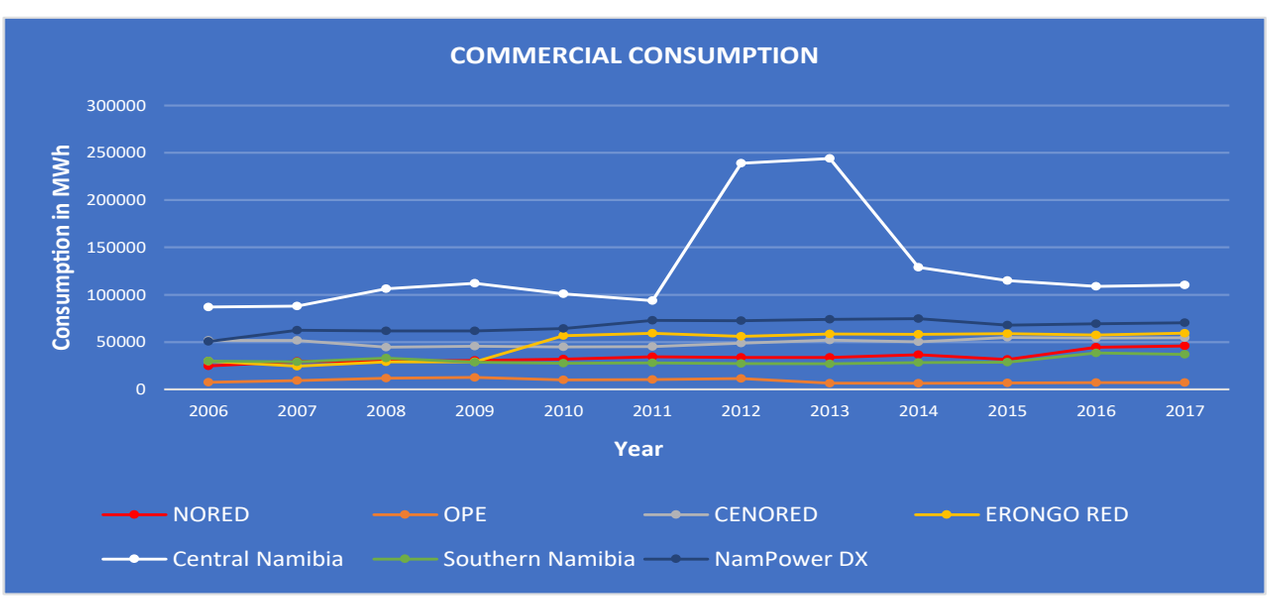
Figure 11: Domestic Consumption



Source: Electricity Control Board Database 2017.

Domestic consumption per annum in Central Namibia has been the highest recorded and constantly increasing since 2007 with an average growth rate of 3% annually (Figure 11). Windhoek contributes a high percentage (93%) of the total consumption per annum. Interesting to note that consumption in NORED's domestic customers that remained stable against the high growth of customer numbers, this could be attributed to the Government Mass Housing Programme houses that are yet to be allocated to individuals. The total domestic consumption in Namibia increased with 4% from 959 GWh in 2016 to 1001 GWh in 2017.

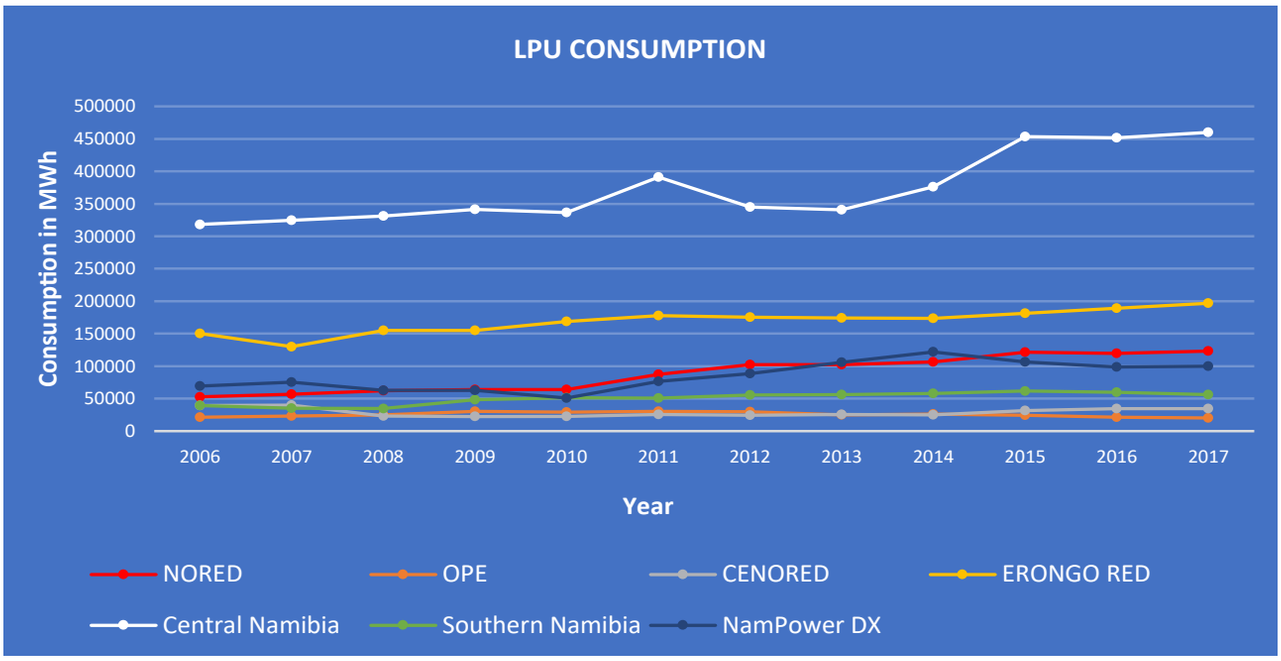
Figure 12: Commercial Consumption



Source: Electricity Control Board Database 2017.

Commercial consumption per annum for Central Namibia continues to be the highest in the country and the least consumption is found in the OPE distribution area. The high consumptions are largely driven by Small medium enterprises (SMEs) and light commercial industries particularly in Windhoek. The rest of the distribution areas have been consistently stable for the period under review remaining below 70 000 MWh. The total commercial customer consumption in the country increased slightly with 1.1% from 380 GWh in 2016 to 384 GWh in 2017.

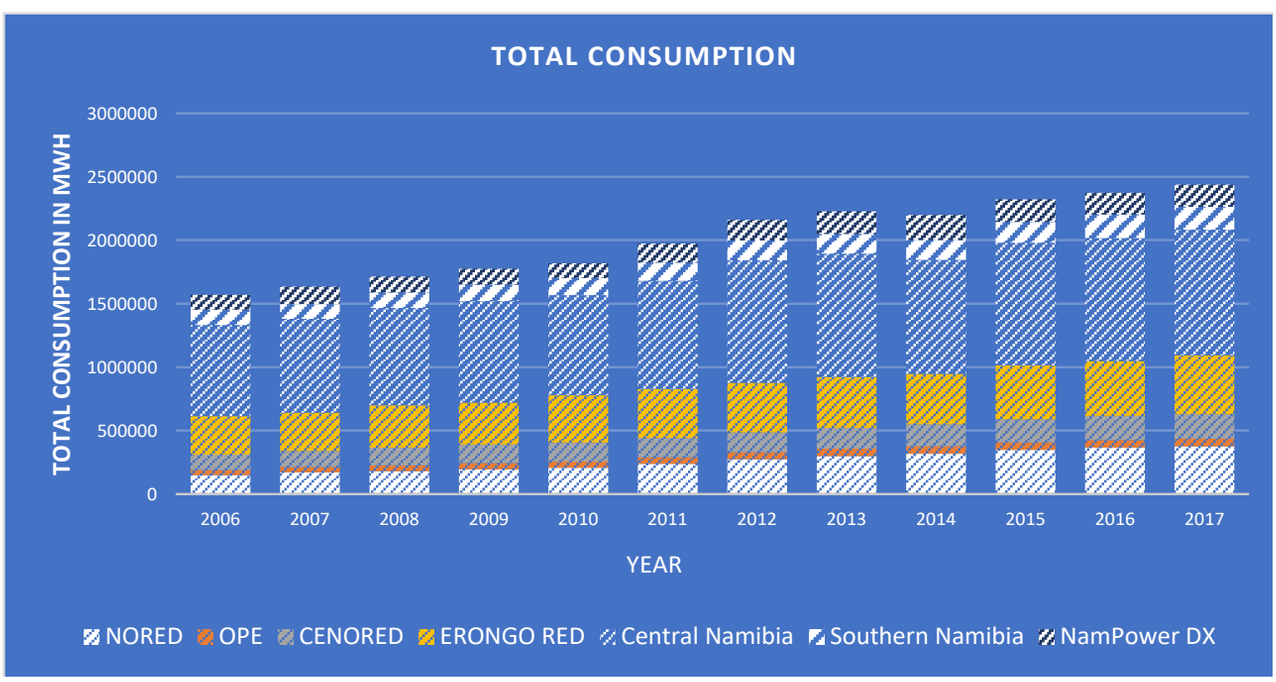
Figure 13: Large Power User Consumption



Source: Electricity Control Board Database 2017.

Large Power User (LPU) consumption in Central Namibia is the highest compared to other distribution areas (Figure 13), their consumption increased consistently over the years and have doubled the figures recorded in any other distribution area for the period under review, this could be attributed to the electrification of new or expanded shopping malls in Windhoek with maximum demand meters. The rest of the distribution areas have been fairly stable in their consumption profiles. The total LPU customer consumption has increased with 1.5% from 975 GWh in 2016 to 990 GWh in 2017.

Figure 14: Total Distribution Consumption



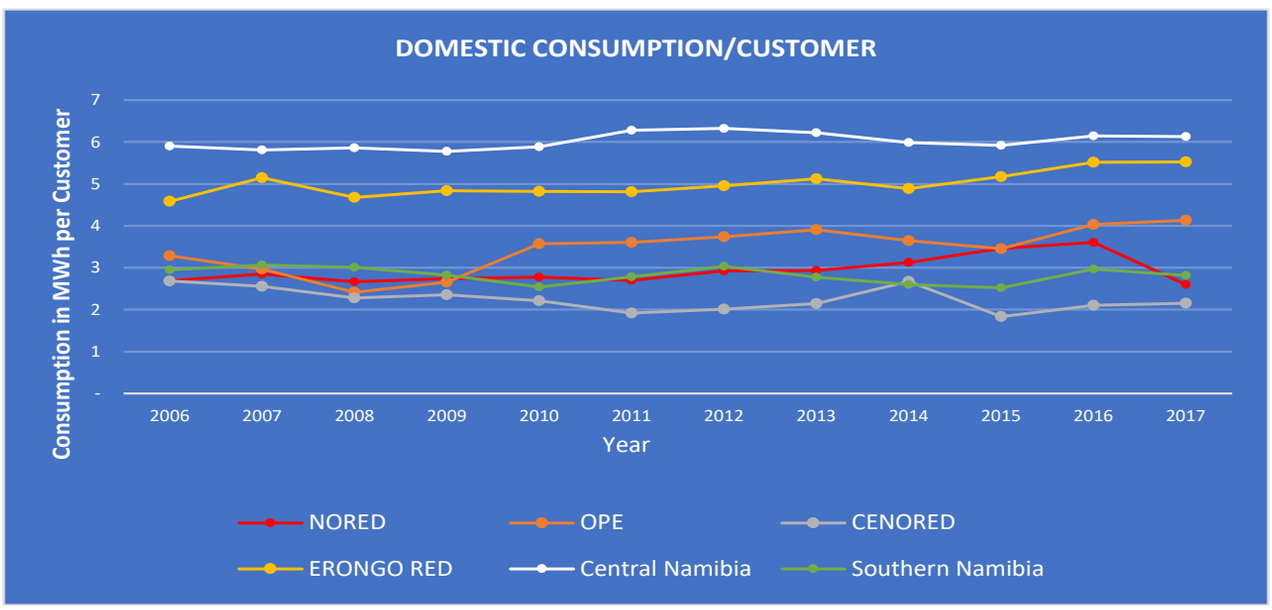
Source: Electricity Control Board Database 2017.

