



## **PORTFOLIO COMMITTEE MEETING**

### **Investment & Infrastructure**

## **A G E N D A**

**THE PORTFOLIO COMMITTEE MEETING OF 5 APRIL 2023  
WAS CANCELLED AND  
THE ITEMS WILL BE DEALT WITH AT THE  
MAYORAL COMMITTEE MEETING OF  
24 APRIL 2023**

**PORTFOLIO COMMITTEE :**

**INVESTMENT & INFRASTRUCTURE**

**Chairperson :**

**Cllr C Lerm**

**Committee Members :**

**Cllr M Nomatiti, Ald R de Coning,  
Cllrs M Sihlahla & V Bandeza**

# INVESTMENT & INFRASTRUCTURE PORTFOLIO COMMITTEE

5 April 2023

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5 April 2023  
(Also the agenda for the Mayoral Committee Meeting : 24 April 2023)**

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**1.  
OVERSTRAND MUNICIPALITY: COST OF SUPPLY STUDY**

**SU Muller  
7 March 2023**

**Director: Infrastructure and Planning**

**(028) 313 8019**

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**1. Executive Summary**

The purpose of this report is to provide the necessary information and motivation regarding the Cost of Supply (CoS) study undertaken by Overstrand Municipality and the proposed electricity tariff changes and implementation as detailed in the report.

As described in the guidelines of the National Energy Regulator of South Africa (NERSA), a CoS study is one of the most important considerations in establishing and designing electricity tariffs that are implemented to provide the service required by customers and recover costs incurred by the municipality.

The objective of the CoS study is to apportion all costs required to service customers among each customer class in a fair and equitable manner, thereby developing cost reflective tariffs.

**2. Service Delivery and Budget Implementation Plan - IGNITE**

Directorate of Infrastructure and Planning  
Electrical Services

**3. Compliance with Strategic Priorities**

Provision of democratic, accountable and ethical governance  
Provision and maintenance of municipal services  
Creation and maintenance of a safe and healthy environment  
Promotion of tourism, economic and social development

**4. Delegated Authority**

None

**5. Legal Requirements**

Electricity Regulation Act (Act 4 of 2006), ERA  
EPP, Electricity Pricing Policy, 1998 (GG No. 31741 of 19 December 1998)

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## **6. Background/Discussion/Evaluation/Conclusion**

### **Background**

The National Energy Regulator (NERSA) is a regulatory authority established in Terms of Section 3 of the National Energy Regulator Act, 2004 (Act No 40 of 2004). NERSA's mandate includes regulation of the electricity supply industry. According to Section 4(ii) of the Electricity Regulation Act, 2006 (Act No 4 of 2006), the Energy Regulator must regulate electricity prices and tariffs.

Policy position 23 of the Electricity Pricing Policy, 1998 (GG No. 31741 of 19 December 1998) states the following:

*“Electricity distributors shall undertake Cost of Supply (CoS) studies at least every five years, but at least when significant licensee structure changes occur, such as in customer base, relationships between cost components and sales volumes. This must be done according to the approved National Energy Regulator of South Africa (NERSA or ‘the Energy Regulator’) standard to reflect changing costs and customer behaviour”.*

NERSA requires the following regarding municipal tariffs for electricity:

- It should be in line with the NERSA Electricity Pricing Policy
- All tariffs must be set as close as possible to the cost of supply
- All small customers (domestic and business) should have fully cost reflective tariffs, with the following structure:
  - A basic charge to reflect the fixed metering, billing, revenue collection and customer services cost
  - A capacity charge based on the installed/limited capacity of the customer
  - An energy charge that covers the full energy cost, losses and surplus requirement.
- All large customers should be charged a Time of Use (ToU) tariff with structure and slots as per the Eskom Megaflex tariff applicable to the Overstrand area.

### **Discussion**

To assist municipalities to take advantage of new regulatory requirements and changes in customer behaviour, the Provincial Government of the Western Cape initiated the Municipal Energy Resilience Project (MER).

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The MER is an initiative of the Green Economy Unit of the Department of Economic Development and Tourism (DEDAT).

The project provided municipalities with the opportunity to apply for funding to conduct CoS studies, Integrated Resource Plans and Grid Capacity Connection studies.

The Overstrand Municipality is one of six municipalities in the Western Cape selected to take part in this project and received funding to complete a CoS study.

Overstrand Municipality commissioned a comprehensive electricity pricing study with the following three components:

- Ringfencing electricity. The key objective of this part is to establish the true cost and revenue of electricity supply in the municipality.
- The Cost of Supply study. The objective of the CoS study is to know the cost of supplying customers on each tariff and to compare this with the revenue from the current tariffs and thus the cross-subsidies.
- Tariff study. The final step is to analyse the structure of the tariffs and how it differs from the cost structures and identify the cross-subsidies withing the tariffs and then to provide new tariffs.

Neil Lyners & Associates was appointed by Overstrand Municipality in March 2022 to do a CoS study and to develop cost reflective electricity tariffs for implementation in the 2023/24 financial year.

The study was done with the assistance of energy specialist Hendrik Barnard (of the company Elexpert) who is a national energy expert on CoS Studies and Electricity Tariffs.

The study supplies detailed information on the following:

- The real cost of supplying different customers,
- The difference between costs and current tariffs and thus subsidies applied, and
- The cost of various activities such as purchases, network and customer services, personnel costs, etc.

This information is used to develop the following:

- Formulate a pricing policy in view of the new information obtained,
- Change tariffs to comply with the new policy set,

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- Formulate specific strategies of addressing cross-subsidies,
- Develop management practices to address the high-cost items,
- Develop marketing strategies to target opportunities offered by different tariffs.
- Develop strategies which will facilitate the introduction of customer choice, and
- Develop pricing strategies to integrate renewable energy into the system.

### **Evaluation**

The study proposes the following:

- Indigent customers must apply, and if qualified, will receive a subsidy covering the basic charge, capacity charge for 30 Amps, and Free Basic Electricity as prescribed in the municipality's Indigent Policy. The subsidy will be offset by the Equitable Share Grant received from the central government.
- All small customers (domestic and business) should have fully cost reflective tariffs, with the following structure:
  - A basic charge to reflect the fixed metering, billing, revenue collection and customer services cost
  - A capacity charge based on the installed/limited capacity of the customer
  - An energy charge that covers the full energy cost, losses and surplus requirement.
- All large customers should be charged a Time of Use (ToU) tariff with structure and slots as per the Eskom Megaflex tariff applicable to the Overstrand area.
- Due to comprehensive nature of the tariff reforms, it is recommended that the proposed recommendations be phased in over 4 years.

The CoS and Tariff Study report was workshopped by the Budget-, Finance- and Electricity Departments. The original recommendation for full implementation was evaluated during subsequent workshops, followed by considerations and recommendations to the Consultant to review proposals to allow a 3 year implementation strategy. This still resulted in steep increases in some instances. The current position represents a 4 year phased approach. The comments were considered by the consultant and incorporated in the final document for submission to Council and NERSA. The Overstrand Cost of Supply and Tariff Study Executive Summary are attached as Annexure A and Annexure B respectively.

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## **Conclusion**

The detailed Ringfencing, Cost of Supply and Pricing Study found that, to comply with legislation and the requirements of NERSA, the following should be implemented:

- Simplifying subsidies for indigent customers,
- Phasing out of the inclined block tariff for electrical energy and replacing it ultimately with a flat rate,
- Phasing in a Capacity Charge to enable consumers to choose the most appropriate and cost-effective electrical capacity connection they require, and
- Large consumers should be charged a Time of Use (ToU) tariff with structure and slots as per the Eskom Megaflex tariff applicable to the Overstrand area. This tariff allows for High- and Low Seasons as well as Peak, Standard and Off-Peak periods.

The proposed tariff structure changes might have a marked impact on certain customers, depending on their energy capacity requirements and consumption levels. For this reason, following is proposed:

- That the changes be phased in evenly over a four-year period, and
- Due to the current high tariff increases approved for Eskom, the severe load shedding regime currently being implemented, the declaration of a state of energy supply in the country as a disaster, and the general unfavourable economic conditions in the country, that the implementation of the findings of the CoS study be postponed by one year, therefore starting from 1<sup>st</sup> July 2024.

It is proposed that the Council approve the CoS and Tariff Study, and that the same be submitted to NERSA for approval.

## **7. Financial Implications**

Basis: Revenue in accordance with annual approved tariffs.

## **8. Staff Implications**

None

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**9. Comments from other Departments, Divisions and Administrations**

**Electrical Department:** Managers: D Maree (Gansbaai and Stanford) and K du Plessis (Hermanus and Kleinmond).

The Electrical Department supports the changes to the tariff structure being considered by the municipality.

**10. Annexures**

Annexure A: Overstrand Cost of Supply Study

Annexure B: Tariff Study Executive Summary

**RECOMMENDATION TO THE COUNCIL:**

1. that the support received from the Provincial Department of Economic Development and Tourism through the Municipal Energy Resilience Project (MER) **be noted**;
2. that the implementation by the Municipality of the changes to the electricity tariff structure, as advised in the Cost of Supply study, subject to NERSA approval; **be approved**;
3. that these changes be phased in over a period of four years;
4. that the implementation of the new tariff structure be postponed for one year, therefore starting from 1<sup>st</sup> July 2024; and
5. that the Overstrand Cost of Supply and Tariff study be submitted to NERSA for approval.

**RESPONSIBLE OFFICIAL :**

**S MULLER  
S REYNEKE-NAUDÉ**

**TARGET DATE FOR IMPLEMENTATION :**

**1 JULY 2023**

# OVERSTRAND MUNICIPALITY



## ELECTRICITY COST OF SUPPLY STUDY FOR OVERSTRAND MUNICIPALITY AS PER THE REQUIREMENTS OF NERSA

(Project Ref. No 22014E)

JANUARY 2023

Compiled for :

Overstrand Municipality  
PO Box 20  
Hermanus  
7200

Compiled by :



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**REPORT DETAILS :**

**Lyners Reference No:** 22014E  
**Client:** Overstrand Municipality  
**Report prepared by:** Theo Potgieter / Hendrik Barnard  
**Client representative:** Koos du Plessis / Marissa Radyn  
**Keywords:** Cost of Supply, Tariffs

**Revision record and date:** Final Rev 2 – January 2023

Date	Revision	Status	Format	Issued to:
June 2022	Draft	Draft	Pdf	K du Plessis
August 2022	1	Final	pdf	M Radyn
January 2023	2	Final	pdf	M Radyn

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Lyners, its members and staff accept no responsibility for :

- Correctness of the information provided.
- Any matters outside the agreed scope of work.

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## EXECUTIVE SUMMARY

As described in the guidelines of the National Energy Regulator of South Africa (NERSA), a Cost of Supply (COS) study is one of the most important considerations in establishing and designing electricity rates that are implemented to provide the service required by customers and recover costs incurred by the municipality. The objective of COS study is to apportion all costs required to service customers among each customer class in a fair and equitable manner, thereby developing cost reflective tariffs.

This will enable the municipality to gain the following knowledge :

- The real cost of supplying different customers
- The difference between costs and tariffs and thus subsidies applied
- The costs of various activities such as purchases, network and customer services, personnel costs etc

This knowledge will empower the municipality then to :

- Formulate pricing policy in view of the new information obtained
- Change tariffs to comply with the new policy set
- Formulate specific strategies of addressing cross-subsidies
- Develop management practices to address the high cost items
- Develop marketing strategies to target opportunities offered by different tariffs
- Develop strategies which will facilitate the introduction of customer choice
- Develop pricing strategies to integrate renewable energy into the system

Neil Lyners & Associates was appointed by Overstrand Municipality in March 2022 to do the above Cost of Supply Study and to develop cost reflective electricity tariffs for implementation in the 2023/24 financial year.

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## 1. INTRODUCTION.

Overstrand Municipality (Overstrand) sanctioned a comprehensive electricity pricing study which contains 3 main components :

- Ringfencing electricity. The key objective of this part of the study is to establish the true cost and revenue of electricity supply in the municipality.
- The Cost of Supply study. The objective of the cost of supply study is to know the cost of supplying customers on each tariff and to compare this with the revenue from current tariffs and thus the cross-subsidies.
- Tariff study. The final step is to analyse the structure of the tariffs and how it differs from the cost structures and identify the cross subsidies within the tariffs and then to propose new tariffs.

This paper describes the details relating to all three components of the study undertaken for Overstrand Municipality. It contains the detailed results for the whole area.

## 2. INITIAL ASSESMENT

This section summarises the findings in terms of the existing tariffs and related issues. This was determined through analysis of the existing tariffs and discussions with electricity staff:

### 2.1 Non approved charges.

- The current Infrastructure Charge per Meter per month is not included in any of the tariff rates and as a separate rate is not approved by NERSA.
- The Exceeding notified maximum demand charge is not approved by NERSA.

### 2.2 Non-Cost reflectiveness.

- The TOU tariffs do not contain the seasonal difference and is thus very un-cost reflective as electricity is sold in High Demand periods at a loss and during Low demand periods with a very high margin.
- The domestic tariffs with inclining block rates, no capacity charges, are very un-cost reflective and causing massive price distortions and inflated incentives for consumers to install renewable energy thus causing big revenue losses.

### 2.3 Assistance to poor consumers

The assistance to poor consumers is not clearly described in the Indigent Policy or the Tariff Policy or tariff schedule: It can be described as follows:

- Cat A. Consumers qualifying as indigents Cat A:
  - They are charged the standard domestic tariff with infrastructure, basic and IBT energy charges.
  - They then get the full basic charge and 50 kWh for free.
  - They still pay the infrastructure charge.
- Cat B. Consumers qualifying as indigents Cat B: (phased out in 2022/2023)
  - They are charged the standard domestic tariff with infrastructure, basic and IBT energy charges.
  - They then get a portion of the basic charge and 50 kWh for free.
  - They still pay the infrastructure charge.

This is confusing as staff indicate that they get the full basic charge for free.

It is also confusing as it seems like the criteria is more stringent than Cat A.

The Indigent Policy states that these consumers have to apply to get the 50 kWh/m for free and thus it would constitute a separate category.

- Cat C & D. Consumers qualifying as indigents Cat C & D: (phased out in 2022/2023)
  - They receive no electricity subsidies.
 Then there are clearly subsidised tariffs not covered in the indigent policy:
- 1- part Life Line (Pre-paid)  $\leq 30$  Amp  $\leq 350$  kWh/m (12 months). Informal dwellings.
  - In this case there is no basic charge and the same rate as for cat 1 and 2 is applied as energy rate up to 350 kWh/m.

This tariff is applied in three different ways as per the sales reports:

- E1DI Single Phase Life Line Indigent Temporary Structure

- These consumers don't pay any basic but the "apparent" lost revenue is not covered by the equitable share.
- They pay the infrastructure charge on a daily basis.
- According to staff this first 50 kWh/m is for free but the lost revenue is not covered by the equitable share. The sales reports indicate FBE.
- E1DI Single Phase Life Line and E1e1 Led Projects
  - These consumers don't pay any basic but the "apparent" lost revenue is not covered by the equitable share.
  - They pay the infrastructure charge on a daily basis.
  - They do not receive any FBE.

It is thus clear that there is a very unclear subsidisation of poor consumers, some from the equitable share and others not.

The assessment of the equitable share according to the statements above is shown in Table 1 below.

**Table 1**

TARIFF	CUSTOMERS	FBE KWH	BASIC CHARGE SUBSIDY	ENERGY CHARGE	TOTAL BASIC SUBSIDY	TOTAL UNITS SUBSIDY	TOTAL FBE SUBSIDY
Residential Indigent as per paragraph A of the Indigent Policy per meter	3 907.00	2 143 000.00	358.20	126.24	16 700 080.80	2 705 323.20	19 405 404.00
Residential Indigent minder as R100 000 No 50 FBE	3 032.00		291.60	126.24	10 609 574.40	-	10 609 574.40
Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	148.00		291.60	126.24	517 881.60	-	517 881.60
E1DI SINGLE PHASE LIFE LINE	48.00		291.60	126.24	167 961.60	-	167 961.60
E1DI SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	2 449.00	1 321 100.00		127.62	-	1 685 987.82	1 685 987.82
E1E1 LED PROJECTS	112.00			127.62	-	-	-
<b>GRAND TOTAL</b>	<b>9 696.00</b>	<b>3 464 100.00</b>	<b>1 231.00</b>	<b>760.20</b>	<b>27 995 498.40</b>	<b>4 391 311.02</b>	<b>32 386 808.42</b>
						Trail Balance	- 31 660 837.00
						Diff	725 972.42
							-2%

### 3. METHODOLOGY SUMMARY

The NERSA cost of supply Framework describes the steps as shown in **Figure 1**. It is considered to be an oversimplification and does not cover all aspects.

**Figure 1**

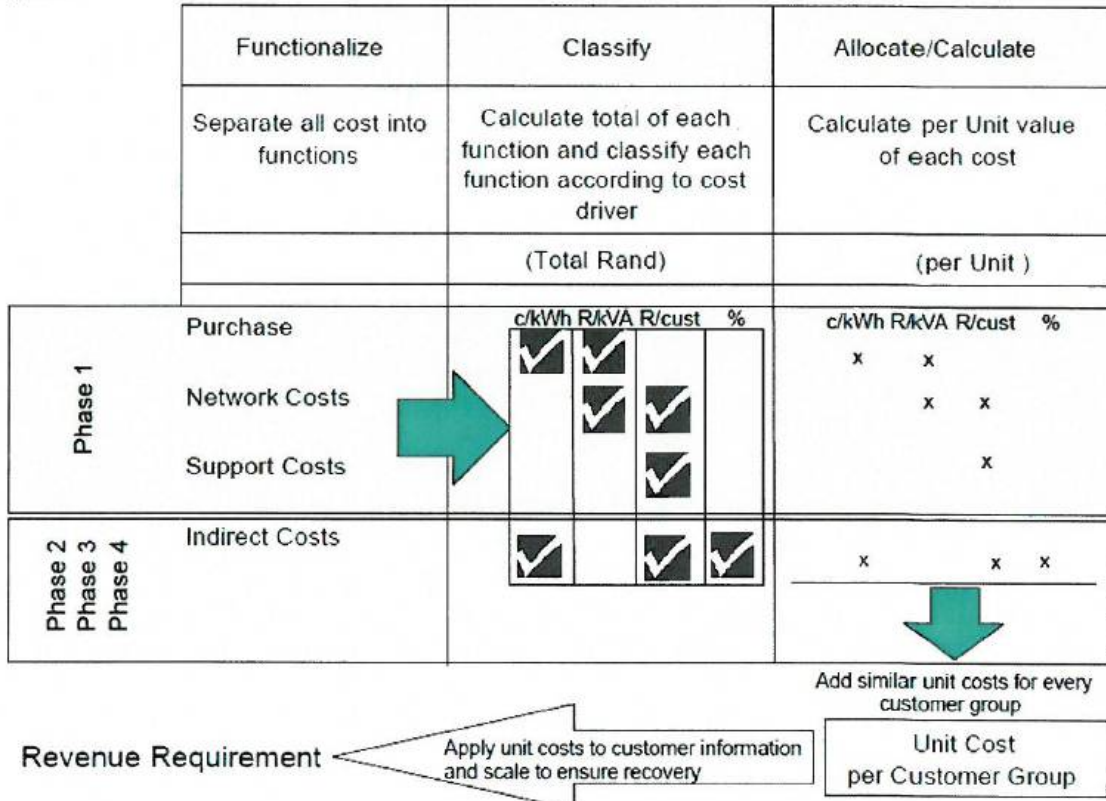


NRS058, the National Standard Specification "Cost of Supply Methodology for application in the Electrical Distribution Industry", which was developed many years ago but never received final approval due to a legal dispute, shows the framework as in the

**Figure 2.**

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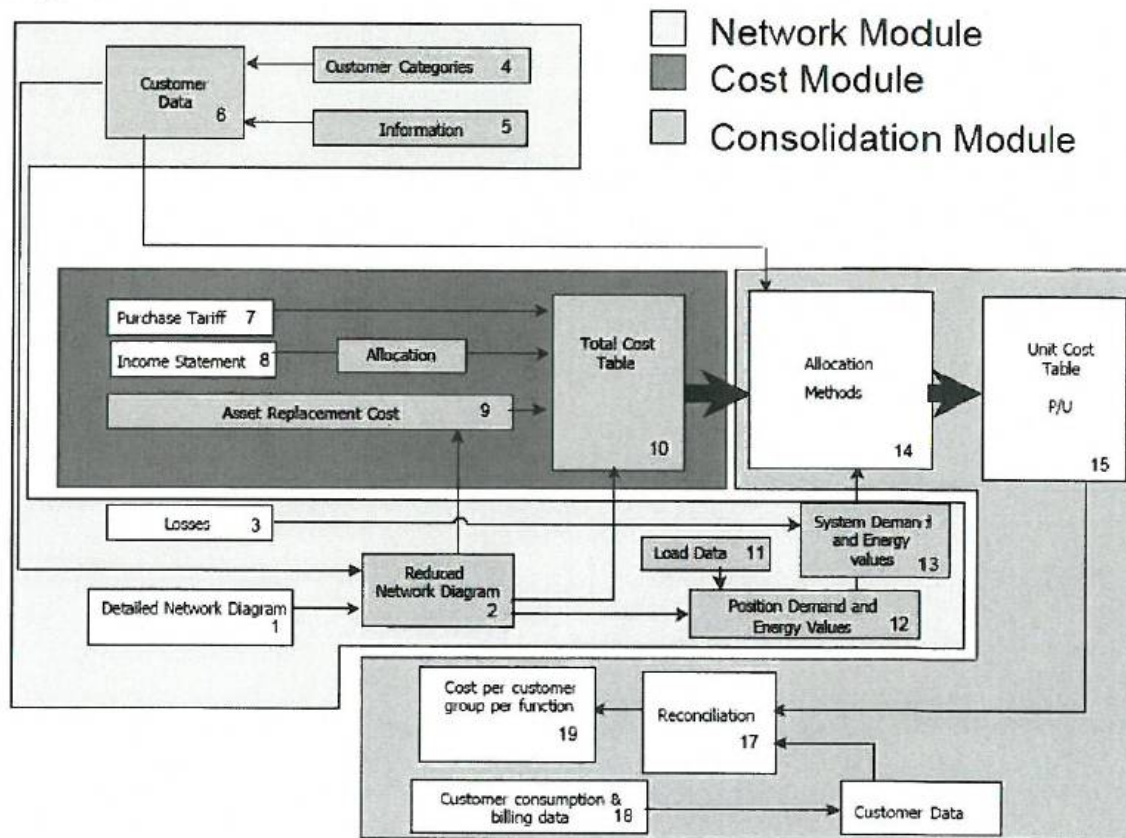
Figure 2



Later in the NRS058 standard, a procedure diagram is provided as is shown in

Figure 3. The NERSA framework does not feature any of these very important steps.

Figure 3



This report will thus follow the NERSA framework, but it must be realised that it is an over implication of a much more complex process and thus feature many more steps. It must also be remembered that NRS058 was developed largely by an Eskom employee who only undertook cost of supply in Eskom. The issues of ring-fencing of electricity from the rest of the municipality do thus not feature in NRS058. For a proper study, Ringfencing must be done.

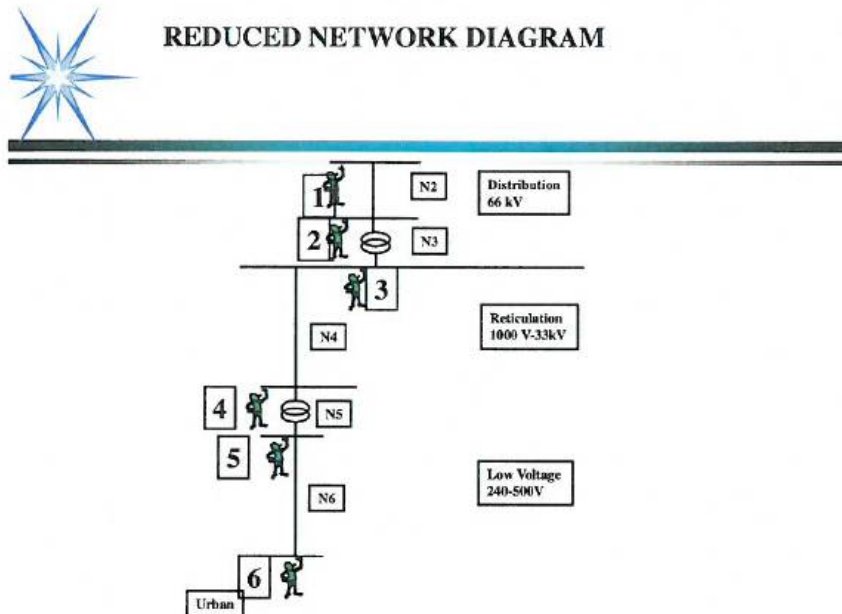
It is however proposed that anybody who really wants to appreciate the complexity of this cost of supply study should read the Interim NRS058 before reading this report.

Before starting with the ringfencing study, some background calculations need to be done as detailed in the next few sections.

#### 4. NETWORK CAPITAL COST ANALYSIS

The first step in analysing network assets is to develop a Reduced network diagram (RND). **Figure 4** illustrates this for the Overstrand network. Most rural supplies in the area are provided by Eskom.

Figure 4



**Table 2** shows the RND in table form. All costs and customers will be linked to these networks in the cost of supply study.

Table 2

OVERSTRAND			
			Table 1
NETWORK CONSTRUCTION			
PRIMARY DESCRIPTION	SECONDARY DESCRIPTION	NETWORK CODE	VOLTAGE
Distribution	LG Distribution	N2	66 KV
Distribution/retic transf	Distribution subs	N3	66 to 11 KV
Reticulation	Reticulation urban	N4	11 KV
Retic/LV transf	Retic subs urban	N5	11 KV to 400 V
LV	LV urban	N6	400 V

The following comments in this respect:

- Overstrand buys all its power from Eskom at various 66kV and 11kV intake points.

The detailed electricity asset register, which contains replacement values, was studied. It even contains LV network costs not usually found in these registers.

- The replacement values were determined as follows:
  - The replacement values are stated in 2016 Rand values. These were escalated to 2022 values.
  - These values were compared with replacement values from some other municipalities and found to be a fair representation of the true value.

Details of the calculations are shown in the tables below.

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An extract of NERSA technical D-form is shown in **Table 3** below. The quantities tie up with the asset register quantities.

**Table 3** Error! Reference source not found.

Category of network			Circuit length (KM) [3]				Transformers installed capacity [1]		
			Total O/H lines		Total Cables		Number	Total (MVA)	
LV Supply	Supply voltage < 1kV	Domestic	81.48	km	291.02	km	Type here	Type here	MVA
		Commercial/small to medium industrial	Type here	km	Type here	km	Type here	Type here	MVA
	≥ 1kV and ≤ 22kV	Rural overhead up to 22kV	64.86	km	232.95	km	498.00	181.46	MVA
MV Supply	Supply voltage > 22 kV to ≤ 44 kV		Type here	km	Type here	km			MVA
	> 44 kV to ≤ 132kV		Type here	km	24.70	km	1.00	20.00	MVA
HV Supply	> 132 kV		Type here	km	Type here	km			MVA
<b>Total</b>			<b>146.33</b>	km	<b>548.67</b>	km	<b>499.00</b>	<b>201.46</b>	MVA

The detailed asset register is shown in Table 4 below

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**Table 4**  
NETWORK ASSET REGISTER