There has been slow but positive growth in the total consumption of the distribution customers in the country as shown in Figure 14, with an average growth rate of less than 4% annually. The total electricity consumption in Namibia grew with a 2.6% from about 2 375 GWh in 2016 to 2 437 GWh in 2017.

2.3 Average Annual Consumption per Individual Customer for the different Customer Categories

The following analysis deals with electricity consumption (sales) per customer in each customer category.

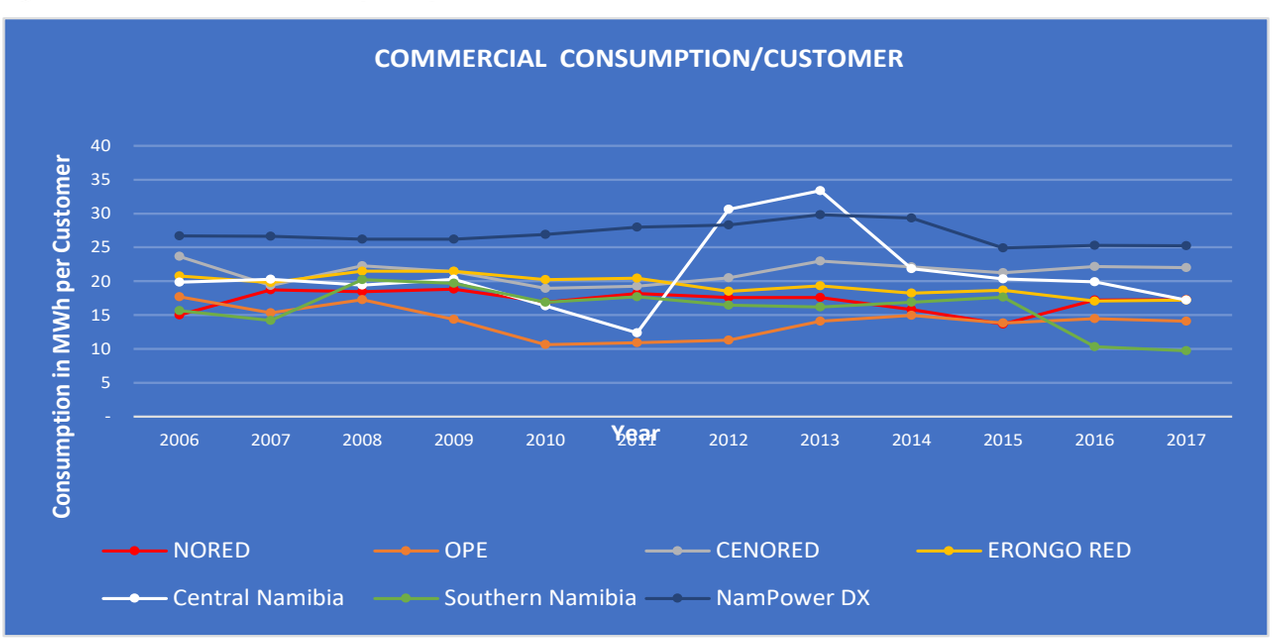
Figure 15: Domestic Consumption per Customer



Source: Electricity Control Board Database 2017.

Central Namibia had the highest consumption per domestic customer ratio compared to any other distribution areas, during the period under review, (see Figure 15 above). The ratio varies a slightly from year to year depending on the circumstances happening in the household. The notable downward movement can be observed in the NORED areas, due to a high number of customers with a low or stable consumption level. The average domestic consumption per household in Namibia has decreased with 9% from 4.4 MWh in 2016 to 4.02 MWh in 2017.

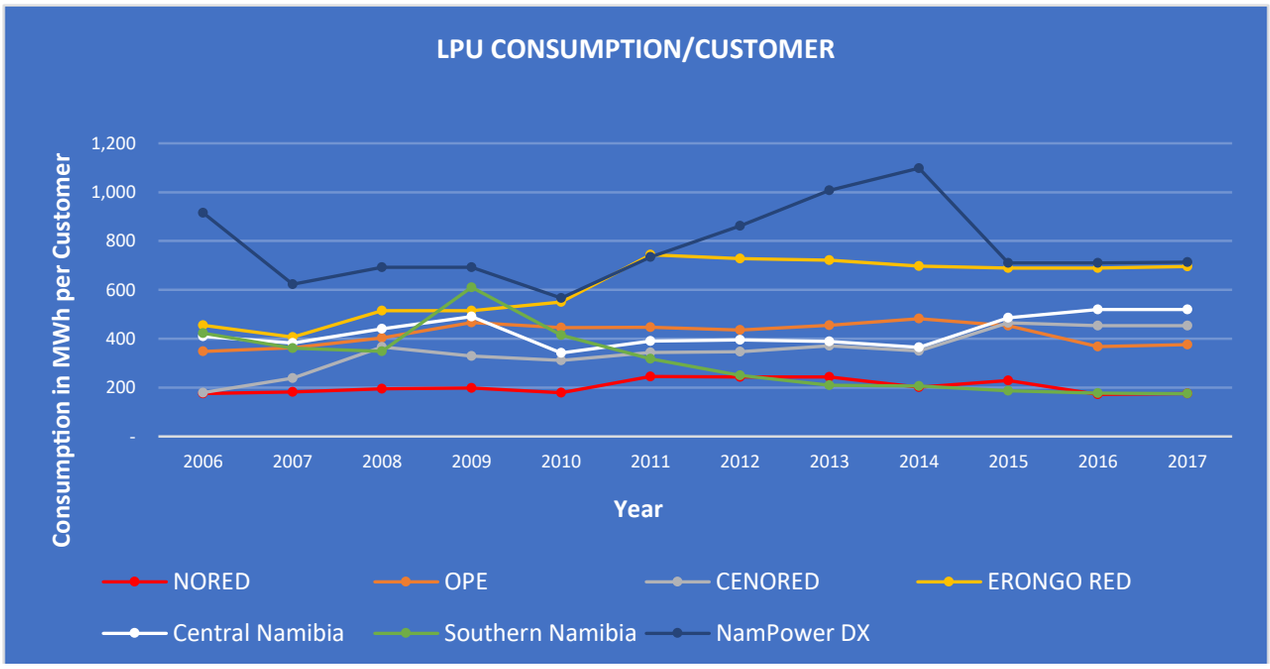
Figure 16: Commercial Consumption per Customer



Source: Electricity Control Board Database 2017.

NamPower Distribution has the highest commercial consumption per customer ratio while OPE and Southern Namibia has the lowest commercial consumption ratio for period under review. The average commercial consumption per customer in national is 17.4 MWh per commercial/business unit in 2017 a decrease of 4.6% from 18.25 MWh per commercial/business unit in 2016.

Figure 17: Large Power User Consumption per Customer

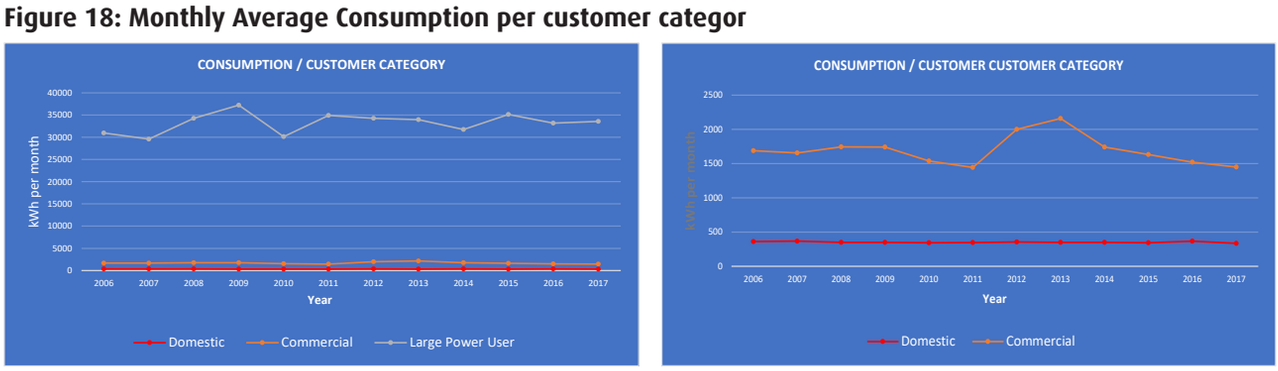


Source: Electricity Control Board Database 2017.

LPU consumption per customer ratio for NamPower Distribution is the highest with 712 MWh, followed by Erongo RED with 695 MWh and the lowest is 176 and 174 MWh in NORED and the Southern Namibia respectively. The rest of the distribution areas had a fairly constant movement from year 2016 to 2017. The average Large Power User's consumption per LPU entity (unit) in national has increased with 1.2% from 398 MWh per entity in 2016 to 402 MWh per entity in 2017.

The Monthly trend of average consumption at national level per customer category is shown in Figure18 below:

Figure 18: Monthly Average Consumption per customer categor

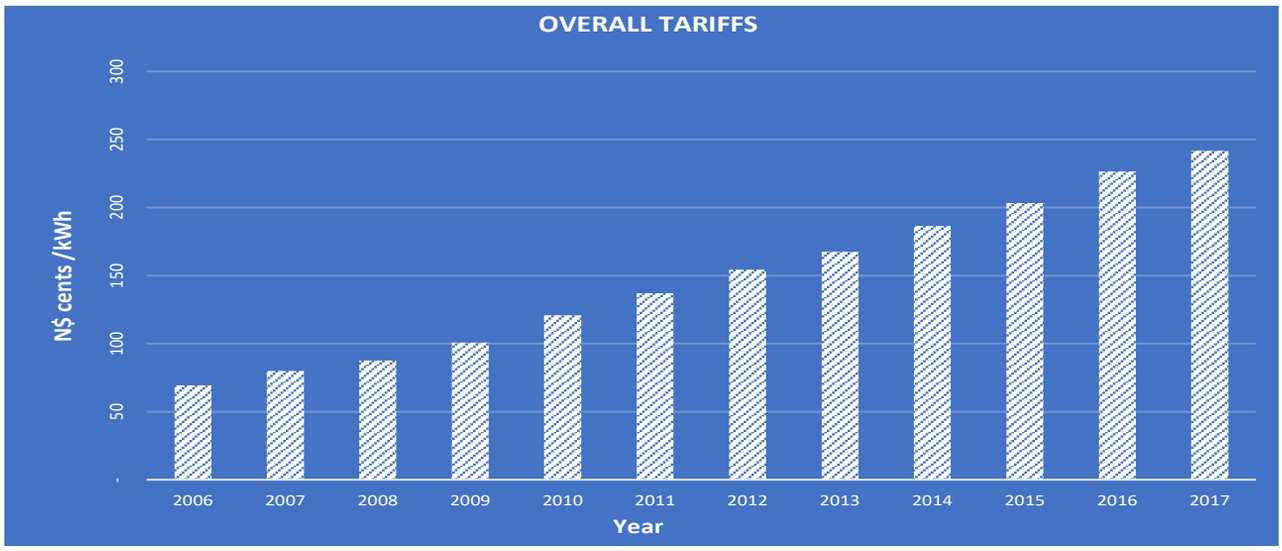


Source: Electricity Control Board Database 2017.