ENERGY		Unit replacement cost		Unit replacement c	
		2016		2022	
<b>HV</b>					
<b>HV FEEDERS</b>		Data			
Asset Description		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
HV UNDERGROUND 66KV		1		0	
HV UNDERGROUND 66KV 400MM AL		6		0	
<b>HV/MV</b>					
<b>Substation building</b>		Data			
Size		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
0		1		0	
300		4		0	
630		1		0	
GROUND MOUNTED 66KV 20 000KVA		1		0	
<b>MV</b>					
<b>SCADA</b>		Data			
Asset Description		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
SUBSTATION TELEMETRY		11	566267.57		0
<b>RMU</b>		Data			
Asset Description		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
RING MAIN UNIT 11KV		4		0	
RING MAIN UNIT 11KV 11 5KV 6A		1	151340.66		0
RING MAIN UNIT 11KV 11KV 630A		6	271649.36		0
RING MAIN UNIT 11KV 630A 2 WAY WITH METERING UNIT		1	295804.92		0
RING MAIN UNIT 11KV 630A 3 WAY		23	143750		0
RING MAIN UNIT 11KV 630A 3 WAY WITH METERING UNIT		5			0
RING MAIN UNIT 11KV 630A 4 WAY		3	220000		0
RING MAIN UNIT 11KV 630A 5 WAY		1			0
RING MAIN UNIT 11KV WITH METERING UNIT		4	1270000	380000	95000
(blank)		1			0
<b>SWITCHGEAR</b>		Data			
Asset Description		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
SWITCHING STATION HV SWITCHGEAR 66KV		3	0		0
SWITCHING STATION MV SWITCHGEAR 11KV		91	3803909		0
SWITCHING STATION MV SWITCHGEAR 11KV SINGLE BUS BAR 1250A		39	0		0
SWITCHING STATION MV SWITCHGEAR 11KV SINGLE BUS BAR 630A		4	0		0
(blank)		6			0
<b>SWITCHGEAR</b>		Total			
Group ID					
FAR SWITCHES 0		10			
FAR SWITCHES 1		17			
FAR SWITCHES 2		6			
FAR SWITCHES 3		5			
FAR SWITCHES 4		7			
FAR SWITCHES 5		6			
FAR SWITCHES 6		12			
FAR SWITCHES 7		4			
FAR YARD 001		10			
(blank)		5			
<b>SECTIONALISER</b>		Data			
Asset Description		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
SECTIONALISER		5	960000		0
SECTIONALISER AIR SWITCH		5			0
SECTIONALISER DROP OUT FUSE		1			0
SECTIONALISER LINE LINK		1			0
<b>SECTIONALISER</b>		Count of OBJECTID			
Name		Total			
MARKET SQUARE RMU		1			
<b>SECTIONALISER RMU</b>		Total			
Rated Current					
630A		4			
<b>RMU</b>		Total			
Asset Description					
RING MAIN UNIT 11KV 630 4 WAY		1			
RING MAIN UNIT 11KV 630A		1			
RING MAIN UNIT 11KV 630A 3 WAY		9			
RING MAIN UNIT 11KV 630A 3 WAY WITH METERING UNIT		3			
RING MAIN UNIT 11KV WITH METERING UNIT		1			
<b>MV FEEDERS</b>		Data			
Asset Description	Sum of Shape Length	Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
MV OVERHEAD 35MM ABC 135A	124.7776173	4	50457.34		
MV OVERHEAD 50MM ABC 170A	1109.636629	13	1586370.96		
MV OVERHEAD 70MM ABC 210A	3321.756361	31	1484664		
MV OVERHEAD 70MM CU OH 380A	1736.643333	5			
MV OVERHEAD 95MM ABC 260A	1670.266576	19	195020		
MV OVERHEAD OAK 359A	3312.267444	1			
MV UNDERGROUND 120MM <sup>2</sup> SCORE PILC CU 270A	35620.26782	91	6997717.61		0
MV UNDERGROUND 160MM <sup>2</sup> SCORE PILC CU 85A	22.14211354	1			
MV UNDERGROUND 185MM <sup>2</sup> SCORE PILC CU 340A	16125.56916	32	1535666.35		
MV UNDERGROUND 250MM <sup>2</sup> SCORE PILC CU 115A	1693.47404	8			
MV UNDERGROUND 300MM <sup>2</sup> SCORE PILC AL 345A	36.5961394	2			
MV UNDERGROUND 35MM ABC 135A	160.4502966	1	112899.27		
MV UNDERGROUND 35MM <sup>2</sup> SCORE PILC CU 140A	6035.969195	20	12797740.12		
MV UNDERGROUND 50MM <sup>2</sup> SCORE PILC AL 125A	1447.359419	2			
MV UNDERGROUND 50MM <sup>2</sup> SCORE PILC CU 160A	5918.933713	42	64651.4		
MV UNDERGROUND 630MM SINGLE CORE CU 780A	65.24102425	1			
MV UNDERGROUND 70MM <sup>2</sup> SCORE PILC AL 155A	2900.417767	14			
MV UNDERGROUND 70MM <sup>2</sup> SCORE PILC CU 200A	43950.25457	172	6854120.621		0
MV UNDERGROUND 70MM <sup>2</sup> SCORE XLPE CU 240A	376.8618747	3	178336.53		
MV UNDERGROUND 95MM <sup>2</sup> SCORE PILC AL 185A	8790.981977	30			0
MV UNDERGROUND 95MM <sup>2</sup> SCORE PILC CU 240A	18969.96878	59	1238621.34		
(blank)	268.9183403	2			

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MV FEEDERS		Data			
Asset Description	Sum of Shape Length	Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
MV OVERHEAD 11KV 16MM CU OH (150A)	732.6806121	4	180179.349	157721.9792	215.27
MV OVERHEAD 11KV 25MM AL OH (144A)	1608.381562	6	412810.569	26924.31465	16.74
MV OVERHEAD 11KV 25MM CU OH (210A)	3392.638892	11	683178.999	1069596.592	312.82
MV OVERHEAD 11KV 35MM CU OH (250A)	2960.029423	7	918967.669	1527375.183	516.00
MV OVERHEAD 11KV 50MM ABC (170A)	699.3318578	5	273166.847	156834.2650	228.55
MV OVERHEAD 11KV 63MM CU OH (360A)	3168.15239	7	1347814.759	2661762.054	933.30
MV OVERHEAD 11KV FOX 35.68MM AL (190A)	5782.192371	19	1671429.489	167876.4569	17.16
MV OVERHEAD 11KV MINK 63.13MM AL (260A)	2681.479542	17	205785.788	111318.2671	38.63
MV OVERHEAD 11KV OAK 118.9MM AL (359A)	26146.44473	40	8015067.498	1667084.913	59.94
MV UNDERGROUND 11KV	192.8928413	1			
MV UNDERGROUND 11KV 16MMX3CORE PILC CU (85A)	263.9047319	2	153007.251	147012.1689	600.20
MV UNDERGROUND 11KV 185MMX3CORE PILC CU (340A)	13451.83828	6	25494530.46	22428472.54	1667.32
MV UNDERGROUND 11KV 25MMX3CORE PILC CU (115A)	3829.969847	27	2282226.699	1918893.739	501.02
MV UNDERGROUND 11KV 35MMX3CORE PILC CU (140A)	6461.107436	30	4235340.9	3253084.914	503.49
MV UNDERGROUND 11KV 40MM SINGLE CORE CU (540A)	600.1379142	12	1264763.608	399175.7323	665.14
MV UNDERGROUND 11KV 50MMX3CORE PILC CU (160A)	4415.832973	23	3267057.162	2843432.915	643.92
MV UNDERGROUND 11KV 50MMX3CORE XLPE CU (200A)	1303.19736	8	905866.115	603262.1808	463.98
MV UNDERGROUND 11KV 70MMX3CORE XLPE CU (200A)	36299.53085	116	329051592.3	28949217.493	739.66
MV UNDERGROUND 11KV 70MMX3CORE XLPE CU (240A)	41.35139101	3	25025.408	24138.92141	563.61
MV UNDERGROUND 11KV 95MMX3CORE PILC AL (165A)	830.0968953	1	530152.903	464057.3518	553.04
MV UNDERGROUND 11KV 95MMX3CORE PILC CU (240A)	25080.28211	48	29051499.25	21807461.23	873.49
(blank)	622.3810894	1			
	146790.8613		151635.8278		
<b>MV/LV</b>					
<b>TRANSFORMERS</b>					
Asset Description		Data			
		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
GROUND MOUNTED 11KV 100KVA		2		39035	19 517.50
GROUND MOUNTED 11KV 300KVA		4			
GROUND MOUNTED 11KV 315KVA		1			
GROUND MOUNTED 11KV 500KVA		1	336258		
GROUND MOUNTED 11KV 630KVA		2			
GROUND MOUNTED 11KV 800KVA		1	210175		
POLE MOUNTED 11KV 100KVA		3	67966		
POLE MOUNTED 11KV 160KVA		2			
POLE MOUNTED 11KV 200KVA		45	1170205.51		
POLE MOUNTED 11KV 250KVA		1			
POLE MOUNTED 11KV 315KVA		1			
POLE MOUNTED 11KV 500KVA		2			
POLE MOUNTED 11KV 630KVA		1			
PoleMounted 11KV 200KVA		7	332896.35		
(blank)		3			
<b>TRANSFORMERS</b>					
Asset Description		Data			
		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
GROUND MOUNTED 11KV 100KVA		6	336308	330394.24	55 064.04
GROUND MOUNTED 11KV 200KVA		4	570926	317874.44	79 418.61
GROUND MOUNTED 11KV 250KVA		1	118908	89130.43	86 130.43
GROUND MOUNTED 11KV 25KVA		4	227362	107330.64	26 832.66
GROUND MOUNTED 11KV 315KVA		1	138645	139000	139 000.00
GROUND MOUNTED 11KV 400KVA		1		79418.61	79 418.61
GROUND MOUNTED 11KV 500KVA		1	221417	79418.61	79 418.61
GROUND MOUNTED 11KV 50KVA		4	295862	167425.01	41 856.25
POLE MOUNTED 11KV		1			
POLE MOUNTED 11KV 100KVA		12	908928.94	450640.4	37 553.37
POLE MOUNTED 11KV 16KVA		10	245070.95	81159.4	8 115.94
POLE MOUNTED 11KV 200KVA		2	108098	138837.22	69 418.61
POLE MOUNTED 11KV 25KVA		13	687153.15	262732.75	20 210.21
POLE MOUNTED 11KV 50KVA		18	829961.61	330647.86	18 369.33
(blank)		1	130390.93	130390.93	130 390.93
<b>MINI SUBS</b>					
Asset Description		Data			
		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
MINI SUB STATION 11KV 200KVA		1			
MINI SUB STATION WITH RMU 11KV 1000KVA		1			
MINI SUB STATION WITH RMU 11KV 150KVA		2			
MINI SUB STATION WITH RMU 11KV 160KVA		2			
MINI SUB STATION WITH RMU 11KV 200KVA		9	297900		
MINI SUB STATION WITH RMU 11KV 250KVA		1			
MINI SUB STATION WITH RMU 11KV 300KVA		1			
MINI SUB STATION WITH RMU 11KV 315KVA		65	3331688.89		
MINI SUB STATION WITH RMU 11KV 400KVA		8			
MINI SUB STATION WITH RMU 11KV 500KVA		65	5914301.63		
MINI SUB STATION WITH RMU 11KV 630KVA		23	547420.43		
MINI SUB STATION WITH RMU 11KV 800KVA		6	800062.36		
MINI SUB STATION WITH RMU 160KVA		1			
MINI SUB STATION WITH RMU 200KVA		3			
MINI SUB STATION WITH RMU 315KVA		17	350000		
MINI SUB STATION WITH RMU 400KVA		5			
MINI SUB STATION WITH RMU 500KVA		15			
MINI SUB STATION WITH RMU 630KVA		10	1058580.36		
MINI SUB STATION WITHOUT RMU 500KVA		1			
WITH RMU 11KV 315KVA		1	293723.96		
(blank)		5			
<b>MINI SUBS</b>					
Asset Description		Data			
		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
MINI SUB STATION 11KV 1000KVA		1	663664	470000	470 000.00
MINI SUB STATION 11KV 200KVA		9	2406366	2700000	300 000.00
MINI SUB STATION 11KV 315KVA		32	11448387.91	10710000	334 987.50
MINI SUB STATION 11KV 400KVA		19	7388655	6460000	340 000.00
MINI SUB STATION 11KV 500KVA		73	31638161.2	34890000	477 945.21
MINI SUB STATION 11KV 630KVA		5	2463132.1	1935000	387 000.00
MINI SUB STATION 11KV 800KVA		1	854765.42	390000	390 000.00
(blank)		1	372600	372600	372 600.00
<b>MV SWITCHING STATION BUILDING</b>					
Asset Description		Data			
		Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost	
MV SWITCHING STATION BUILDING		8			

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MV SWITCHING STATION BUILDING		Number of Panels	Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
HV SWITCHING STATION BUILDING			3	1	
HV SWITCHING STATION BUILDING Total			1		
MV SWITCHING STATION BUILDING			5	1	
			6	2	
			9	1	
			10	3	
			11	1	
			12	1	
			13	2	
			14	1	
SUBSTATION BATTERY CHARGER			Data		
Asset Description			Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
SUBSTATION BATTERY CHARGER			11		
SWITCHING STATION BATTERY CHARGER			Data		
Asset Description		DC Amps	Sum of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
SWITCHING STATION BATTERY CHARGER			3	144000	144000
			10	95000	95000
SWITCHING STATION BATTERY CHARGER Total			95	240000	240000
2 400.00					2 742.86
2 526.32					
<b>LV</b>					
LV FEEDERS			Data		
Asset Description		Sum of Shape_Length	Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
70mm4core SWA Cu (210A)		481.4879321	8		
Flying Stay		90.96819035	6		
LV_OVERHEAD_16MM_CU_OH_150A		277.2147888	9	727602750	
LV_OVERHEAD_25MM_CU_OH_210A		202.4083284	13	1050981750	
LV_OVERHEAD_35MM_ABC_135A		1269.182917	75	8066460250	
LV_OVERHEAD_35MM_CU_OH_250A		10988.99104	338	27244680750	
LV_OVERHEAD_50MM_ABC_170A		6450.712905	183	10225873902	
LV_OVERHEAD_50MM_CU_OH_300A		10760.2851	305	24535082250	
LV_OVERHEAD_63MM_CU_OH_360A		16192.55259	119	2327818500	
LV_OVERHEAD_70MM_ABC_210A		12631.29736	482	27360150147	
LV_OVERHEAD_70MM_CU_OH_380A		8064.146474	232	18432603000	
LV_OVERHEAD_95MM_ABC_260A		9381.694471	377	25789475250	
LV_OVERHEAD_95MM_CU_OH_450A		662.8010115	20	1616856000	
LV_UNDERGROUND_1.5MMX7CORE_CU		1953.831666	2	64011.63	
LV_UNDERGROUND_1.20MMX4CORE_SWA_AL_219A		131.7695247	2	100406250	
LV_UNDERGROUND_1.20MMX4CORE_SWA_AL_285A		45.22077286	1		
LV_UNDERGROUND_1.20MMX4CORE_SWA_CU_285A		13081.32901	153	3478204145	
LV_UNDERGROUND_1.50MMX4CORE_SWA_AL_245A		1429.75893	14	1070543250	
LV_UNDERGROUND_1.50MMX4CORE_SWA_CU_320A		3454.346521	43	2027643000	
LV_UNDERGROUND_1.6MMX4CORE_SWA_CU_91A		542.4512362	16	1151388000	
LV_UNDERGROUND_1.6MMX4CORE_SWA_CU_91A		31.66.144437	92	6827483250	
LV_UNDERGROUND_1.85MMX4CORE_SWA_AL_278A		381.8962629	2	161689500	
LV_UNDERGROUND_1.85MMX4CORE_SWA_CU_361A		2287.526628	23	1006661250	
LV_UNDERGROUND_2.5MMX2CORE_CU		38.96102794	1		
LV_UNDERGROUND_2.40MMX4CORE_SWA_CU_418A		182.0402396	1	80844750	
LV_UNDERGROUND_2.5MMX2CORE_SWA_CU_119A		2908.445752	63	3309590319	
LV_UNDERGROUND_300MMX4CORE_SWA_CU_465A		73.27722641	1	80844750	
LV_UNDERGROUND_35MMX4CORE_SWA_AL_108A		2999.852307	25	1909835500	
LV_UNDERGROUND_35MMX4CORE_SWA_CU_143A		13312.08848	194	11114567493	
LV_UNDERGROUND_60MMX4CORE_SWA_AL_129A		6278.283996	57	4568180750	
LV_UNDERGROUND_60MMX4CORE_SWA_CU_189A		29407.77973	399	15042380918	
LV_UNDERGROUND_6MMX2CORE_SWA_CU_53A		148.1096314	1		
LV_UNDERGROUND_70MMX4CORE_SWA_AL_158A		5378.176678	48	3500540000	
LV_UNDERGROUND_70MMX4CORE_SWA_CU_210A		52703.46685	720	31663001996	
LV_UNDERGROUND_95MMX4CORE_SWA_AL_192A		3552.89426	36	2425342500	
LV_UNDERGROUND_95MMX4CORE_SWA_CU_251A		28970.04583	335	15829045571	
(Blank)		1889.955406	27	404223750	
<b>LV FEEDERS</b>					
Cable Size		Sum of Shape_Length	Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
120mm4core SWA Al (219A)		4136.5596965	37	1537314.788	719.676
120mm4core SWA Cu (285A)		3715.802481	32	3976088.196	2 903.699
150mm4core SWA Al (245A)		1931.933191	14	952878.874	470.347
150mm4core SWA Cu (300A)		988.9690028	13	1253025.129	861.540
15mm2core SWA Cu (91A)		839.8336184	11	162351.554	53.224
16mm4core SWA Cu (91A)		1029.2307	10	221956.781	99.630
18mm4core SWA Al (278A)		466.5984627	3	259978.562	118.271
18mm4core SWA Cu (361A)		565.3266232	3	887135.972	449.910
25mm4core SWA Al (300A)		421.6933896	3	98224.034	25.731
25mm4core SWA Cu (119A)		3802.537153	40	999306.647	77.096
35mm ABC (135A)		803.2785992	4	157995.286	41.219
35mm4core SWA Al (108A)		3606.616602	31	874209.637	278.304
35mm4core SWA Cu (143A)		16944.68385	129	4746666.672	2 603.372
50mm ABC (170A)		2128.800661	42	838360.035	138.840
50mm4core SWA Al (129A)		6381.668682	67	1506195.612	632.631
50mm4core SWA Cu (169A)		17764.96027	214	9187648.655	5 423.434
70mm4core SWA Al (158A)		14333.09271	193	4069199.725	1 484.064
70mm4core SWA Cu (210A)		25142.3046	315	1679441.05	10 851.744
95mm ABC (260A)		2693.879179	26	1827858.382	264.496
95mm4core SWA Al (192A)		10413.82952	119	3146360.778	2 761.683
95mm4core SWA Cu (251A)		20666.45049	234	17792418.82	11 662.648
<b>KIOSKS</b>					
Asset Description			Count of OBJECTID	Sum of Installation Cost	Count of Replacement Cost
BULK METERING KIOSK			1	34755.85	
DISTRIBUTION KIOSK			22	178000	
DISTRIBUTION KIOSK			3947	16727678.95	
POLE MOUNTED DISTRIBUTION KIOSK			45		
(Blank)			45		
<b>KIOSKS</b>					
Size			Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
12			2	16000	16 000
12 WAY			325	2530357.46	2 600 000
2 WAY			1	8000	8 000
4 WAY			113	904000	904 000
6 WAY			269	2120477.84	2 120 000
9 WAY			825	5554460.14	6 564 000
BULK			1	8000	8 000
(Blank)			4		