Large Power User consumption per customer category (graph on the left) fluctuated above 33 000 kWh on average per month, while Commercial consumption (graph on the right) fluctuated above 1 500 kWh and Domestic consumption (graph on the right) on average stood below 400 kWh per month during the period under review.

2.4 Electricity Tariffs and Revenue Profiles

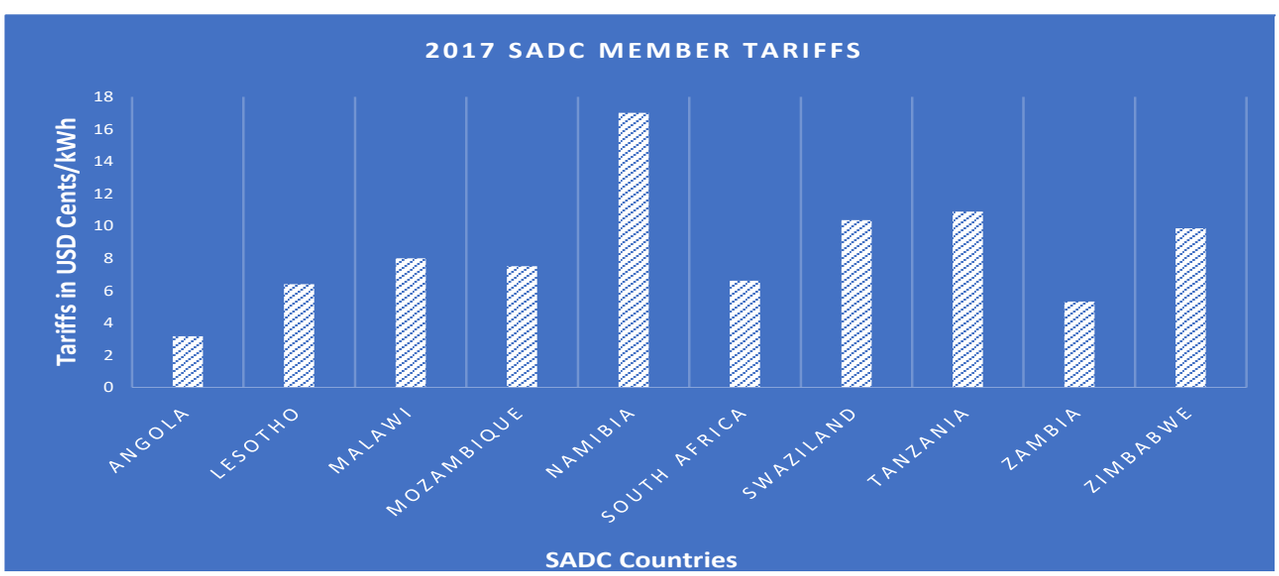
Figure 19: Average Tariff Increases over time



Source: Electricity Control Board Database 2017.

Figure 19 shows the average tariff increases overtime, characterized by gradual price increments over the years. The consistent tariff increases were as a result amongst others of the cabinet decision in 2009 which resolved that electricity tariffs should be cost reflective and should remain as such from 2010 as a result onwards. Cost - reflective tariff is defined as *"a tariff level that reflect the true cost of supplying electricity and remove any reliance on external subsidies or budget allocations to cover the variance between current tariffs and the true cost of electricity supply."* (RERA Publication onx Electricity Tariffs & Selected Performance Indicators for the SADC Region, 2015). The average retail tariffs in Namibia have increased with 6.7% from 227 N$ cents per kWh in 2016 to 242 N$ cents per kWh 2017.

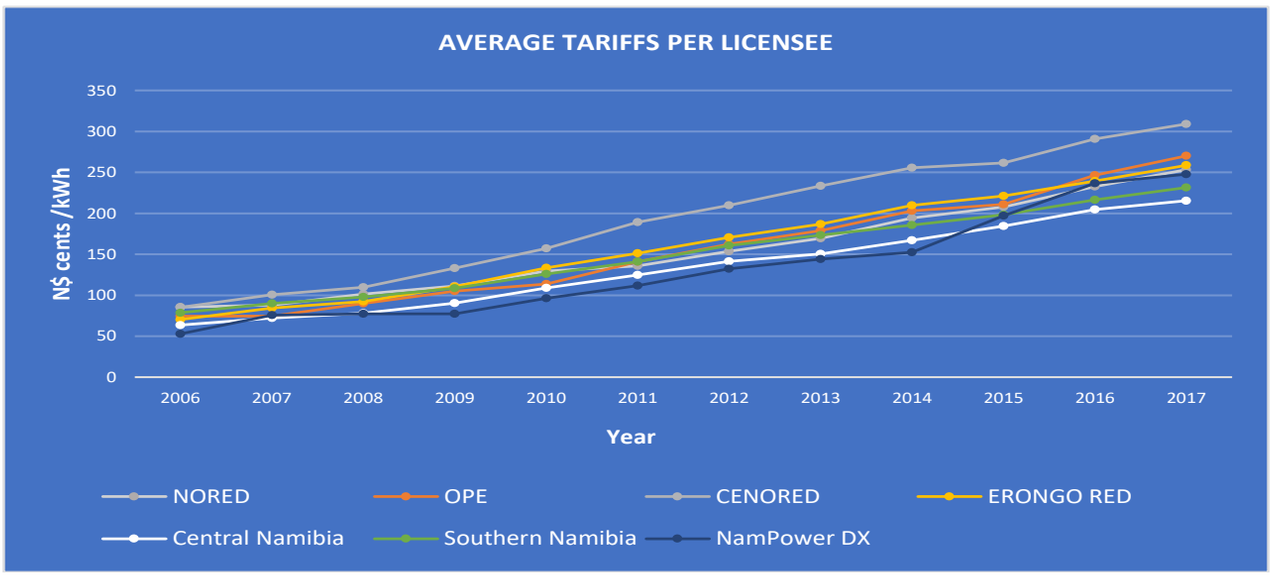
Figure 20: SADC Member Countries tariffs in USD



Source: RERA Database 2017.

Figure 20 above depicts the average tariff levels of some SADC member countries. Namibia has the highest tariff levels of about 17.00 US Cents per kWh while the lowest tariff is in Angola with 3.17 US cents per kWh. Even though Namibia has highest tariffs, it is the only SADC country reported to be cost-reflective while other member countries are still committed in maintaining their efforts to implement cost-recovery tariffs. Cost-reflective tariffs may be expensive tariffs, but these tariffs are important to ensure long term viability of the sector, attracts private sector investments (IPPs) and facilitate a self-funding electricity sector that allows governments to fund other services or areas (e.g. Education, Healthcare). The non-cost-reflective tariffs in most SADC countries are subsidised by their governments hence low tariffs.

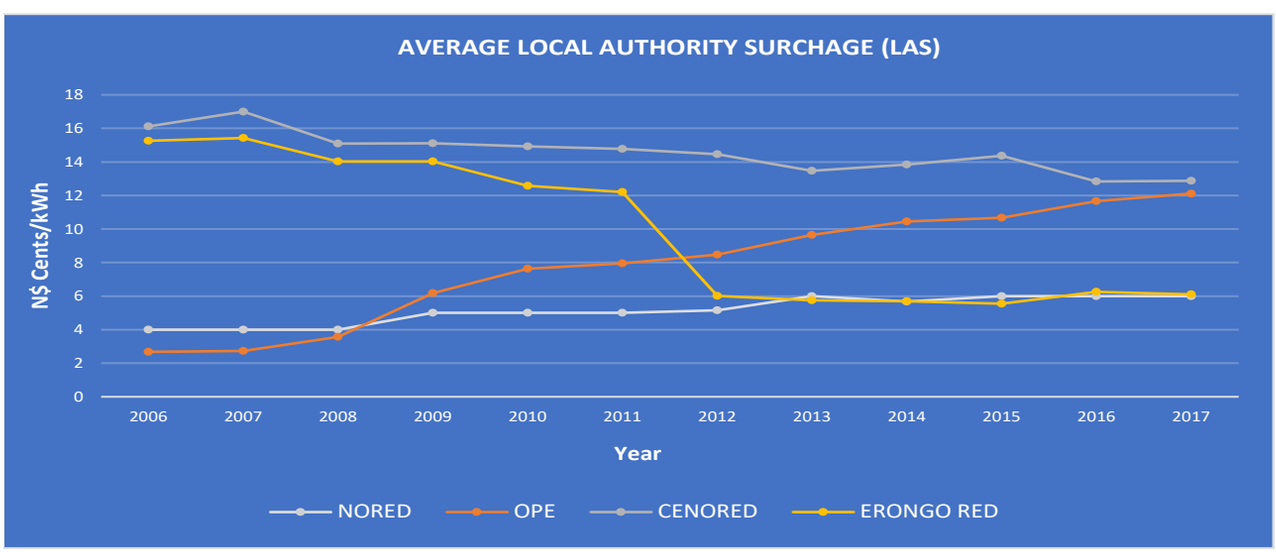
Figure 21: Average Electricity Tariffs for the distribution Areas



Source: Electricity Control Board Database 2017.

CENORED has been maintaining high average tariffs over the years, having the highest average tariffs of 309 cents per kWh for 2017 compared to other distribution areas. This is mainly due to the high Local Authority Surcharge (LAS) that are added on the CENORED tariffs and collected on behalf of the Local Authority. Second highest average tariffs are in OPE with 270 cents per kWh while the lowest average tariffs for 2017 is in the Central Namibia with 215 cents per kWh.

Figure 22: Local Authority Surcharge per Licensee



Source: Electricity Control Board Database 2017.

CENORED's average Local Authority Surcharge is the highest compared to other Regional Distributors because their LA surcharges are all collected by them on behalf of the Local Authority unlike in Erongo RED where since 2012 they decided to collect half of the LA surcharges and the other half are passed through to customers (Figure 22).