STREETLIGHTS				
STREETLIGHT FEEDERS				
Asset Description	Sum of Shape Length	Data Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
LV OVERHEAD 16MM CU OH 150A	15347.31345	57		
LV OVERHEAD 6MM CU OH 70A	653.7108751	4		
LV OVERHEAD 6MMXCORE SWA CU	13.26308624	1		
LV OVERHEAD CU OH 320A	796.7318575	6		
LV UNDERGROUND	52.65607175	5		
LV UNDERGROUND 19MMXCORE SWA CU	1096.433769	22		
LV UNDERGROUND 16MMXCORE SWA CU	556.8771159	15		
LV UNDERGROUND 16MMXCORE SWA CU 91A	963.3929721	5		
LV UNDERGROUND 16MMXCORE SWA CU	2023.792935	41		
LV UNDERGROUND 16MMXCORE SWA CU 91A	789.5466423	5		
LV UNDERGROUND 25MMXCORE SWA CU	573.7391616	7	241844.1998	
LV UNDERGROUND 4MMXCORE SWA CU 70A	2736.330992	13		
LV UNDERGROUND 4MMXCORE SWA CU	349.3077637	18		
LV UNDERGROUND 6MMXCORE SWA CU	2948.065832	42		
LV UNDERGROUND 6MMXCORE SWA CU 70A	7901.737222	60		
LV UNDERGROUND 6MMXCORE PVC	90.0728345	2		
LV UNDERGROUND 6MMXCORE SWA CU	7041.998433	93	3137670.58	
LV UNDERGROUND 6MMXCORE SWA CU 70A	25104.90309	187	115770.8567	
LV UNDERGROUND 6MMXCORE SWA CU	13760.78717	278	342970.2918	
LV UNDERGROUND 6MMXCORE SWA CU 70A	1016.001493	8		
(blank)	7868.692331	99	7900.821455	
STREETLIGHT FEEDERS				
Cable Size	Sum of Shape Length	Data Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
16mm Cu OH (150A)	279.3762124	2		
16mmx2core SWA Cu (91A)	107.5561878	2	0	964
16mmx4core SWA Cu (91A)	257.0266038	2		8.96
6mmx2core SWA Cu (70A)	98.00328641	2	0	2.285
6mmx2core SWA Cu (70A)	58929.49785	1294	264374.524	1.323.556
(blank)	8257.83968	102	2082.68	793
STREETLIGHTS				
Type of Luminaire		Data Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
125W HPS		6		
125W MV		1700	528239.04	
128W LED		25		
150W HPS		26		
150W MH		15		
156W LED		55		
250W HPS		293		
279W LED		26	367200	
36W LED		276	850000	
400W HPS		21		
43W LED		56	299135	
60W LED		22		
70W HPS		1996	14061970.9	
70W MH		1		
69W MV		138	37513.18	
87W LED		30		
UNKNOWN		121	3511927.16	
(blank)		33		
STREETLIGHTS				
Type of Luminaire		Data Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
125W MV		89		398.600
144W LED		2		4.456.18
250W HPS		41		300.500
250W MV		3		13.500
36W LED		353	1.475.500	4.179.89
400W HPS		6		1.377
400W MH		8		1.837
60W LED		87	739.500	8.500.00
70W HPS		1189	473856.58	6.257.500
70W MH		18		81.000
(blank)		6		
HIGH MASTS				
No of Fittings	Type of Luminaire	Data Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
	150W HPS	1	0	
	400W HPS	22	0	
HIGH MASTS				
No of Fittings	Type of Luminaire	Data Count of OBJECTID	Count of Installation Cost	Sum of Replacement Cost
	500W HPS	6		55.000
	400W HPS	20		27.550
GENERATORS				
GENERATORS				
Asset Description	Generator Size(kVA)	Data Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
GENERATOR	140	1		
	60	1		
	65	1		
CUSTOMER CONNECTIONS				
BULK METERING UNIT				
Asset Description		Data Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
BULK METERING UNIT		89		
BULK METERING UNIT				
Asset Description		Data Count of OBJECTID	Sum of Installation Cost	Sum of Replacement Cost
BULK METERING UNIT		1	280000	280.000
				280.000.00

975.806

22.671

251.275.715.297

213.638.366

The depreciation and ROA making up the total Capital revenue requirement is shown in Table 5.

Table 5

ELECTRICITY ASSET REGISTER SUMMARY	Sum of Quantity	Service connection	Meter	Current Replacement cost	Life expectancy Years	CRC Depreciation	ROA @ 3.5%	Total Capex provision	Current Depreciation	Current Interest	Total current provision	Depreciation ratios
Energy												
HV	7			29 640 000		592 800	20 748	613 548	393 966	234 932	628 897	1.5%
HV/MV	7			23 140 000		462 800	16 198	478 998	307 570	183 412	490 981	1.2%
MV	1 255			360 977 714		7 219 554	252 684	7 472 239	4 798 004	2 861 170	7 659 173	18.2%
MV to LV	763			340 591 228		11 934 112	417 694	12 351 806	7 931 225	4 729 588	12 660 813	30.0%
LV	11 495			253 177 382		5 626 164	196 916	5 823 080	3 739 061	2 229 696	5 968 757	14.2%
1 PH kWh Pre-paid	20 798	4 000	1 200	108 149 600	10	10 814 960	378 524	11 193 484	7 187 454	4 286 059	11 473 513	27.2%
3 PH kWh Pre-paid	383	8 000	2 200	3 906 600	10	390 680	13 673	404 333	259 627	154 822	414 448	1.0%
1 PH kWh	5 705	4 000	1 000	29 525 000	30	950 833	33 279	984 113	631 909	376 823	1 008 732	2.4%
3 PH kWh	682	8 000	2 000	6 820 000	30	227 333	7 957	235 290	151 082	90 094	241 176	0.6%
3 TOL	1	8 000	8 000	16 000	30	533	19	552	354	211	565	0.0%
3 PH TOL & ct's	124	10 000	10 000	2 480 000	30	82 657	2 893	85 560	54 939	32 761	87 700	0.2%
TOL RMU & CT/VT's	12	431 249	12 000	5 318 968	30	177 300	6 205	183 505	117 831	70 265	188 096	0.4%
TOL at HV sub With CB	1	924 600	12 000	936 600	30	31 220	1 093	32 313	20 748	12 373	33 121	0.1%
Streetlight	6 989			36 305 411		1 290 468	43 066	1 273 534	817 750	487 645	1 305 394	3.1%
<b>TOTALS</b>	<b>48 222</b>			<b>1 199 984 523</b>		<b>39 741 404</b>	<b>1 390 949</b>	<b>41 132 353</b>	<b>26 411 519</b>	<b>15 749 850</b>	<b>42 161 369</b>	<b>100.0%</b>

The following in this respect:

CRC depreciation – Calculated using the NERSA prescribed life expectancy.

ROA - Return on Assets. The 3.5% is a real rate return considered internationally acceptable. This component is to cover the average cost of capital, including interest and return.

The process followed is to calculate the Total capital provision as by international standards (depreciation plus ROA also called levelised cost) and then the ratio of these provisions relative to the total provision. Then apportion the current total provision (depreciation and interest) to the various asset categories using these ratios. These values will be used as a basis for the cost of supply analysis.

## 5. SALES.

NERSA requires the source data for all tables. The Tables below provides the source data from municipal billing and pre-payment vending reports. Table 6

shows streetlight details.

Table 6

STREETLIGHTS: Hermanus							
Type of Luminaire	Flights / fitting	Watts	Number	Total lights	Total Watts	Hours / day	kWh/year
125W HPS	1 125		6	6	750	11.04	3 022.20
125W MV	1 125		1700	1700	212500	11.04	856 290.00
128W LED	1 128		25	25	3200	11.04	12 894.72
150W HPS	1 150		26	26	3900	11.04	15 715.44
150W MH	1 150		15	15	2250	11.04	9 066.60
156W LED	1 156		55	55	8580	11.04	34 573.97
250W HPS	1 250		293	293	73250	11.04	295 168.20
279W LED	1 279		28	28	7812	11.04	31 479.24
36W LED	1 36		278	278	10008	11.04	40 328.24
400W HPS	1 400		21	21	8400	11.04	33 848.64
43W LED	1 43		56	56	2408	11.04	9 703.28
60W LED	1 60		22	22	1320	11.04	5 319.07
70W HPS	1 70		1998	1998	139960	11.04	563 579.86
70W MH	1 70		1	1	70	11.04	282.07
80W MV	1 80		138	138	11040	11.04	44 486.78
87W LED	1 87		30	30	2510	11.04	10 517.28
UNKNOWN	1 70		121	121	8470	11.04	34 130.71
(blank)	1 70		33	33	2310	11.04	9 308.38
				4846	498738		2 009 714.64
STREETLIGHTS: Gansbaai							
Type of Luminaire	Flights / fitting	Watts	Number	Total lights	Total Watts	Hours / day	kWh/year
125W MV	1 125		89	89	11125	11.04	44 829.30
144W LED	1 144		2	2	288	11.04	1 160.52
250W HPS	1 250		41	41	10250	11.04	41 303.40
250W MV	1 250		3	3	750	11.04	3 022.20
36W LED	1 36		353	353	12708	11.04	51 208.16
400W HPS	1 400		6	6	2400	11.04	9 671.04
400W MH	1 400		8	8	3200	11.04	12 894.72
60W LED	1 60		87	87	5220	11.04	21 034.51
70W HPS	1 70		1189	1189	83230	11.04	335 383.61
70W MH	1 70		18	18	1260	11.04	5 077.30
(blank)	1 70		8	8	560	11.04	2 256.58
				1804	130991		527 841.33
HIGH MASTS: Hermanus							
No of Fittings	Flights / fitting	Watts	Number	Total lights	Total Watts	Hours / day	kWh/year
9	No of Fittings						
9		9 9	1	9	81	11.04	326.40
9		9 9	22	198	1782	11.04	7 180.75
				207	1863		7 507.14
HIGH MASTS: Gansbaai							
No of Fittings	Flights / fitting	Watts	Number	Total lights	Total Watts	Hours / day	kWh/year
2	No of Fittings						
6		2 2	6	12	24	11.04	96.71
		6 6	20	120	720	11.04	2 901.31
				132	744		2 998.02
<b>Grand Total</b>				<b>6 989</b>	<b>632 336</b>		<b>2 548 061</b>
Hermanus Total				5 053	500 601		2 017 222
Gansbaai Total				1 936	131 735		530 839

Table 7 below compares the D-form and Asset register quantities. They correspond well.

Table 7

D-form	From asset register	
6 881.00		
774 351.00	Gansbaai Total	530 839.36
1 791 380.00	Hermanus Total	2 017 221.79
<b>2 572 612.00</b>		<b>2 548 061.15</b>

Table 8 shows the kWh per block. This is not provided by the vending report and these quantities are calculated from individual customer monthly data. Contrary to popular belief the kWh per block cannot be calculated using the average consumption of a customer.

Table 8

PP CONSUMPTION BY BLOCK	Block 1 Hi	Block 1 Low	Block 2 Hi	Block 2 Low	Block 3 Hi	Block 3 Low	Block 4 Hi	Block 4 Low	Total							
E1A2 SINGLE PHASE CATCD	0	0	350	350	600	600	>600	>600								
E1A2 SINGLE PHASE COMMERCIAL 2 PART			135 210	395 716	22 532	48 694	378	83	601 999	601 999						
E1A2 SINGLE PHASE DOMESTIC 2 PART			225 503	680 056	84 432	249 682	193 564	229 400	2 157 451	2 157 451						
E1A2 SINGLE PHASE INDIGENT or HULPBEHOEWEND 50 EENHEDE AANSOEK			7 287 383	22 130 352	2 541 077	7 003 753	1 609 778	3 757 113	44 329 426	44 329 426						
E1A2 SINGLE PHASE POOR AND INDIG HOUSEH minder as R100 000 NOT 50 UNITS			1 775 430	5 253 346	41 214	99 760	1 948	5 427	7 171 522	7 171 522						
E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE			817 343	2 323 559	45 592	126 000	7 516	24 708	3 344 717	3 344 717						
E1E1 LED PROJECTS			8 209	31 499	683	3 403	628	4 321	48 802	48 802						
E3A 3PHASE 2PART DOMES			22 999	71 779	14 414	46 275	59 989	180 470	395 928	395 928						
E3B 3PHASE 2PART 100A COMM			4 125	13 894	1 664	5 935	17 319	59 235	102 211	102 211						
E3B3 3PHASE 1PART 60A COMM			3 596	14 605	1 936	5 627	21 963	72 135	121 762	121 762						
E3E2 THREE PHASE COMMERCIAL 2 PART			144 458	441 814	71 611	228 649	418 291	1 011 071	2 916 693	2 916 693						
E3E2 THREE PHASE DOMESTIC 2 PART			75 601	220 497	44 333	131 742	178 672	445 406	1 094 453	1 094 453						
E3G THREE PHASE BUSINESS FLATS SPORT GROUNDS CHURCHES 1 PART			5 575	17 778	2 764	9 522	41 146	123 548	200 333	200 333						
E7A1 STREET LIGHTS			1 050	3 211	185	1 000	-	1 514	6 881	6 881						
(blank)			639 245	1 680 134	175 406	418 629	203 428	524 876	3 641 720	3 641 720						
<b>TOTALS</b>			13 024 355	38 910 486	3 131 629	8 580 914	2 887 278	8 021 893	74 556 556	74 556 556						
E1A2 SINGLE PHASE CATCD		Block 1	100 764	89%	Block 2	530 925	12%	Block 3	70 626	0%	Block 4	448	Total	900 763	PP REPORT	900 763
E1A2 SINGLE PHASE COMMERCIAL 2 PART			294 433	89%		330 925	12%		70 626	0%		448		601 999	2 157 451	
E1A2 SINGLE PHASE DOMESTIC 2 PART			4 077 120	66%		29 417 705	22%		9 544 630	12%		5 365 890		44 329 426	46 406 547	
E1A2 SINGLE PHASE INDIGENT or HULPBEHOEWEND 50 EENHEDE AANSOEK			1 963 195	98%		7 029 776	2%		134 974	0%		6 772		7 171 522	9 134 718	
E1A2 SINGLE PHASE POOR AND INDIG HOUSEH minder as R100 000 NOT 50 UNITS			2 436 467	89%		7 508 638	3%		290 758	7%		623 003		8 422 460	5 925 992	
E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!					48 802	48 802	
E1E1 LED PROJECTS			1 675 380	94%		3 140 901	9%		171 592	1%		32 224		3 344 717	5 021 097	
E3A 3PHASE 2 PART DOMES			2 404	81%		39 767	8%		4 080	10%		4 949		48 802	48 802	
E3B 3PHASE 2PART 100A COMM			9 523	24%		94 777	13%		60 692	61%		210 469		395 928	403 951	
E3B3 3PHASE 1PART 60A COMM														121 762	121 762	
E3E2 THREE PHASE COMMERCIAL 2 PART														3 161 523	3 161 523	
E3E2 THREE PHASE DOMESTIC 2 PART			15 749	27%		296 298	16%		176 075	67%		622 061		1 094 453	1 110 197	
E3G THREE PHASE BUSINESS FLATS SPORT GROUNDS CHURCHES 1 PART														200 333	200 333	
E7A1 STREET LIGHTS														6 881	6 881	
(blank)			3 265 219	64%		2 319 379	16%		594 635	20%		728 306		3 641 720	376 411	
<b>TOTALS</b>			0		#DIV/0!	81 934 842			11 712 644			10 905 170		74 556 556	77 166 331	

Unfortunately the FBE quantities don't seem to be included in the Ontec PP Meter Management Consumption Reports and they do not tie up with the Ontec PP sales summary reports as shown in Table 9.

Table 9

PP METER MANAGEMENT CONSUMPTION REPORTS	ONTEC Summary report				
	Sum of Total Units	Bst_issue	Units sold	Diff	Diff %
E1A2 SINGLE PHASE CATCD	602 071	-	900 763	298 692	33%
E1A2 SINGLE PHASE COMMERCIAL 2 PART	2 157 651	-	2 256 631	98 980	4%
E1A2 SINGLE PHASE DOMESTIC 2 PART	44 329 426	-	48 406 547	4 077 121	8%
E1A2 SINGLE PHASE INDIGENT or HULPBEHOEWEND 50 EENHEDE AANSOEK	7 171 522	2 143 000	9 134 718	1 963 196	21%
E1A2 SINGLE PHASE POOR AND INDIG HOUSEH minder as R100 000 NOT 50 UNITS	7 356 457	-	5 923 992	- 1 432 464	-24%
E1B1 DOMESTIC 1 PART UILENKRAALMOND	352 366	-	376 441	24 075	6%
E1B1 1 PART COMMERCIAL	137 471	-	139 814	2 343	2%
E1D1 SINGLE PHASE LIFE LINE	43 165	-	45 793	2 628	6%
E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	3 344 717	1 321 100	5 021 097	1 676 380	33%
E1E1 LED PROJECTS	48 802	-	51 207	2 405	5%
E3A 3PHASE 2 PART DOMES	395 928	-	403 951	8 023	2%
E3B 3PHASE 2PART 100A COMM	102 211	-	113 897	11 686	10%
E3B3 3PHASE 1PART 60A COMM	121 762	-	121 762	-	0%
E3E2 THREE PHASE COMMERCIAL 2 PART	2 916 693	-	3 161 523	244 829	8%
E3E2 THREE PHASE DOMESTIC 2 PART	1 094 453	-	1 110 197	15 744	1%
E3G THREE PHASE BUSINESS FLATS SPORT GROUNDS CHURCHES 1 PART	200 333	-	312 515	112 182	36%
E7A1 STREET LIGHTS	6 881	-	6 881	-	0%
(blank)	3 641 720	-	-	- 3 641 720	
Grand Total	74 023 626	3 464 100	77 487 726	3 464 100	4%

Table 10 Table 11 shows the details for pre-payment consumers. Table 11 shows the monthly consumption per pre-payment consumers.

A 19/11/07

Table 10

PP summary	Prepaid_sale	Cancel_pr	Debit_reco	Unpaid_ac_p	Service_cha	Est. issue	Units_sold	Total revenue	Never count	Customers	kWh count/kWh Rev	kWh	Consumption
	per unit	per unit	per unit	per unit	per unit	per unit	per unit	per unit	per unit	per unit	per unit	per unit	per unit
E1A2 SINGLE PHASE CATCD	R 1,862,016	R 0	R 1,862,016	R 1,862,016	R 0	R 0	R 1,862,016	R 1,862,016	0	0	R 1,862,016	R 1,862,016	R 1,862,016
E1A2 SINGLE PHASE COMMERCIAL 2 PART	R 5,169,636	R 0	R 5,169,636	R 5,169,636	R 0	R 0	R 5,169,636	R 5,169,636	0	0	R 5,169,636	R 5,169,636	R 5,169,636
E1A2 SINGLE PHASE DOMESTIC 2 PART	R 12,040,201	R 0	R 12,040,201	R 12,040,201	R 0	R 0	R 12,040,201	R 12,040,201	0	0	R 12,040,201	R 12,040,201	R 12,040,201
E1A2 SINGLE PHASE INDICENT or HULPBROEVENID 30 BENEFIDE AANSOEK	R 10,959,240	R 0	R 10,959,240	R 10,959,240	R 0	R 0	R 10,959,240	R 10,959,240	0	0	R 10,959,240	R 10,959,240	R 10,959,240
E1A2 SINGLE PHASE POOR AND INDIG HOUSEH number as R100 000 NOT 50 UNITS	R 1,862,016	R 0	R 1,862,016	R 1,862,016	R 0	R 0	R 1,862,016	R 1,862,016	0	0	R 1,862,016	R 1,862,016	R 1,862,016
E1B1 1 PART COMMERCIAL	R 2,053,283	R 0	R 2,053,283	R 2,053,283	R 0	R 0	R 2,053,283	R 2,053,283	0	0	R 2,053,283	R 2,053,283	R 2,053,283
E1B1 1 PART COMMERCIAL	R 1,777,130	R 0	R 1,777,130	R 1,777,130	R 0	R 0	R 1,777,130	R 1,777,130	0	0	R 1,777,130	R 1,777,130	R 1,777,130
E1D1 SINGLE PHASE LIFE LINE	R 1,004,331	R 0	R 1,004,331	R 1,004,331	R 0	R 0	R 1,004,331	R 1,004,331	0	0	R 1,004,331	R 1,004,331	R 1,004,331
E1D1 SINGLE PHASE LIFE LINE INDICENT TEMPORARY STRUCTURE	R 1,004,331	R 0	R 1,004,331	R 1,004,331	R 0	R 0	R 1,004,331	R 1,004,331	0	0	R 1,004,331	R 1,004,331	R 1,004,331
ES3A PHASE 2 PART DOMES	R 2,719,545	R 0	R 2,719,545	R 2,719,545	R 0	R 0	R 2,719,545	R 2,719,545	0	0	R 2,719,545	R 2,719,545	R 2,719,545
ES3B PHASE 2 PART DOMA COMM	R 2,719,545	R 0	R 2,719,545	R 2,719,545	R 0	R 0	R 2,719,545	R 2,719,545	0	0	R 2,719,545	R 2,719,545	R 2,719,545
ES3C PHASE 2 PART DOMA COMM	R 2,719,545	R 0	R 2,719,545	R 2,719,545	R 0	R 0	R 2,719,545	R 2,719,545	0	0	R 2,719,545	R 2,719,545	R 2,719,545
ES3D THREE PHASE COMMERCIAL 2 PART	R 2,651,700	R 0	R 2,651,700	R 2,651,700	R 0	R 0	R 2,651,700	R 2,651,700	0	0	R 2,651,700	R 2,651,700	R 2,651,700
ES3E THREE PHASE DOMESTIC 2 PART	R 9,915,759	R 0	R 9,915,759	R 9,915,759	R 0	R 0	R 9,915,759	R 9,915,759	0	0	R 9,915,759	R 9,915,759	R 9,915,759
E1A1 STREET LIGHTS	R 7,000	R 0	R 7,000	R 7,000	R 0	R 0	R 7,000	R 7,000	0	0	R 7,000	R 7,000	R 7,000
TOTALS	R 142,920,005	R 0	R 142,920,005	R 142,920,005	R 1,536,533	R 3,454,100	R 142,920,005	R 142,920,005	125,829	3	R 142,920,005	R 142,920,005	R 142,920,005

Table 12 shows the monthly sales.

Table 11

PP SALES	Customers	Count of Units	Sum of 1	Sum of 2	Sum of 3	Sum of 4	Sum of 5	Sum of 6	Sum of 7	Sum of 8	Sum of 9	Sum of 10	Sum of 11	Sum of 12	Sum of Total kWh	Sum of Total kWh Rev
E1A2 SINGLE PHASE CATCD	148	56,277	56,276	51,900	48,715	46,717	45,167	43,793	42,520	41,347	40,269	39,280	38,378	37,559	47,159	161,621
E1A2 SINGLE PHASE COMMERCIAL 2 PART	13	154,715	157,165	162,410	179,869	205,124	237,342	277,942	330,007	397,956	481,028	584,952	708,921	859,827	1,050,071	3,648,481
E1A2 SINGLE PHASE DOMESTIC 2 PART	3,407	3,492,718	3,519,528	3,548,871	3,580,917	3,614,871	3,651,819	3,692,862	3,738,091	3,787,504	3,840,201	3,896,274	3,955,699	4,018,971	49,329,426	169,787,329
E1A2 SINGLE PHASE INDICENT or HULPBROEVENID 30 BENEFIDE AANSOEK	3,037	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326	3,037,326
E1A2 SINGLE PHASE POOR AND INDIG HOUSEH number as R100 000 NOT 50 UNITS	1	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016	1,862,016
E1B1 DOMESTIC 1 PART (ALSKRIMMINGS)	272	272,451	272,451	272,451	272,451	272,451	272,451	272,451	272,451	272,451	272,451	272,451	272,451	272,451	3,174,176	10,923,822
E1B1 1 PART COMMERCIAL	12	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	1,777,130	21,318,356	71,923,062
E1B1 1 PART COMMERCIAL	48	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	49,618,080	165,236,640
E1D1 SINGLE PHASE LIFE LINE	2,448	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	2,448,000	29,376,000	97,219,200
E1D1 SINGLE PHASE LIFE LINE INDICENT TEMPORARY STRUCTURE	112	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	1,112,000	13,344,000	43,920,000
ES3A PHASE 2 PART DOMES	31	28,398	28,398	28,398	28,398	28,398	28,398	28,398	28,398	28,398	28,398	28,398	28,398	28,398	354,776	1,174,376
ES3B PHASE 2 PART DOMA COMM	9	6,940	6,940	6,940	6,940	6,940	6,940	6,940	6,940	6,940	6,940	6,940	6,940	6,940	86,740	285,740
ES3C PHASE 2 PART DOMA COMM	10	9,916	9,916	9,916	9,916	9,916	9,916	9,916	9,916	9,916	9,916	9,916	9,916	9,916	123,796	405,796
ES3D THREE PHASE COMMERCIAL 2 PART	26	26,518	26,518	26,518	26,518	26,518	26,518	26,518	26,518	26,518	26,518	26,518	26,518	26,518	318,218	1,057,218
ES3E THREE PHASE DOMESTIC 2 PART	104	104,334	104,334	104,334	104,334	104,334	104,334	104,334	104,334	104,334	104,334	104,334	104,334	104,334	1,251,992	4,057,992
E1A1 STREET LIGHTS	3	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	84,000	280,000
Grand Total	23,972	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	23,972,000	293,920,000	979,720,000

Table 13 shows the details for conventional customers and Table 13

Table 12

YEAR TOTALS	COUNTER	CONSUM1	ESTIMAT	BASIC R Excl	MINCHG - Access R Excl	CONSUM2 R Excl	EXTRA/KVA R Excl	Infrastructure SURCHG / KVA exceed R Excl	VAT	TOTAL
E18A2	311	97 444	R 0	R 0	R 0	R -5 799	R 0	R 0	R 0	R -6 669
SSSEG	10 939	2 971 122	R 0	R 1 328 982	R 0	R 6 038 145	R 0	R 56 926	R 1 102 304	R 8 526 437
E1A1C	1 426	485 327	R 0	R 317 730	R 0	R 988 148	R 0	R 0	R 0	R 1 305 674
E1A1D	20 796	26 492 042	R 0	R 23 860 962	R -504	R 44 527 124	R 0	R 1 012 764	R 10 408 333	R 79 606 690
E1A1H	1 034	12 412	R 0	R 2 956 419	R 0	R 20 065 479	R 0	R 63 486	R 3 465 697	R 26 551 080
E3E1C	118	9 860 961	R 0	R 2 956 419	R 0	R 1 681 610	R 0	R 0	R 0	R 2 257 221
E3E1D	1 376	826 559	R 0	R 575 611	R 0	R 9 584 884	R 0	R 0	R 0	R 14 022 356
E3E1H	16	4 523 957	R 0	R 2 604 498	R 0	R 16 919 049	R 0	R 56 827	R 1 797 147	R 21 756 906
ESA4C	194	33 751 721	R 0	R 0	R 0	R 28 130 493	R 0	R 0	R 2 837 857	R 32 350 087
ESAS	16	27 877 690	R 0	R 0	R 0	R 36 807 626	R 0	R 0	R 5 521 594	R 42 332 217
ESASP	30	11 225 227	R 0	R 0	R 0	R 10 089 003	R 0	R 2 997	R 1 298 211	R 11 387 214
ESA7O	154	16 746 741	R 0	R 0	R 0	R 16 983 022	R 0	R 0	R 2 219 795	R 19 202 818
ESAS	154	16 171 934	R 0	R 0	R 0	R 16 983 022	R 0	R 0	R 2 880 640	R 24 935 423
ESASP	310	6 633 323	R 0	R -33	R 0	R 22 013 947	R 0	R 30 969	R 2 880 640	R 24 935 423
E7A1	2	774 351	R 0	R 0	R 0	R 688 165	R 0	R 0	R 492	R 688 657
E7A12	24	-	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
PREPD	5	-	R 0	R 1 696	R 0	R 16 068	R 0	R 0	R 0	R 0
ESB3	112	117 616	R 0	R 5 572 374	R 8 509 158	R 0	R 3 717 753	R 198 984	R 2 270 491	R 20 268 761
ESA3M	721	150 082	R 0	R 609 745	R 5 742 115	R 0	R 4 774 082	R 0	R 1 668 893	R 12 794 844
TOTALS	25 765	158 511 409	R 0	R 37 827 983	R 14 250 770	R 216 506 864	R 8 491 845	R 1 421 955	R 39 692 895	R 318 192 311