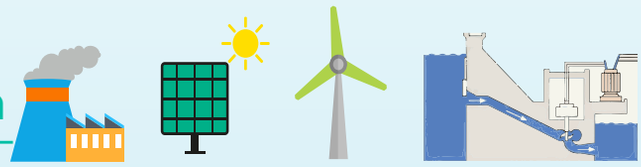
Electricity Control Board
18 Years of Successful Regulation

KNOW YOUR ELECTRICITY TARIFF COMPONENTS

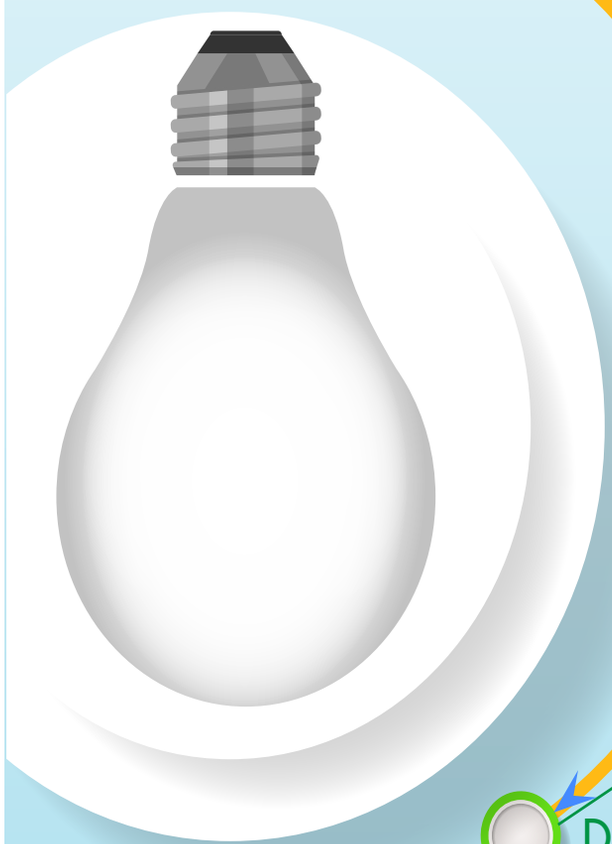
Generation

Cost

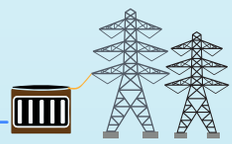
- Fuel Cost
- Import Cost
- IPP Cost
- Overhead
- Depreciation
- Return on Assets



Generation Tariff
N$ 1.28/kWh



Transmission

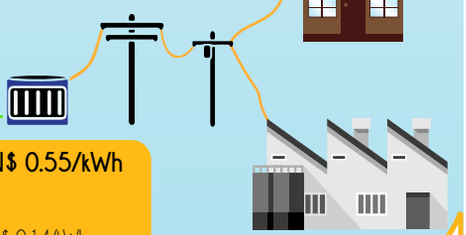


Transmission Tariff
N$ 0.41/kWh

Cost

- Operation & Maintenance
- Overheads
- Depreciation
- Return on Assets
- Customer Service

Distribution



Distribution Tariff: N$ 0.55/kWh

Plus

Local Authority Surcharge:	N$ 0.14/kWh
Electricity Control Board Levy:	N$ 0.0203/kWh
National Electricity Fund Levy:	N$ 0.0160/kWh

Average Retail Tariff

N$ 2.41/kWh

Comprising of the following tariffs and levies

Generation+ Transmission+ Distribution

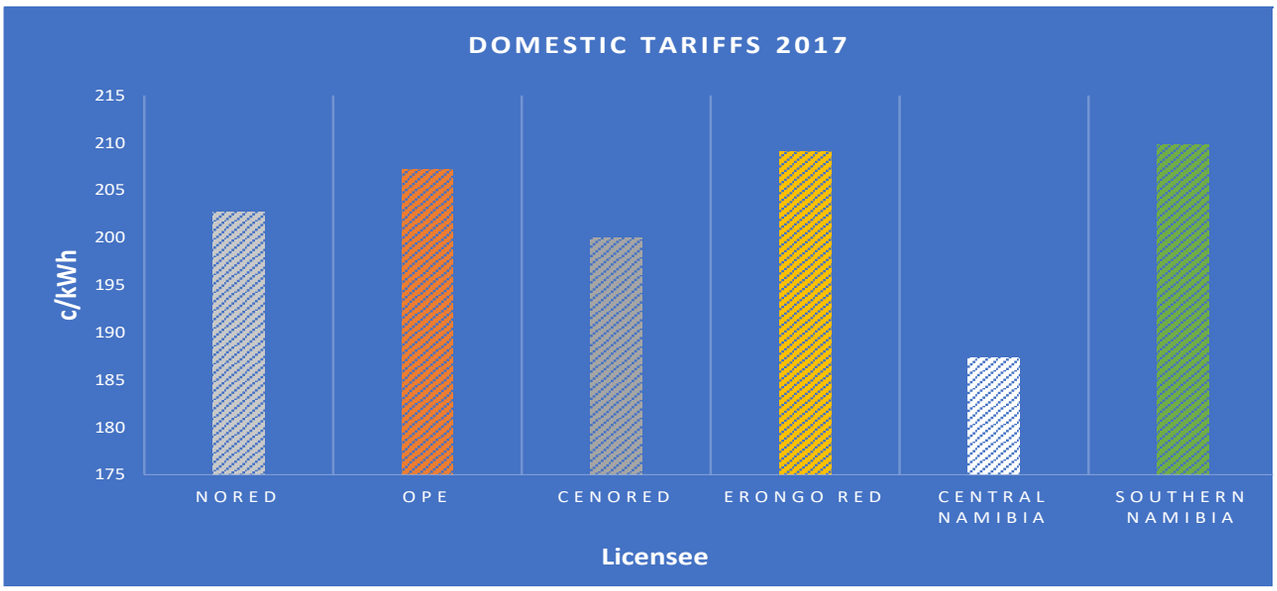
Abbreviations

IPP – Independent Power Producer

kWh – kilowatt hour

No. 35 Burg Street, Windhoek
Business Hours: Weekdays from 07:30 - 16:30
P O Box 2923, Windhoek, Namibia +264 61 374 300 +264 61 374 305 www.ecb.org.na

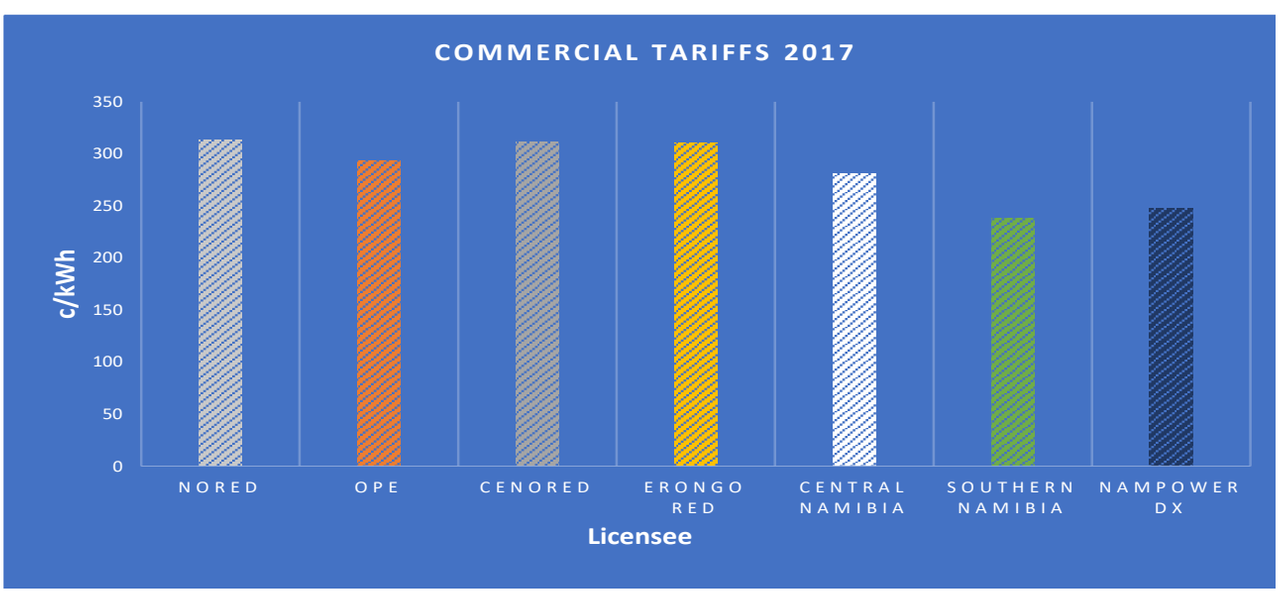
Figure 23: Electricity Tariffs: Domestic Customer



Source: Electricity Control Board Database 2017.

Domestic customers in Southern Namibia are paying the highest electricity tariffs of 210 cents per kWh in 2017 followed by Erongo RED with 209 cents per kWh and the lowest electricity domestic tariffs are recorded in Central Namibia with 187 cents per kWh. The 2017 average tariff for all domestic customers in Namibia has increased with 2.6% from 193 cents per kWh in 2016 to 198 cents per kWh in 2017.

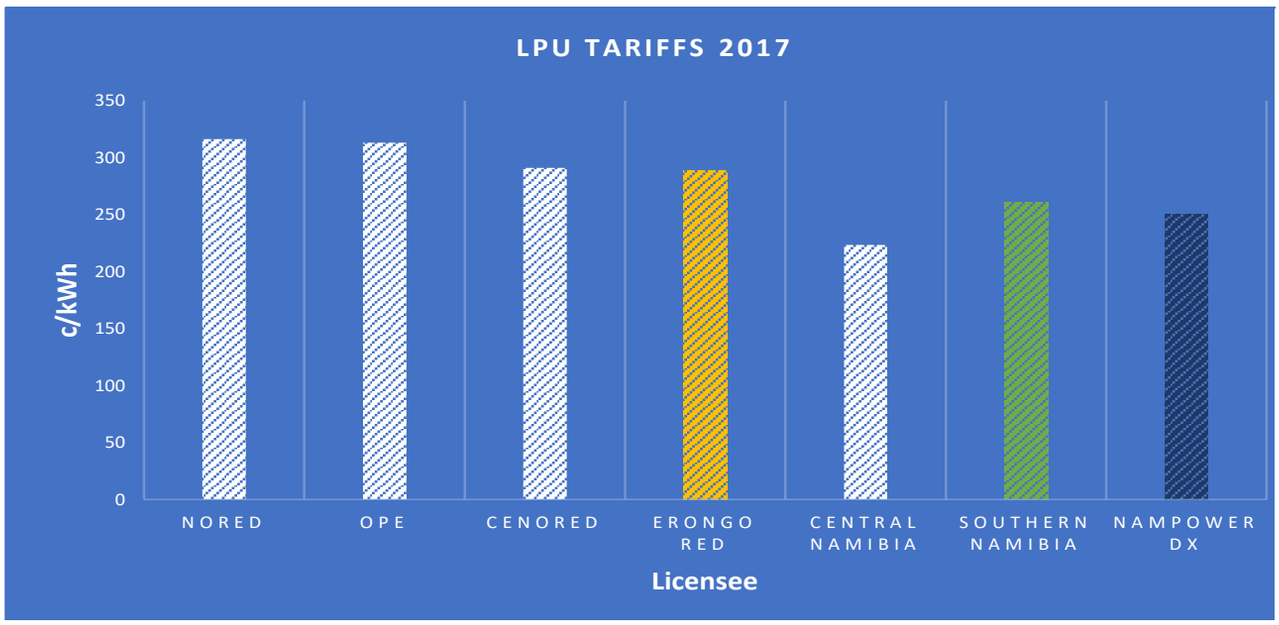
Figure 24: Electricity Tariffs: Commercial Customers



Source: Electricity Control Board Database 2017.

The tariffs of electricity for commercial customers in NORED are the highest in the country with 313 cents per kWh, followed by CENORED and Erongo RED with 311 and 310 cents per kWh respectively. The lowest electricity tariffs for commercial customers are recorded in the Southern Namibia with 238 cents per kWh. The 2017 average tariff for commercial customers in Namibia has increased with 6.1% from 267 cents per kWh in 2016 to 284 cents per kWh in 2017.