Table 13

Row Labels	Count of Meter No	Sum of 202007	Sum of 202008	Sum of 202009	Sum of 202010	Sum of 202011	Sum of 202012	Sum of 202103	Sum of 202104	Sum of 202105	Sum of 202106
E18A2	2	387	84	1065	323	391	454	582	640	679	269
E1A1C	303	248344	240132	255395	214922	237873	266539	226468	242043	257300	247570
E1A1H	64	49957	33128	46445	36219	44342	54946	38823	48357	44524	47913
E3E1C	5308	2465396	2061925	2441139	2228042	1880814	1872655	2661995	1820573	1986014	2092844
E3E1D	328	771405	595665	839251	826474	753577	810248	934082	703824	820055	907598
E3E1H	60	91762	76049	79131	66017	66961	58008	87370	59444	56479	55282
ESA4O	294	452515	331379	444877	419942	327402	342162	438009	313505	324326	366538
ESA5S	1	36408	40246	54534	64618	95360	91888	42382	46217	47100	54581
ESA6P	3	158574	195528	96304	46635	204681	156237	117648	169924	104579	186775
ESA7O	6	346562	307300	390377	370107	277588	283252	177025	287363	348945	281384
ESAS	5	60025	70117	76424	74252	94391	98649	117342	103354	118963	137261
ESASP	6	86513	70055	86388	91012	93162	94836	114178	107109	114661	106592
E7A1	113	1890796	2010888	2175073	197409	2050573	1935511	1852332	1949498	2024240	1974603
Grand Total	6592	6725511	6099621	7047573	6516814	6151103	6922063	5850801	6385995	6544779	6379113

Table 14 below shows the quantities from the income statement.

Table 14

IR	(481 694 831)
Exchange Revenue	(443 921 988)
Availability Charges	(10 820 620)
Commercial Conventional (3-Phase)	(25 834 379)
Commercial Conventional (Single Phase)	(8 741 748)
Conventional	(67 849 689)
Development Charges	(1 351 829)
Disconnection/Reconnection Fees	(816 656)
Electricity Services Incidental to Energy Sales	(578 789)
Industrial (400 Volts) (Low Voltage)	(162 065 461)
Materials and Equipment	(727 713)
Prepaid	(164 439 455)
Street Lighting	(695 648)
Non-exchange Revenue	(37 772 844)
Equitable Share	(31 660 837)
Illegal Connections	(112 007)
Integrated National Electrification Programme Grant	(6 000 000)

Table 15 shows the quantities from the NERSA D-forms.

Table 15

Tariff Name	Tariff Number	SIC (code)	Load profile (code)	Tariff structure (code)	Number of consumers	Energy Sales	Revenue derived from energy charges	Revenue derived from demand charges	Revenue derived from fixed charge	Revenue
SSEG	E16A2	0	11	5.6	26	97 444 kWh	5 799	Type here	Type here	-5 799
S/PHASE COMMERCIAL	E1A1C	6	4	5.2	263	2 971 122 kWh	6 038 145	Type here	Type here	7 424 053
S/PHASE DEPARTMENTAL	E1A1D	4	11	5.2	61	485 527 kWh	988 148	Type here	Type here	1 305 879
S/PHASE DOMESTIC	E1A1H	0	2	5.2	5 625	26 492 942 kWh	44 527 124	Type here	Type here	69 400 347
T/PHASE COMMERCIAL	E3E1C	6	4	5.2	297	9 860 961 kWh	20 065 478	Type here	Type here	23 085 383
T/PHASE DEPARTMENTAL	E3E1D	4	11	5.2	60	826 559 kWh	1 681 610	Type here	Type here	2 257 221
T/PHASE DOMESTIC	E3E1H	0	2	5.2	302	4 523 957 kWh	9 564 894	Type here	Type here	12 225 209
TIME OF USE	ES4M0 ES	6	4	5.3	172	112 406 636 kWh	132 943 040	Type here	Type here	162 101 194
STREETLIGHTS	E7A1	4	11	5.1	10	774 351 kWh	688 165	Type here	Type here	688 165
STREETLIGHTS C2	E7A12	4	11	5.1	2	Type here kWh	Type here	Type here	Type here	0
ETA2 SINGLE PHASE COMMERCIAL 2 PART	E1A2	6	4	5.2	453	2 256 813 kWh	4 347 676	Type here	Type here	4 347 676
ETA2 SINGLE PHASE DOMESTIC	E1A2	0	2	5.2	10 344	48 413 808 kWh	74 155 335	Type here	Type here	119 438 341
ETA2 SINGLE PHASE INDIGENT OR HULPB	E1A2	0	2	5.2	3 715	9 118 192 kWh	8 676 026	Type here	Type here	39 950 522
ETA2 SINGLE PHASE POOR AND INDIG H	E1A2	0	2	5.2	2 985	5 941 053 kWh	7 647 136	Type here	Type here	7 647 136
ETA2 SINGLE PHASE CATCD	E1A2	0	2	5.2	191	895 017 kWh	1 217 943	Type here	Type here	1 583 772
E1B1 DOMESTIC 1 PART UILENKRAALSM	E1B1	0	11	5.1	290	374 355 kWh	514 469	Type here	Type here	1 329 542
E1B1 1PART COMMERCIAL	E1B1	6	4	5.1	13	139 814 kWh	269 474	Type here	Type here	1 844 011
E1D1 SINGLE PHASE LIFE LINE	E1D1	0	2	5.1	48	45 793 kWh	60 206	Type here	Type here	312 762
E1D1 SINGLE PHASE LIFE LINE INDIGENT	E1D1	0	2	5.1	2 552	5 020 629 kWh	4 853 914	Type here	Type here	67 049
E1E1 LED PROJECTS	E1E1	6	4	5.2	112	51 207 kWh	112 630	Type here	Type here	4 863 914
E3A 3PHASE 2 PART DOMES	E3A	0	2	5.2	29	403 951 kWh	819 858	Type here	Type here	112 630
E3B 3PHASE 2PART 100A COMMERCIAL	E3B	6	4	5.1	9	113 897 kWh	219 476	Type here	Type here	2 945 526
E3B3 3PHASE 1PART 60A COMMERCIAL	E3B	6	4	5.2	9	121 762 kWh	256 210	Type here	Type here	3 765 385
E3E2 THREE PHASE COMMERCIAL	E3E	6	4	5.2	227	3 161 748 kWh	6 093 323	Type here	Type here	219 476
E3E2 THREE PHASE DOMESTIC 2 PART	E3E	0	2	5.1	102	1 110 197 kWh	2 205 775	Type here	Type here	297 606
E3G THREE PHASE BUSINESS FLATS SP	E3G	6	11	5.1	19	312 515 kWh	760 191	Type here	Type here	6 093 323
E7A1 STREET LIGHTS	E7A1 E7A2	10	11	5.1	3	6 881 kWh	6 113	Type here	Type here	2 205 775
Unmetered	Type here	Type here	Type here	Type here	Type here	1 791 380 kWh	Type here	Type here	Type here	763 020
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	13 696
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Type here	Type here	Type here	Type here	Type here	Type here	Type here kWh	Type here	Type here	Type here	0
Total					27 809	237 717 614 kWh	328 956 554	22 734 001	120 417 283	472 107 838

It is clear that there are some discrepancies between these various documents.

6. CUSTOMER CONSUMPTION PATTERNS.

The sales are then analysed even further to determine the number of consumers per consumption block. This is important when deliberating about categorising consumers and developing appropriate tariff structures and consumer impact. The tables below show a section of the analysis for each of the domestic tariffs.

Addition

EIA2 SINGLE PHASE CATCD																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	6	6	6	6	51	191	589	776	2 387	7 135	15 948	30 956	47 409	50 173	50 173	50 173
kWh average	6	-	-	-	45	140	398	187	1 611	4 748	8 812	15 009	16 453	2 763	-	-
Cum Cust average	5	5	5	5	6	8	11	12	19	36	63	103	142	148	148	148
Cust average	5	-	-	-	1	7	3	1	7	17	27	40	39	6	-	-
Block	50	350	600	>600	Check	Check	BREAKEYEN		Amps	20	30.00	40.00	50.00	60.00	70.00	120.00
kWh/y	611	190 760	410 700	-0	602 071	551 898			kWh/m	550.00	650.00	800.00	950.00	1 050.00	1 200.00	1 700.00
Consumers	6	57	85	-	148	-			Customers	148	-	-	-	-	-	-

EIA2 SINGLE PHASE COMMERCIAL 2 PART																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	93	374	600	1 158	1 704	5 018	9 559	15 851	23 646	31 800	37 306	39 917	44 133	47 927	52 691	54 999
kWh average	93	281	226	558	546	3 315	4 541	6 292	7 795	8 154	5 506	2 611	4 216	3 794	4 764	2 308
Cum Cust average	73	90	99	115	127	171	208	244	279	309	326	333	343	351	360	364
Cust average	73	17	9	16	12	44	37	36	35	30	17	7	10	8	9	4
Block	50	350	600	>600	Check	Check	BREAKEYEN		Amps	20	30.00	40.00	50.00	60.00	70.00	120.00
kWh/y	20 442	427 231	242 565	993 597	140 320	-			kWh/m	550.00	650.00	800.00	950.00	1 050.00	1 200.00	1 700.00
Consumers	127	199	42	72	440	-			Customers	360	8	15	17	5	8	18

EIA2 SINGLE PHASE DOMESTIC 2 PART																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	426	2 083	5 319	8 310	13 844	58 986	142 291	259 454	421 808	626 172	893 091	1 245 588	1 585 047	1 876 597	2 144 412	2 396 376
kWh average	426	1 657	3 237	2 991	5 534	45 142	83 305	117 163	162 354	204 364	266 919	352 497	339 460	291 549	267 815	251 955
Cum Cust average	798	910	1 037	1 123	1 246	1 842	2 505	3 175	3 899	4 642	5 462	6 402	7 203	7 817	8 328	8 766
Cust average	798	112	127	86	123	596	663	670	724	743	820	940	801	614	511	438
Block	50	350	600	>600	Check	Check	BREAKEYEN		Amps	20	30.00	40.00	50.00	60.00	70.00	120.00
kWh/y	166 127	10 550 966	20 820 100	12 433 429	3 664 218	-			kWh/m	550.00	650.00	800.00	950.00	1 050.00	1 200.00	1 700.00
Consumers	1 246	4 216	3 675	1 199	10 336	-			Customers	8 328	809	640	268	111	81	81

EIA2 SINGLE PHASE INDIGENT OF HULPBEHOEWEND 50 EENHEDE AANSOEK																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	517	1 926	3 996	7 248	12 595	54 983	164 384	276 560	390 383	481 314	552 529	576 955	590 075	594 728	596 282	596 848
kWh average	517	1 410	2 070	3 252	5 347	52 389	89 401	112 175	113 774	90 980	71 216	24 426	13 120	4 653	1 554	565
Cum Cust average	218	313	397	489	607	1 295	2 088	2 734	3 242	3 574	3 795	3 861	3 892	3 902	3 905	3 906
Cust average	218	95	84	92	118	688	793	646	508	332	221	66	31	10	3	1
Block	50	350	600	>600	Check	Check	BREAKEYEN		Amps	20	30.00	40.00	50.00	60.00	70.00	120.00
kWh/y	151 134	6 479 219	531 818	9 351	597 627	-			kWh/m	550.00	650.00	800.00	950.00	1 050.00	1 200.00	1 700.00
Consumers	607	3 188	111	1	3 907	-			Customers	3 905	1	1	-	-	-	-

EIA2 SINGLE PHASE POOR AND INDIG HOUSEHOLDS R100 000 NOT 50 UNITS																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	241	1 029	2 222	3 873	5 249	21 353	72 401	157 813	272 897	392 609	508 005	584 336	611 340	619 394	620 434	620 434
kWh average	241	789	1 193	1 651	1 376	16 104	51 048	85 412	115 084	119 712	115 396	76 330	27 004	8 054	1 041	-
Cum Cust average	245	297	345	393	424	636	1 039	1 527	2 037	2 473	2 830	3 036	3 100	3 117	3 119	3 119
Cust average	245	52	48	48	31	212	403	488	510	436	357	206	64	17	2	-
Block	50	350	600	>600	Check	Check	BREAKEYEN		Amps	20	30.00	40.00	50.00	60.00	70.00	120.00
kWh/y	62 991	6 033 073	1 356 592	9 610	621 855	-			kWh/m	550.00	650.00	800.00	950.00	1 050.00	1 200.00	1 700.00
Consumers	424	2 406	290	1	3 121	-			Customers	3 119	1	-	1	-	-	-