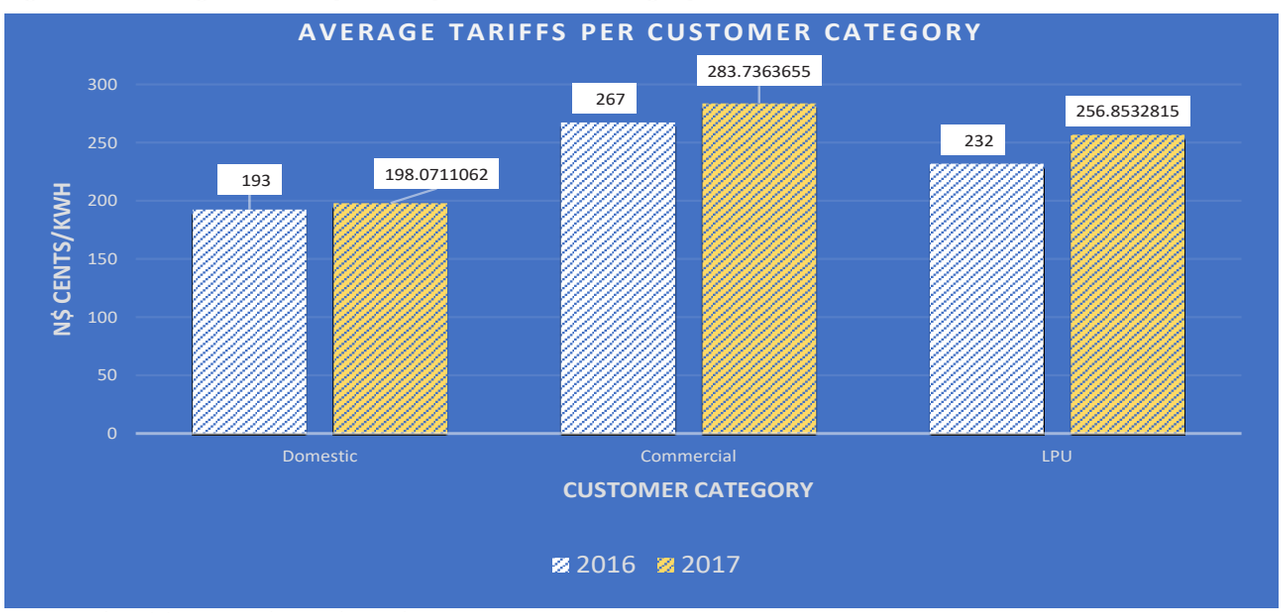
Figure 25: Electricity Tariffs: Large Power User Customers



Source: Electricity Control Board Database 2017.

The lowest average electricity tariffs paid by LPU customers are in Central Namibia and NamPower Distribution with 224 and 250 cents per kWh respectively, while the highest average electricity tariffs paid by LPU customers are recorded in NORED with 316 cents per kWh and OPE with 313 cents per kWh in 2017. The average electricity tariffs for LPU customers in Namibia has increased with 11% from 232 cents per kWh in 2016 to 257 cents per kWh in 2017.

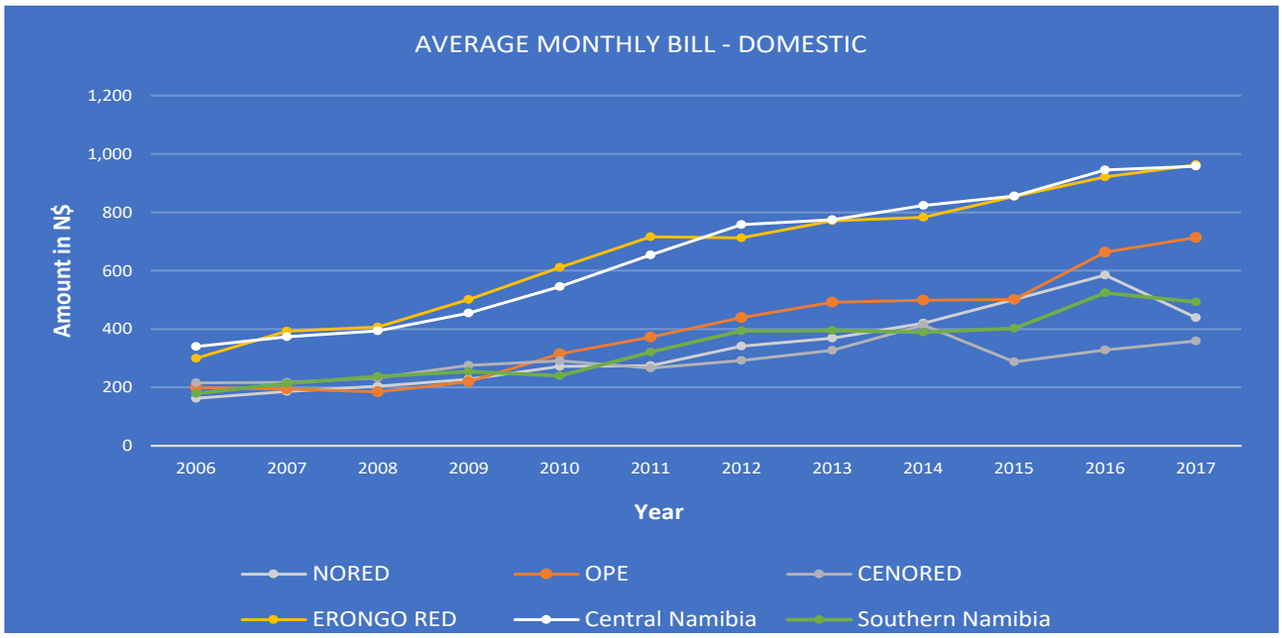
Figure 26: Average Electricity Tariffs per Customer Category



Source: Electricity Control Board Database 2017.

Large Power User customers had the highest tariff increase with 11% from 232 cents per kWh in 2016 to 257 cents per kWh in 2017, followed by the Commercial customers with 6% and the domestic customers with 3%.

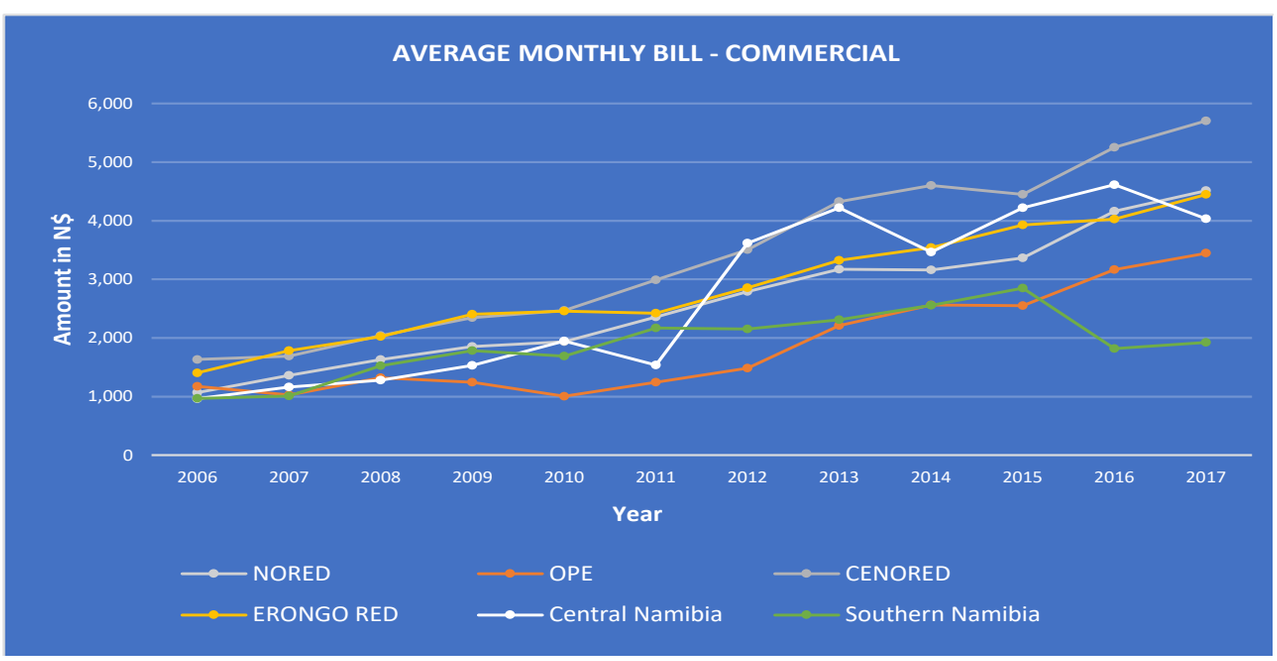
Figure 27: Average Monthly Bill for Domestic Customers



Source: Electricity Control Board Database 2017.

Domestic customers in Central Namibia and Erongo RED have the highest average monthly bill consistently for the period under review, followed by customers located in OPE. This statistic is influenced more by the load profile per consumer than by the tariff levels, although the latter also play a part. CENORED's customers face amongst the lowest bills, despite their high tariffs, therefore this is partly due to their low consumption level. The average monthly bill for domestic customers in Namibia has decreased with 6.2% from an average bill of N$ 707.52 in 2016 to N$ 664.00 in 2017. The average decrease in domestic monthly electricity bills was attributed by NORED's un-allocated Mass Housing units to individuals which are already electrified (new customers), resulting in low consumption.

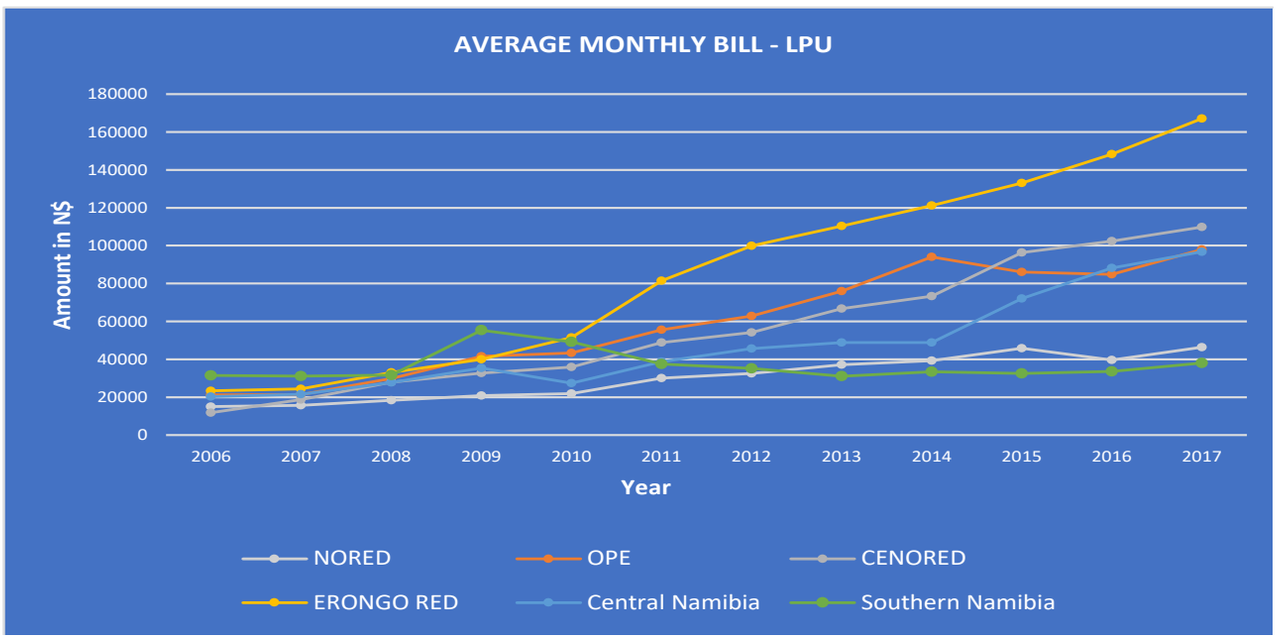
Figure 28: Average Monthly Bill for Commercial Customers



Source: Electricity Control Board Database 2017.