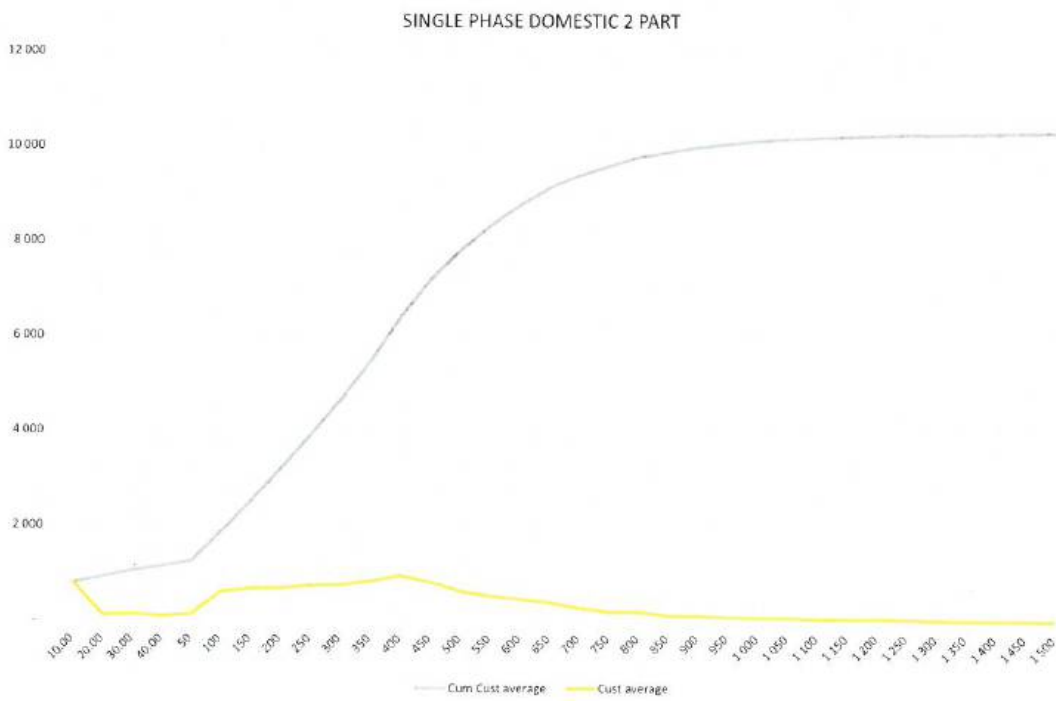
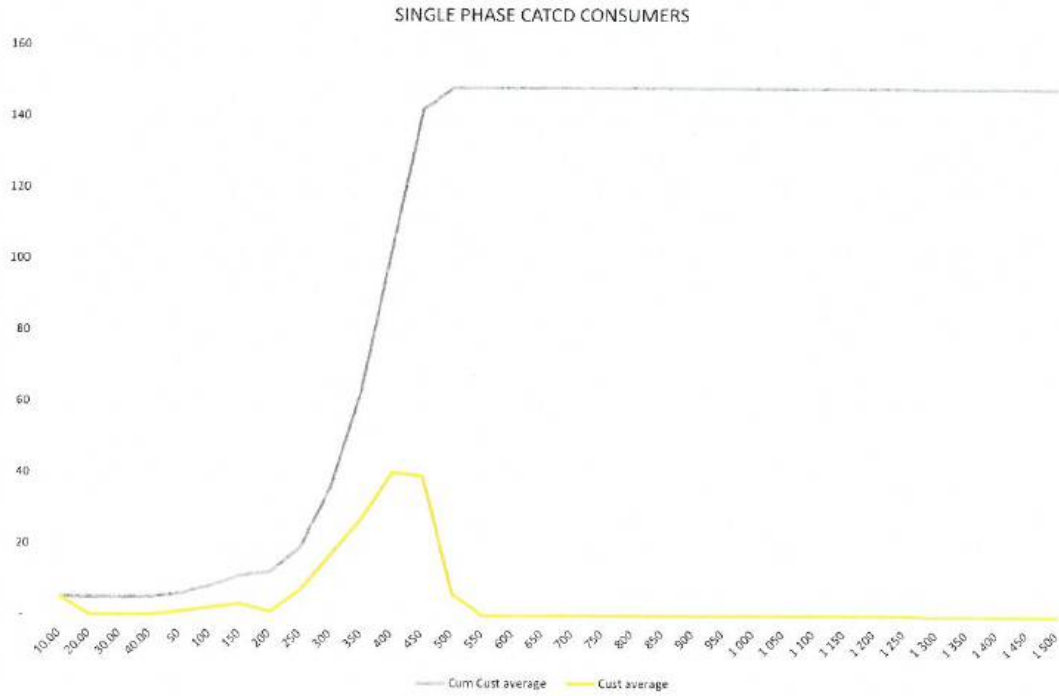
EIB1 DOMESTIC 1 PART ULENKRAALMOND																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	12	234	698	1 309	1 950	6 104	10 763	15 827	20 021	23 054	25 008	27 595	28 895	29 364	29 364	29 364
kWh average	12	222	464	612	640	4 154	4 660	5 064	4 194	3 033	1 954	2 587	1 299	469	-	-
Cum Cust average	34	48	66	84	98	156	195	225	244	255	261	268	271	272	272	272
Cust average	34	14	18	18	14	58	39	30	19	11	6	7	3	1	-	-
Block	50	350	600	>600	Check	Check	BREAKEYEN		Amps	20	30.00	40.00	50.00	60.00	70.00	120.00
kWh/y	23 395	276 705	52 265	-	29 364	-			kWh/m	550.00	650.00	800.00	950.00	1 050.00	1 200.00	1 700.00
Consumers	98	163	11	-	272	-			Customers	272	-	-	-	-	-	-

EID1 SINGLE PHASE LIFE LINE																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	9	41	41	75	262	1 234	2 002	2 366	2 368	2 820	2 820	3 597	3 597	3 597	3 597	3 597
kWh average	9	37	-	34	187	971	768	364	202	251	-	777	-	-	-	-
Cum Cust average	16	18	18	19	23	36	42	44	45	46	46	48	48	48	48	48
Cust average	16	2	-	1	4	13	6	2	1	1	-	2	-	-	-	-
Block	50	350	600	>600	Check	Check	BREAKEYEN		Amps	20	30.00	40.00	50.00	60.00	70.00	120.00
kWh/y	3 147	30 689	9 329	-	3 597	-			kWh/m	550.00	650.00	800.00	950.00	1 050.00	1 200.00	1 700.00
Consumers	23	23	2	-	48	-			Customers	48	-	-	-	-	-	-

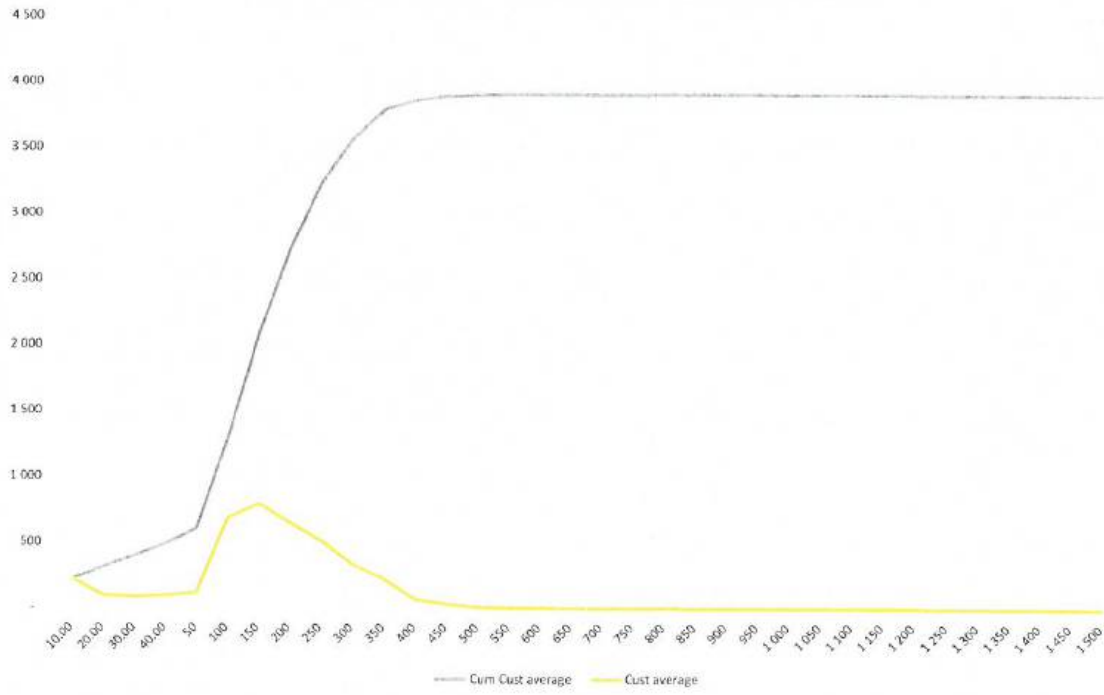
EID1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	634	2 457	5 457	8 955	13 610	54 841	101 398	143 824	175 266	204 186	222 828	240 715	250 738	258 318	265 066	266 717
kWh average	634	1 823	2 999	3 498	4 656	41 233	45 557	42 426	31 442	28 920	18 641	17 887	10 023	7 579	6 688	1 711
Cum Cust average	401	524	644	744	848	1 398	1 776	2 023	2 165	2 271	2 328	2 376	2 400	2 416	2 429	2 432
Cust average	401	123	120	100	104	550	378	247	142	106	57	48	24	16	13	3
Block	50	350	600	>600	Check	Check	BREAKEYEN		Amps	20	30.00	40.00	50.00	60.00	70.00	120.00
kWh/y	163 324	2 510 607	578 565	92 221	278 726	-			kWh/m	550.00	650.00	800.00	950.00	1 050.00	1 200.00	1 700.00
Consumers	848	1 480	111	10	2 449	-			Customers	2 429	10	8	1	-	1	-

EIE1 LED PROJECTS																
	10.00	20.00	30.00	40.00	50	100	150	200	250	300	350	400	450	500	550	600
Cum kWh average	123	302	492	598	646	1 574	2 282	2 459	2 459	2 459	2 774	2 774	3 174	3 174	3 174	3 174
kWh average	123	179	190	106	48	929	708	176	-	-	315	-	401	-	-	-
Cum Cust average	65	77	85	88	89	102	108	109	109	109	110	110	111	111	111	111
Cust average	65	12	8	3	1	13	6	1	-	-	1	-	1	-	-	-
Block	50	350	600	>600	Check	Check	BREAKEYEN									

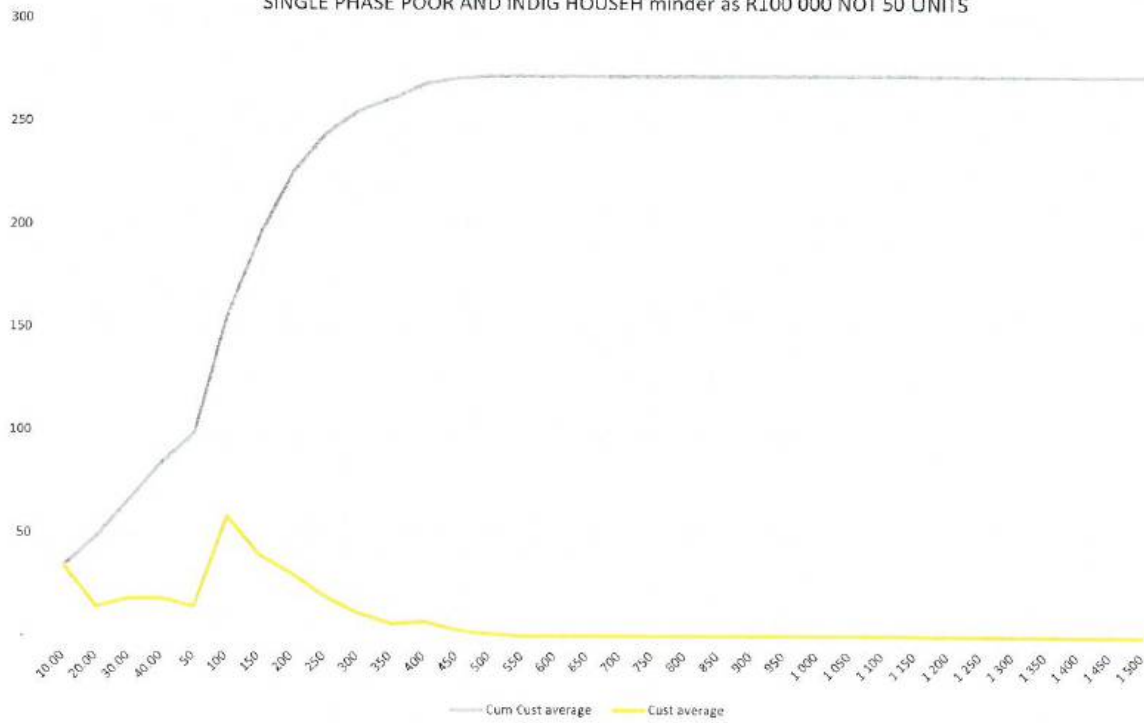
This is then shown graphically in the graphs below. In each case it shows the number of consumers on the vertical axis and the consumption block on the horizontal axis. Each show two graphs namely the number of consumers in each block and the communicative consumers up to that level of consumption.



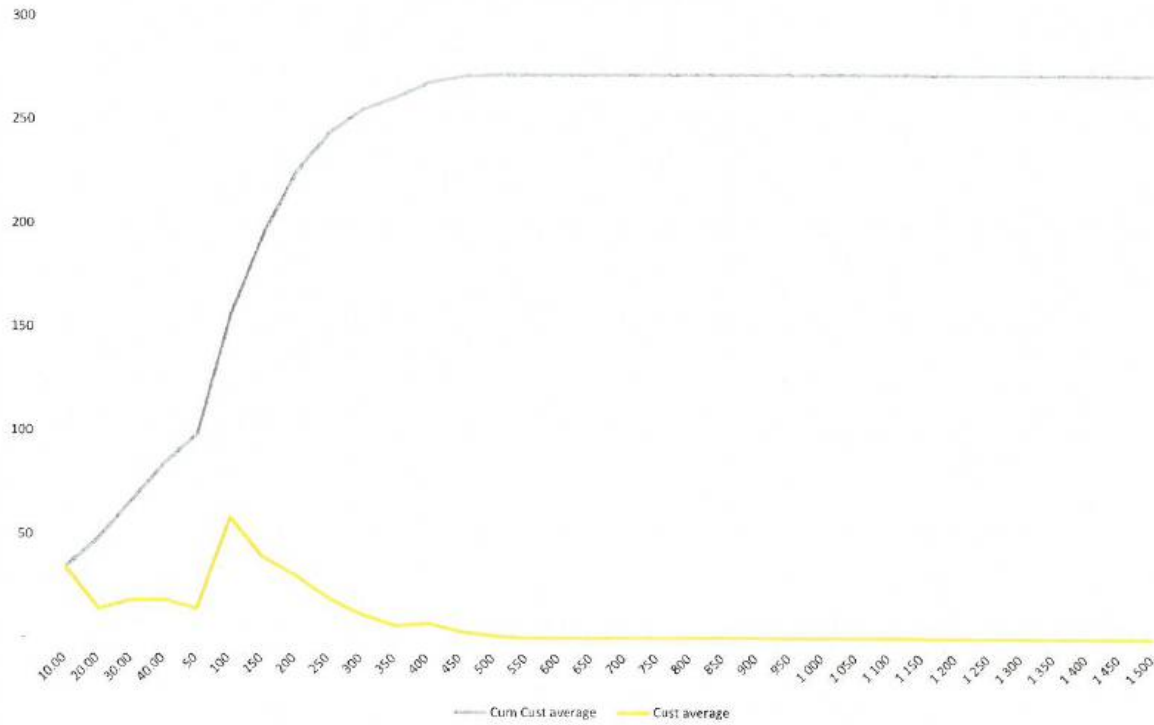
SINGLE PHASE INDIGENT or HULPBEHOEWEND 50 EENHEDE AANSOEK