The average monthly bill for commercial customer in CENORED continue to dominate with high bills compared to other distribution areas for the past five years; this is partly due to the relatively high average consumption combined with their high tariffs. Commercial Customers in OPE and Southern Namibia paid the lowest average bills of about N$ 3 400 and N$ 1 900 respectively. The average monthly bill for all commercial customers in Namibia has increased with 2.5% from an average bill of N$ 4 000 in 2016 to N$ 4 100 in 2017.

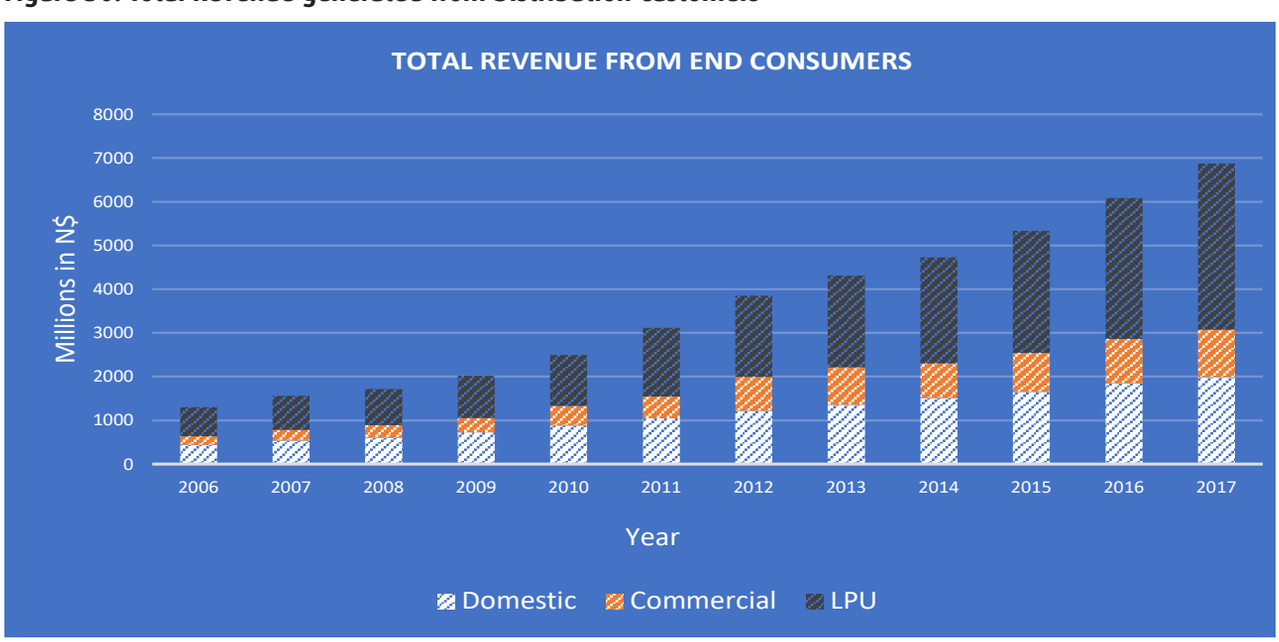
Figure 29: Average Monthly Bill for Large Power User Customers



Source: Electricity Control Board Database 2017.

Since 2011, the average monthly bills for LPU customers in Erongo RED has been constantly increasing amounting to just above N$160 000 in 2017; these constant increases are due to a strong industrial sector primarily in Walvis Bay. CENORED LPU customers paid just slightly above N$ 100 000 in 2017 and making it the second highest billed LPU customers in 2017 while Southern Namibia bills are lowest with just below N$ 40 000 for 2017. The average monthly bill for LPU customers in Namibia has increased with 17% from N$109 000 in 2016 to N$ 128 000 per month in 2017.

Figure 30: Total Revenue generated from Distribution Customers

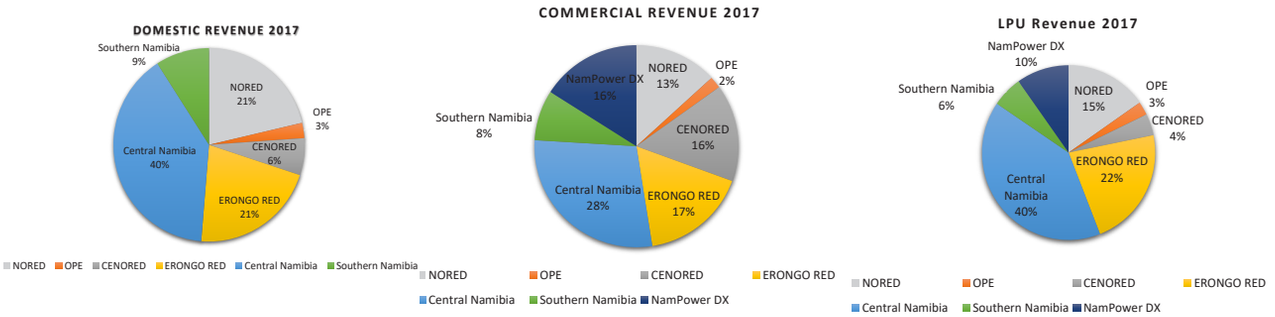


Source: Electricity Control Board Database 2017.

Figure 30 above shows the Total Revenue collected from the Electricity Distribution Industry of Namibia. The revenue generated (collected) within the Electricity Distribution Industry has been growing exponentially every year. LPU customers are the main source of revenue in the electricity distribution sector with a total of N$3.7 Billion in 2017, followed by domestic customers with N$1.9 Billion and commercial customers with N$1 Billion. The total revenue collected for 2017 from the distribution end consumers in Namibia has increased with 15% from N$6 Billion in 2016 to N$6.9 Billion in 2017.

The Figure 31 below indicates revenue generated by each customer category per distribution in Namibia for the year 2017.

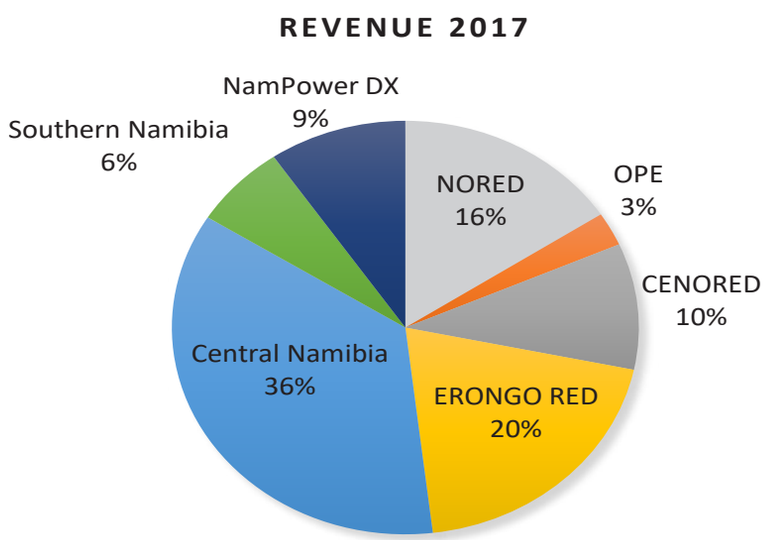
Figure 31: Revenue Generated per Distribution Area in Each Customer Category



Source: Electricity Control Board Database 2017.

Central Namibia is the hub for revenue generation in both Domestic, Commercial and LPU categories in 2017 accounting for 40%, 28% and 40% respectively, followed by NORED and Erongo RED in Domestic customers with 21% each, and Erongo RED in Commercial and LPU customers with 17% and 22% respectively. The rest of the distribution areas collected below 20% across all customer categories for 2017.

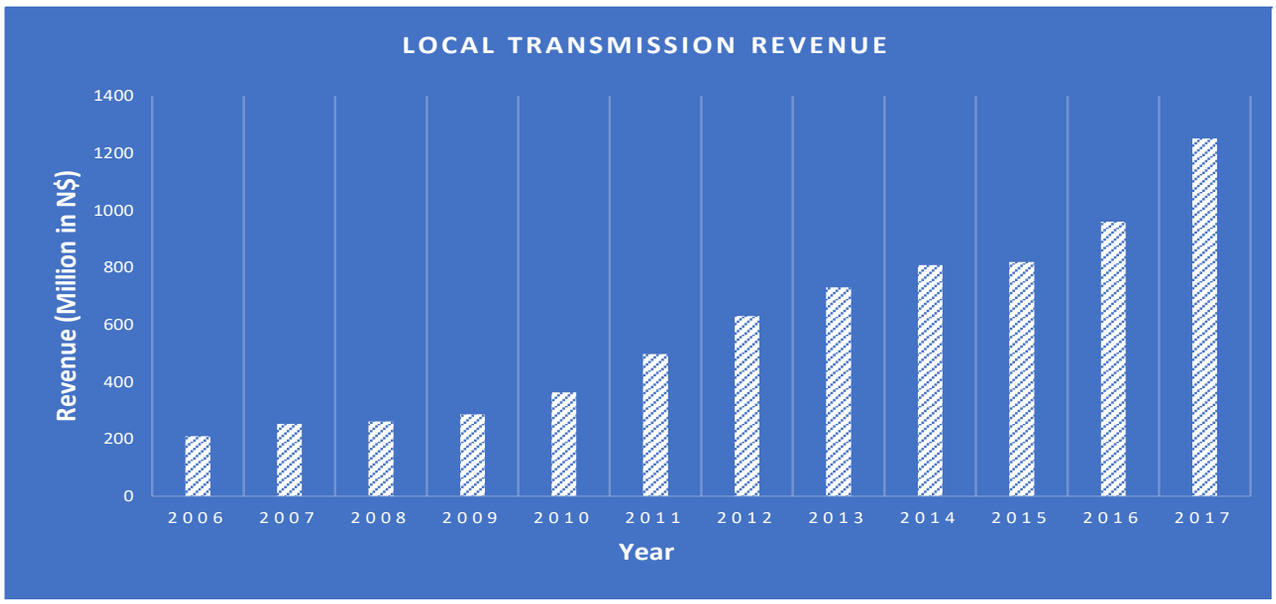
Figure 32: Revenue Generated per Dx Licensee



Source: Electricity Control Board Database 2017.

Central Namibia, particularly in Windhoek, continues to dominate in revenue generation within the entire electricity distribution industry in Namibia, generating to about 36%, followed by Erongo RED with 20% and NORED with 16%. The rest of the distribution licensee collected below 11%.

Figure 33: Transmission Revenue Generated from Local End Customers

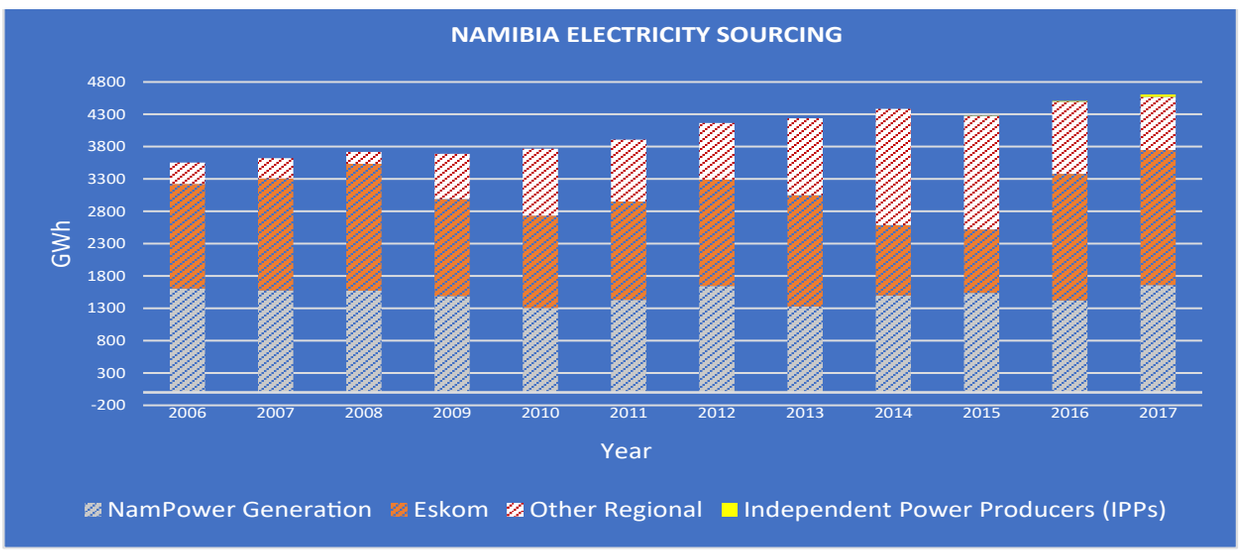


Source: Electricity Control Board Database 2017.

Figure 33 above shows that the revenue collected from the Transmission Local end customers have been growing steadily with an average of 18% annually. Transmission Revenue is revenue exclusively generated from transmission local end consumers excluding revenue from exports, distribution entities, Scorpion Zinc, Orange River, wheeling and others. The total revenue for Transmission local end customers have increased with 30% from 959 Million in 2016 to 1.25 Billion in 2017.

3. NATIONAL ELECTRICITY SUPPLY

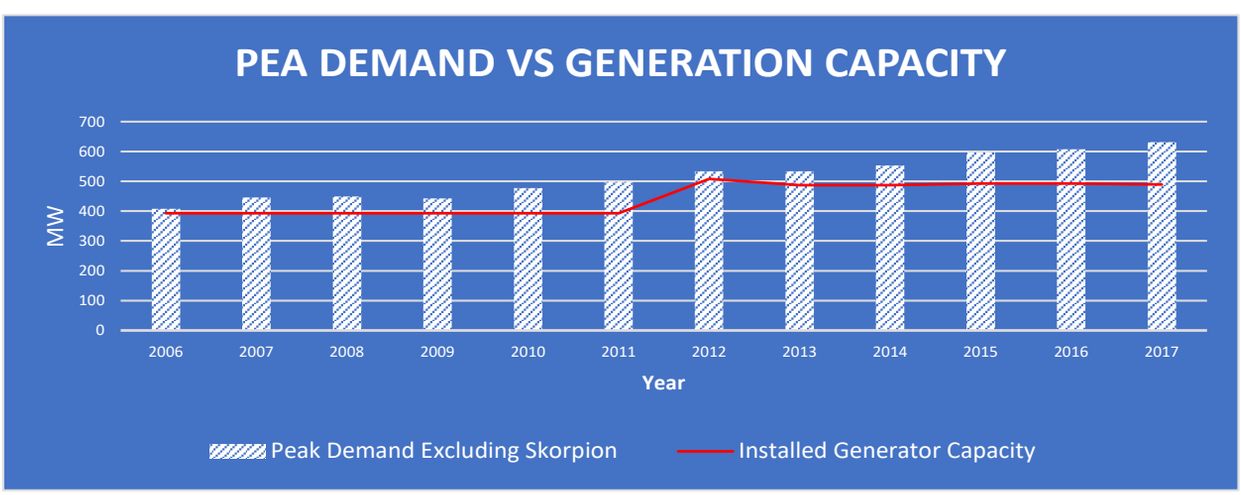
Figure 34: Namibia's Electricity Supply Sources



Source: NamPower Database 2017

The graph above depicts sources of electricity for Namibia. During 2017, Namibia's local sources (NamPower Generation) into the system stands at 36%, other regional markets (ZESCO, STEM, EDM, and ZPC) makes up 18%, IPPs contributed 1% while Eskom contributed the largest share of 45%. NamPower Generation varied below 1 700 GWh for the period under review, indicating a growing electricity import dependency for Namibia.

Figure 35: Namibian Peak Demand vs Local Installed Generation Capacity



Source: NamPower Database 2017

Figure 35 shows the annual peak demand for electricity in Namibia (excluding Skorpion Mine) and the installed local generation capacity. The graph above is clearly indicating the demand has surpassed generation capacity in Namibia. The demand started to surpass the installed generation capacity from 2006 and it continued to grow high annually. While the installed generation capacity remained constant, the peak demand grew with a 3.8 % from 608 MW in 2016 to 630 MW in 2017.

Figure 36: Renewable Energy Feed-In-Tariffs (Refit)

NO:	interim-REFIT PROJECTS	Technology	Licensed Capacity	COD
1	Alcon Consulting	Solar PV	5	09/01/2017
2	Osona Sun	Solar PV	5	09/01/2016
3	Ombepo Energy	Wind	5	08/04/2017
4	Hopsol Power	Solar PV	5	28/06/2017
5	Aloe Investment	Solar PV	5	17/07/2018
6	Momentous Solar	Solar PV	5	24/08/2018
7	Tandii	Solar PV	5	28/02/2018
8	Namibia Carbon Fertilizer Energy	Solar PV	5	28/02/2018
9	Camelthorn Business	Solar PV	5	23/10/2017
10	Unisun Energy	Solar PV	5	29/12/2017
11	Sertum Energy	Solar PV	5	31/12/2018
12	Ejuva 1	Solar PV	5	19/09/2017
13	Ejuva 2	Solar PV	5	19/09/2017
14	Metdecci Energy	Solar PV	5	03/07/2017

Source: Electricity Control Board Database 2017

Figure 36 shows the interim REFiT projects in Namibia. At the end of 2017, 45MW installed capacity was added, the remaining 25MW from other IPPs on REFiT will be added in a few coming months.

Figure 37: List of Type and Number of Licensees Operational in Namibia

Type of License	Total Number of Licenses
Generation license	37
Distribution and Supply license	47
Transmission	1
Import	1
Export	1
Trading	1

Source: Electricity Control Board Database 2017

Figure 37 above shows a list of all operational types of licenses issued in Namibia. Namibia has reformed her generation and distribution sectors by opening the market to encourage many investors/stakeholders players to enter into these sectors as shown above with 37 and 47 licenses respectively. There are quite a number of Independent Power Producers (IPPs) that have been issued with generation licenses in Namibia that are also busy setting up their power plants, they are expected to become operational in the next year or so therefore increasing the country's Installed capacity.

4. APPENDIX

Table 1: Aggregated Economic Indicators

Aggregated Economic Indicators	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
GDP (in N$)	54,028	61,582	70,110	75,214	82,599	90,108	106,863	122,792	138,763	150,160	166,345	176,324
GDP Growth Rate (%)	7.1	5.1	2.6	0.3	6.0	5.1	5.1	5.6	6.4	6.1	0.7	-0.8
Electricity & Water Sector Contribution to GDP (%)	1.9	2.4	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.5	2.3	2.6
GDP per Capita (in Thousand N$)	26	29	33	35	36	39	46	54	61	70	71.5	74.4
CPI rate (Inflation) %	5.0	6.6	9.1	9.5	4.5	5.0	6.7	5.6	4.9	3.40	6.70	6.1

Table 2: Number of Customers

Customer Numbers	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Domestic	137,841	148,190	157,377	164,516	173,440	181,419	188,934	202,538	209,046	221,477	231,866	248, 961
Commercial	13,871	14,791	15,115	15,298	18,234	19,865	20,330	19,147	18,349	18,537	19,674	22, 084
Large Power Users	1,861	1,930	1,688	1,620	1,997	2,000	2,000	2,036	2,329	2,325	2,357	2, 459
Total Customers	153,573	164,911	174,180	181,434	193,671	203,284	211,264	223,721	229,724	242,339	253,897	273,504

Table 3: Number of Domestic Customers by Licensee

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	26,629	29,929	33,229	36,529	39,829	43,129	47,629	56,000	56,000	56,000	57,000	80,000
OPE	3,151	3,194	3,028	3,013	3,152	3,242	3,396	4,875	5,045	5,869	6,446	5,900
CENORED	12,178	13,500	15,261	15,761	17,755	21,850	22,287	22,117	22,019	30,149	27,796	28,318
ERONGO RED	26,456	28,672	31,462	30,462	31,063	31,142	31,117	31,739	33,404	33,404	32,149	36,308
Central Namibia	53,257	56,119	56,329	59,822	59,381	58,654	60,611	62,023	65,621	67,085	65,842	68,076
Southern Namibia	16,170	16,776	18,068	18,929	22,260	23,402	23,894	25,784	26,943	28,956	29,914	30,355

Table 4: Number of Commercial Customers by Licensee

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	1,651	1,565	1,620	1,620	1,890	1,890	1,915	1,915	2,309	2,304	2,590	2,655
OPE	422	602	684	879	940	956	1,009	464	440	488	483	497
CENORED	2,190	2,666	2,003	2,124	2,373	2,354	2,380	2,267	2,276	2,582	2,450	2,474
ERONGO RED	1,433	1,237	1,343	1,343	2,809	2,899	3,018	3,033	3,193	3,193	3,366	3,455
Central Namibia	4,381	4,331	5,470	5,519	6,191	7,583	7,803	7,310	5,902	5,649	5,463	6,413
Southern Namibia	1,897	2,043	1,639	1,455	1,643	1,576	1,649	1,672	1,680	1,630	3,723	3,806
NamPower DX	1,897	2,347	2,357	2,357	2,387	2,607	2,556	2,486	2,549	2,731	2,741	2,784

Table 5: Number of Large Power User Customers by Licensee

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	302	311	320	320	355	355	420	420	529	529	695	700
OPE	62	64	62	65	65	68	69	55	54	54	58	54
CENORED	219	168	63	68	73	75	71	69	71	68	77	77
ERONGO RED	331	320	301	301	307	239	241	242	249	263	275	283
Central Namibia	778	849	751	696	984	1,000	874	877	1,034	932	870	885
Southern Namibia	93	97	100	79	123	159	222	268	281	329	336	320
NamPower DX	76	121	91	91	90	104	103	105	111	150	139	140

Table 6: Electricity Domestic Consumption by Licensee in MWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	71,642	85,400	88,553	99,974	110,520	116,420	139,275	164,193	175,164	193,925	201, 902	207, 959
OPE	10,344	9,471	7,310	8,018	11,263	11,676	12,689	19,059	18,378	20,282	23, 687	24, 385
CENORED	32,690	34,566	34,737	37,056	39,283	41,885	44,869	47,526	58,797	55,280	58, 445	61, 025
ERONGO RED	121,268	147,497	147,292	147,292	149,667	149,749	154,287	162,698	163,251	172,676	177, 352	200, 595
Central Namibia	314,163	326,148	330,232	345,560	349,715	368,242	383,402	385,797	393,129	397,167	404, 851	417, 539
Southern Namibia	47,764	51,430	54,370	53,543	56,560	65,222	72,420	71,555	70,057	73,000	88, 688	85, 615

Table 7: Electricity Commercial Consumption by Licensee in MWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	24,767	29,300	29,900	30,499	31,926	34,358	33,711	33,711	36,524	31,486	44,567	45,858
OPE	7,472	9,245	11,819	12,627	9,993	10,432	11,371	6,541	6,569	6,748	7,001	7,014
CENORED	51,802	51,611	44,606	45,531	44,967	45,310	48,826	52,103	50,277	54,838	54,300	54,430
ERONGO RED	29,747	24,523	28,858	28,858	56,815	59,234	55,844	58,500	58,215	58,786	57,468	59,407
Central Namibia	87,040	87,852	106,364	111,972	101,093	93,883	238,987	244,005	129,045	114,776	108,878	110,414
Southern Namibia	29,726	29,055	33,148	28,646	27,761	27,909	27,123	27,055	28,379	28,741	38, 506	37, 011
NamPower DX	50,612	62,505	61,781	61,781	64,282	72,994	72,354	74,137	74,715	68,026	69,303	70,248

Table 8: Electricity Large Power User Consumption by Licensee in MWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	52,835	56,857	62,450	63,699	63,699	87,138	102,441	102,441	106,778	121,445	119,631	123,220
OPE	21,570	23,189	25,013	30,319	28,965	30,413	30,105	24,993	26,030	24,497	21,344	20,277
CENORED	39,321	40,028	23,075	22,431	22,762	25,727	24,598	25,635	24,835	31,635	34,861	34,861
ERONGO RED	150,492	130,117	154,934	154,934	169,026	177,716	175,570	174,471	173,835	181,393	189,342	196,870
Central Namibia	318,286	324,780	330,987	341,404	336,314	390,826	345,041	340,556	376,207	453,295	451,724	459,930
Southern Namibia	39,200	35,151	34,875	48,444	51,219	50,600	55,512	56,321	57,967	61,807	59,851	56,032

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NamPower DX	69,539	75,442	62,943	62,943	50,987	76,310	88,812	105,740	121,903	106,575	98,707	99,798

Table 9: Electricity Domestic Consumption per Customer by Licensee in MWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	2.69	2.85	2.66	2.74	2.77	2.70	2.92	2.93	3.13	3.46	3.61	2.60
OPE	3.28	2.97	2.41	2.66	3.57	3.60	3.74	3.91	3.64	3.46	40.4	4.13
CENORED	2.68	2.56	2.28	2.35	2.21	1.92	2.01	2.15	2.67	1.83	2.10	2.15
ERONGO RED	4.58	5.14	4.68	4.84	4.82	4.81	4.96	5.13	4.89	5.17	5.52	5.52
Central Namibia	5.90	5.81	5.86	5.78	5.89	6.28	6.33	6.22	5.99	5.92	6.15	6.13
Southern Namibia	2.95	3.07	3.01	2.83	2.54	2.79	3.03	2.78	2.60	2.52	2.96	2.82

Table 10: Electricity Commercial Consumption per Customer by Licensee in MWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	15.00	18.72	18.46	18.83	16.89	18.18	17.60	17.60	15.82	13.67	17.21	17.27
OPE	17.71	15.36	17.28	14.37	10.63	10.91	11.27	14.10	14.93	13.83	14.49	14.11
CENORED	23.65	19.36	22.27	21.44	18.95	19.25	20.52	22.98	22.09	21.24	22.16	22.00
ERONGO RED	20.76	19.82	21.49	21.48	20.23	20.43	18.50	19.29	18.23	18.64	17.07	17.19
Central Namibia	19.87	20.28	19.45	20.29	16.33	12.38	30.63	33.38	21.86	20.32	19.93	17.22
Southern Namibia	15.67	14.22	20.23	19.68	16.89	17.71	16.45	16.18	16.89	17.64	10.34	9.73
NamPower DX	26.68	26.63	26.21	26.21	26.93	28.00	28.31	29.82	29.31	24.91	25.28	25.23

Table 11: Electricity Large Power User Consumption per Customer by Licensee in MWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	174.95	182.82	195.16	199.06	179.43	245.46	243.91	243.91	201.85	229.57	172.13	176.03
OPE	347.90	362.33	403.43	466.45	445.62	447.25	436.30	454.42	482.04	453.65	368.00	375.50
CENORED	179.55	238.26	366.27	329.87	311.81	343.03	346.45	371.52	349.79	465.22	452.74	452.74
ERONGO RED	454.66	406.62	514.73	514.45	550.57	743.58	728.51	720.95	698.13	689.71	688.52	695.65
Central Namibia	409.11	382.54	440.73	490.52	341.78	390.83	394.78	388.32	363.84	486.37	519.22	519.69
Southern Namibia	422.79	361.14	348.75	610.90	415.40	318.04	250.62	209.77	205.93	187.66	177.98	174.95
NamPower DX	914.99	623.49	691.68	691.68	566.52	733.75	862.25	1007.05	1098.23	710.50	710.12	712.84

Table 12: Average Local Authority Surcharge (LAS) in Namibian cents per kWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	4.0	4.0	4.0	5.0	5.0	5.0	5.2	6.0	5.7	6.0	6.0	6.0
OPE	2.7	2.7	3.6	6.2	7.6	8.0	8.5	9.6	10.4	10.7	11.7	12.1
CENORED	16.1	17.0	15.1	15.1	14.9	14.8	14.5	13.5	13.8	14.4	12.8	12.9
ERONGO RED	15.3	15.4	14.0	14.0	12.6	12.2	6.0	5.8	5.7	5.6	6.3	6.1
Central Namibia	7.0	6.8	7.2	8.4	13.6	12.4	11.0	10.9	11.9	11.1	10.9	10.7
Southern Namibia	19.1	19.7	14.4	16.2	16.8	15.6	15.1	16.8	17.6	17.3	16.0	10.7

Table 13: Electricity Tariffs for Domestic Customers by Licensee in Namibian Cents per kWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	73	78	92	100	118	122	140	151	161	173	195	203
OPE	73	79	92	99	106	124	141	151	164	174	197	207
CENORED	96	102	123	140	158	166	175	183	186	188	188	200
ERONGO RED	78	91	104	124	152	179	172	180	192	198	200	209
Central Namibia	69	77	81	94	111	125	144	149	165	173	184	187
Southern Namibia	73	84	95	108	114	138	156	171	179	192	212	210

Table 14: Electricity Tariffs for Commercial Customers by Licensee in Namibian Cents per kWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	85	87	106	118	138	155	190	216	239	295	290	313
OPE	80	80	92	104	113	137	158	188	206	221	262	293
CENORED	83	105	110	131	156	186	205	226	250	251	284	311
ERONGO RED	81	108	113	134	146	142	185	207	233	253	283	310
Central Namibia	58	69	79	91	143	149	142	152	190	249	278	281
Southern Namibia	74	85	91	109	120	147	157	171	181	194	211	238
NamPower DX	58	67	78	78	95	120	143	160	186	219	242	248

Table 15: Electricity Tariffs for Large Power User Customers by Licensee in Namibian Cents per kWh

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	103	103	113	125	146	147	160	183	233	240	276	316
OPE	73	71	89	107	117	149	173	200	234	228	276	313
CENORED	79	94	91	119	138	171	187	215	251	249	271	291
ERONGO RED	62	72	77	93	112	132	165	184	208	232	258	288
Central Namibia	60	68	76	87	96	119	139	151	161	178	204	224
Southern Namibia	89	103	109	109	142	141	168	178	195	209	227	260
NamPower DX	49	83	76	76	99	104	124	133	132	183	235	250

Table 16: Average Monthly Bill for Domestic Customers in Namibian Dollars (N$)

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	162.66	186.42	204.31	228.07	271.71	274.43	341.15	368.95	419.66	500.62	584.81	438.98
OPE	199.75	194.20	184.73	219.58	315.31	372.07	438.54	492.19	498.59	501.18	663.24	713.55
CENORED	215.61	217.14	233.06	275.19	291.41	265.59	292.97	327.14	413.51	288.01	328.69	359.05
ERONGO RED	299.71	392.03	406.73	501.12	611.25	715.81	712.35	771.04	782.29	854.72	921.31	962.59
Central Namibia	339.93	374.01	393.83	454.18	545.76	653.43	757.11	774.64	823.09	855.51	944.64	957.53
Southern Namibia	179.21	213.69	237.35	254.24	240.43	320.66	394.13	395.19	388.53	402.34	523.74	493.17

Table 17: Average Monthly Bill for Commercial Customers in Namibian Dollars (N$)

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	1,067	1,359	1,632	1,852	1,936	2,355	2,789	3,169	3,157	3,364	4,164	4,512
OPE	1,174	1,029	1,321	1,244	1,005	1,246	1,485	2,212	2,564	2,552	3,165	3,444
CENORED	1,633	1,688	2,040	2,345	2,469	2,991	3,505	4,324	4,601	4,448	5,249	5,704
ERONGO RED	1,404	1,782	2,024	2,401	2,458	2,419	2,855	3,323	3,540	3,928	4,026	4,446
Central Namibia	963	1,160	1,278	1,531	1,944	1,537	3,615	4,220	3,462	4,220	4,614	4,033
Southern Namibia	967	1,012	1,527	1,784	1,691	2,167	2,153	2,311	2,554	2,849	1,818	1,925

Table 18: Average Monthly Bill for Large Power User Customers in Namibian Dollars (N$)

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	15,041	15,632	18,330	20,815	21,885	30,007	32,503	37,204	39,218	45,857	39,570	46,390
OPE	21,254	21,366	29,788	41,493	43,420	55,554	62,812	75,914	94,075	86,069	84,766	97,971
CENORED	11,839	18,738	27,847	32,723	35,856	48,853	54,080	66,679	73,257	96,410	102,311	109,809
ERONGO RED	23,371	24,380	33,063	40,007	51,516	81,497	99,899	110,317	121,120	133,098	148,306	167,083
Central Namibia	20,303	21,620	27,791	35,400	27,473	38,811	45,615	48,796	48,898	72,082	88,166	96,793
Southern Namibia	31,452	31,111	31,714	55,331	49,288	37,494	35,161	31,046	33,503	32,622	33,624	37,972

Table 19: Electricity Revenue Generated by Domestic Customers per Licensee in Million Namibian Dollars (N$)

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	52	67	81	100	130	142	195	248	282	336	393	421
OPE	8	7	7	8	12	14	18	29	30	35	47	51
CENORED	32	35	43	52	62	70	78	87	109	104	110	122
ERONGO RED	95	135	154	183	228	268	266	294	314	343	355	419
Central Namibia	217	252	266	326	389	460	551	577	648	689	746	782
Southern Namibia	35	43	51	58	64	90	113	122	126	140	188	180
Total	**438**	**539**	**602**	**727**	**885**	**1,044**	**1,221**	**1,356**	**1,509**	**1,647**	**1,839**	**1975**

Table 20: Electricity Revenue Generated by Commercial Customers per Licensee in Million Namibian Dollars (N$)

Licensee	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NORED	21	26	32	36	44	53	64	73	87	93	129	144
OPE	6	7	11	13	11	14	18	12	14	15	18	21
CENORED	43	54	49	60	70	84	100	118	126	138	154	169
ERONGO RED	24	26	33	39	83	84	103	121	136	149	163	184
Central Namibia	51	60	84	101	144	140	339	370	245	286	303	310
Southern Namibia	22	25	30	31	33	41	43	46	51	56	81	88
NamPower DX	29	42	48	48	61	87	103	119	139	149	168	174
Total	**196**	**240**	**286**	**328**	**447**	**505**	**770**	**859**	**798**	**885**	**1,016**	**1,091**

NOTES

NOTES

ESI STATISTICAL BULLETIN

INDEPENDENT POWER PRODUCERS **(IPPS)** IN NAMIBIA

2017