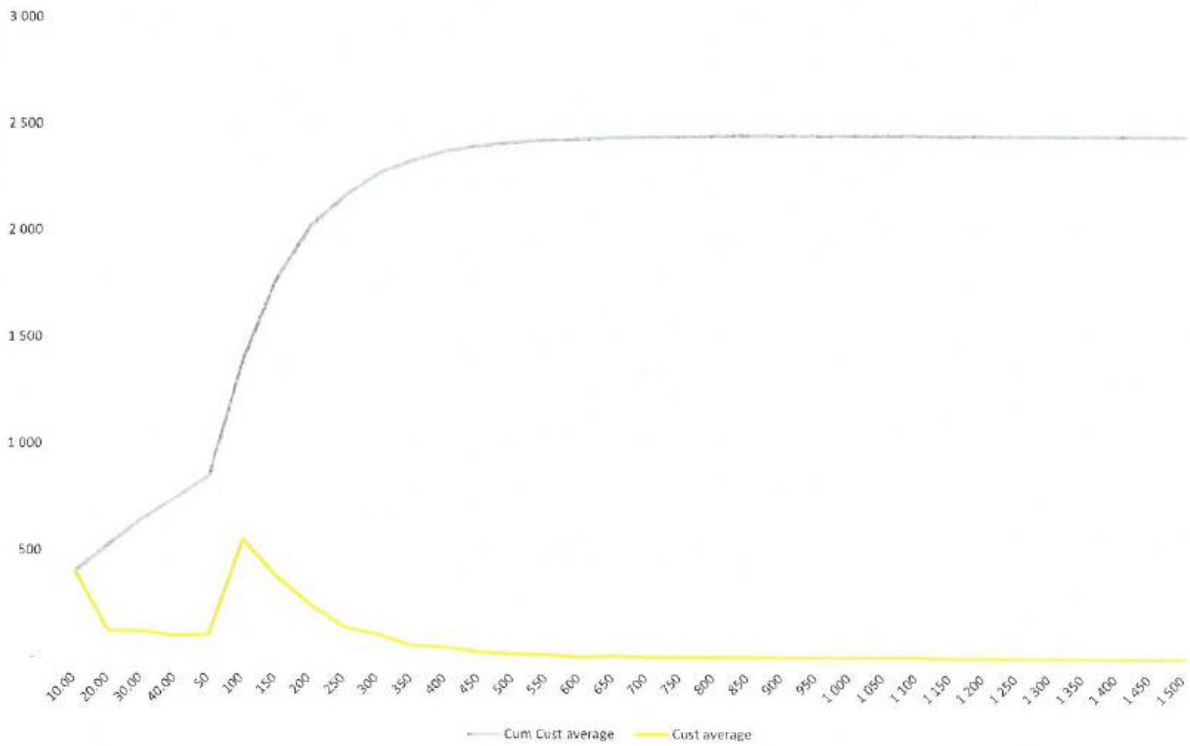
SINGLE PHASE POOR AND INDIG HOUSEH minder as R100 000 NOT 50 UNITS



DOMESTIC 1 PART UILENKRAALMOND

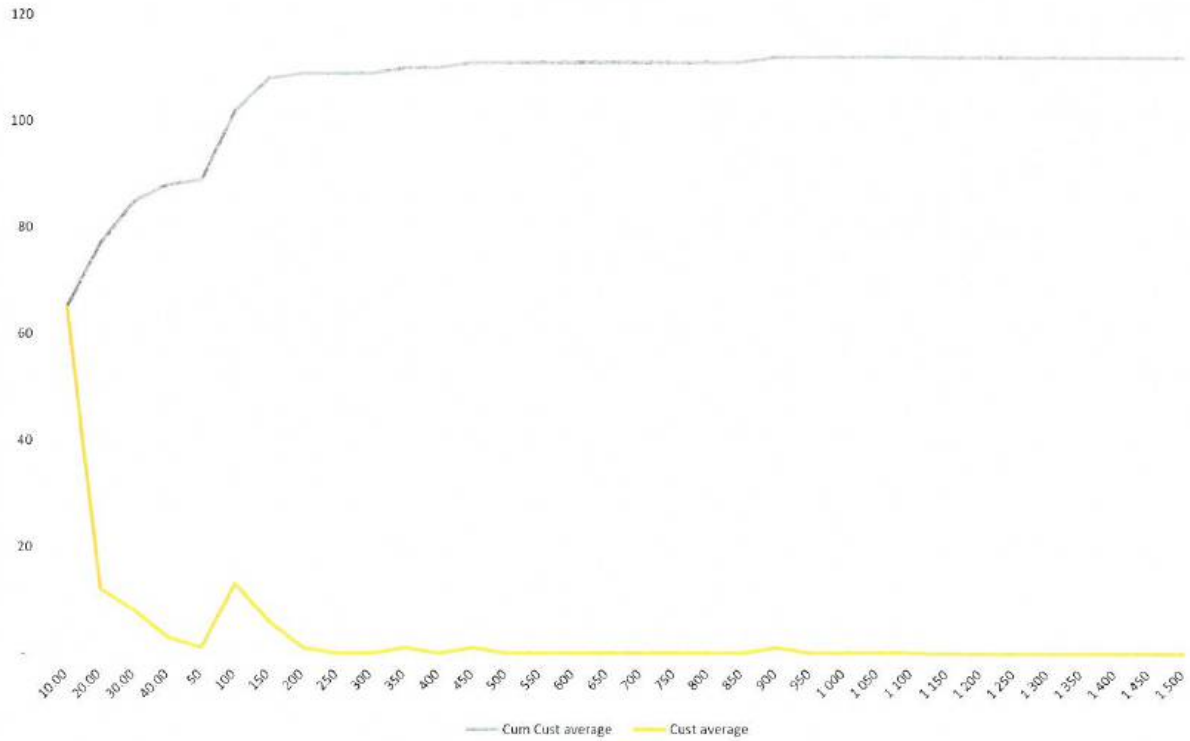


SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE



A26/107

LED PROJECTS



**7. CUSTOMER / SALES / REVENUE ANALYSIS.**

Before one can start classifying costs, some calculations need to be done which will be used in the classification process. It starts off with the analysis of customers, tariffs and revenue.

Table 16 shows the 2020/2021 and 2021/2022 tariffs. The current tariffs are used to ensure that any restructuring that was done during the last tariff change is incorporated.

Table 16

OVERSTRAND ELECTRICITY TARIFF SCHEDULE		2020/2021		2021/2022		Increase	
Tariff Code	Details	Exclude VAT	Include VAT 15%	Exclude VAT	Include VAT 15%		
EF	<b>FIXED CHARGES</b>						
EF1	Infrastructure Charge per Meter per month	R/POS/m	16.65	19.15	16.65	19.15	0.00%
E1	<b>SINGLE PHASE : Domestic</b>						
E1A	<b>4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)</b>						
E1A1	Basic Monthly charge per meter	R/POS/m	356.2	409.63	408.17	469.4	14.59%
E1A2	IBT BLOCK 1 0 - 350 kWh	c/kWh	136.67	157.17	156.61	180.1	14.59%
E1A3	IBT BLOCK 2 351 - 600 kWh	c/kWh	200.72	230.83	230.01	264.51	14.59%
E1A4	IBT BLOCK 3 > 600 kWh	c/kWh	246.62	283.61	282.6	324.99	14.59%
E1B	<b>4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)</b>						
E1B1	Basic Monthly charge per meter	R/POS/m	356.2	409.63	408.17	469.4	14.59%
E1B2	IBT BLOCK 1 0 - 350 kWh	c/kWh	126.24	145.18	144.66	166.36	14.59%
E1B3	IBT BLOCK 2 351 - 600 kWh	c/kWh	189.15	217.52	216.75	249.26	14.59%
E1B4	IBT BLOCK 3 > 600 kWh	c/kWh	237.06	272.62	271.65	312.39	14.59%
E1C	<b>2-part, Commercial, Credit, 1 ph:</b>						
E1C1	Basic Monthly charge per meter	R/POS/m	356.2	409.63	408.17	469.4	14.59%
E1C2	kWh Unit cost - Credit Meters	c/kWh	204.55	235.23	234.39	269.55	14.59%
E1C	<b>2-part, Commercial, PP, 1 ph</b>						
E1C1	Basic Monthly charge per meter	R/POS/m	356.2	409.63	408.17	469.4	14.59%
E1C3	kWh Unit cost - Pre-paid meters	c/kWh	192.76	221.67	220.88	254.02	14.59%
E1D	<b>1-part Life Line (Pre-paid) ≤ 30 Amp ≤ 350 kWh/m (12 months). Informal</b>						
E1D1	IBT BLOCK 1 0 - 350 kWh	c/kWh	127.62	146.76	146.24	168.18	14.59%
	IBT BLOCK 2 >350 kWh				216.75		
E1E	<b>1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)</b>						
E1E1	IBT BLOCK 1 0 - 350 kWh	c/kWh	220.5	253.58	252.67	290.57	14.59%
	IBT BLOCK 2 >350 kWh				216.75		
E3	<b>THREE PHASE: Commercial &amp; Domestic</b>						
E3E	<b>4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)</b>						
E3E1	Basic Monthly charge per meter	R/POS/m	712.39	819.25	816.33	938.78	14.59%
E3E2	IBT BLOCK 1 0 - 350 kWh	c/kWh	137.96	158.65	158.09	181.8	14.59%
E3E3	IBT BLOCK 2 351 - 600 kWh	c/kWh	201.55	231.78	230.96	265.6	14.59%
E3E4	IBT BLOCK 3 > 600 kWh	c/kWh	245.09	281.85	280.85	322.98	14.59%
E3E	<b>4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)</b>						
E3E5	Basic Monthly charge per meter	R/POS/m	712.39	819.25	816.33	938.78	14.59%
E3E6	IBT BLOCK 1 0 - 350 kWh	c/kWh	127.45	146.57	146.04	167.95	14.59%
E3E7	IBT BLOCK 2 351 - 600 kWh	c/kWh	189.93	218.42	217.64	250.29	14.59%
E3E8	IBT BLOCK 3 > 600 kWh	c/kWh	235.59	270.93	269.96	310.46	14.59%
E3E	<b>2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)</b>						
E3E9	Basic Monthly charge per meter R	R/POS/m	712.39	819.25	816.33	938.78	14.59%
E3E10	kWh Unit charge	c/kWh	204.55	235.23	234.39	269.55	14.59%
E3E	<b>2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)</b>						
E3E11	Basic Monthly charge per meter	R/POS/m	712.39	819.25	816.33	938.78	14.59%
E3E12	kWh Unit charge	c/kWh	192.76	221.67	220.88	254.02	14.59%
E3G	<b>1-Part, Pre-paid, 3 ph; ≤ 100A (70 kVA) Businesses, Flats, Sport, Churches (≥ 800kWh/m 12 months)</b>						
E3G1	kWh Unit charge	c/kWh	243.29	279.78	278.79	320.6	14.59%
E5	<b>TIME OF USE TARIFF</b>						
E5A1	Bulk: Medium Voltage	R/POS/m	3387.47	3895.59	3861.7	4463.96	14.59%
E5A1A	Bulk: Low Voltage	R/POS/m	2995.9	3445.29	3433	3947.95	14.59%
E5A2	Network Demand Charge kVA: Utilised capacity	R/kVA/m	31.9	36.69	38.29	44.04	20.04%
E5A3	Network Capacity Charge kVA: Notified Maximum Demand (NMD)	R/kVA/m	25.39	29.2	30.52	35.1	20.22%
	<b>Medium Voltage Metering Points (11000V)</b>						
E5A4	Off Peak kWh Unit Charge	c/kWh	56.22	64.65	64.42	74.09	14.59%
E5A5	Standard kWh Unit Charge	c/kWh	101.2	116.38	115.97	133.36	14.59%
E5A6	Peak kWh Unit Charge	c/kWh	328.89	378.22	376.86	433.41	14.59%
	<b>Low Voltage Metering Points (400V)</b>						
E5A7	Off Peak kWh Unit Charge	c/kWh	60.45	69.52	69.27	79.66	14.59%
E5A8	Standard kWh Unit Charge	c/kWh	105.41	121.22	120.79	138.91	14.59%
E5A9	Peak kWh Unit Charge	c/kWh	333.12	383.09	381.72	438.98	14.59%
	<b>Sundry Charges</b>						
E5A10	Exceed NOTIFIED MAXIMUM DEMAND (NMD) per kVA Per month R	R/kVA/m	1039.94	1195.62	1191.55	1370.29	14.59%
E6	<b>SUBSIDIZED TARIFFS: Grant to be shown separately</b>						
E6A	Residential Indigent as per paragraph A of the Indigent Policy per meter	R/POS/m	356.2	409.63	408.17	469.4	14.59%
E6B	Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	R/POS/m	291.6	335.34	291.6	335.34	0.00%
E7	<b>PUBLIC LIGHTING &amp; CCTV</b>						
E7A1	Streetlights & CCTV (metered) per kWh (no basic charge)	c/kWh	88.87	102.2	101.84	117.11	14.59%
E7A2	Streetlights & CCTV (consumption) (per unit/per month) (no basic charge)	R/light/m	31.18	35.86	35.73	41.09	14.59%
E7A5	Illuminated street sign boards per month	R/light/m	31.18	35.86	35.73	41.09	14.59%
E8	<b>CASUAL SUPPLIES</b>						
E8A1	Per connection includes disconnection excluding hire of kiosk	R/POS/m	1227.61	1411.75	1406.72	1617.73	14.59%
E8A2	Consumption per day if not metered	R/day	79.76	91.72	91.4	105.11	14.59%
E8A3	Hire of temporary distribution kiosk, per kiosk, per occasion	R/kiosk/event	481.05	553.21	551.24	633.92	14.59%
E8A4	Deposit (Usage will be subtracted)	R/and			1656	no	14.59%
E8A5	One part tariff : Prepaid or Credit Casual Supply	c/kWh	241.94	278.23	277.24	318.82	14.59%
E9	<b>Availability: NETWORK CHARGES: SERVICED LAND</b>						
E9A1	Network charge per serviced plot per month	R/POS/m	356.2	409.63	408.17	469.4	14.59%
E9A2	Infrastructure per vacant plot per month	R/POS/m	16.65	19.15	16.65	19.15	0.00%
E18	<b>SMALL SCALE EMBEDDED GENERATION (SSEG)</b>						
E18A2	Feed-in Tariff c/kWh	c/kWh	73.22	84.2	83.9	96.49	14.59%

Table 17 shows the 2021/2022 tariff charges for purpose of calculations and assessment.  
Table 18 shows the 2020/2021 consumptions details.  
Table 19 shows the 2020/2021 actual revenue from the sales report.  
Table 20 shows the calculated revenue by multiplying the 2020/2021 consumption by the 2021/2022 tariffs.





Table 21 shows the 2020/2021 consumptions statistics.

Table 21

OVERSTRAND		CONSUMPTION STATISTICS FOR CHARGES APPLICABLE FOR ALL MONTHS OF THE YEAR									
CONSUMPTION STATISTICS		PO 07	MD&VA/Cust %	LF (annual) %	LF (ave month) %	Ave consump. kWh/cust/m	% 1 st block energy Vs total energy	% 2 nd block energy Vs total energy	% 3 rd block energy Vs total energy	% 4 th block energy Vs total energy	k varh % kWh
TARIFF NAME	TARIFF CODE	no	%	%	%	kWh/cust/m	%	%	%	%	%
Residential indigent as per paragraph A of the Indigent Policy per meter	E8A		6.90	4.17%		210.33	22%	70%	8%	0%	
Residential indigent minder as R100 000 No 50 FBE	E8B		6.90	3.23%		162.8	0%	69%	3%	7%	
Residential indigent as per paragraph B, C & D of the Indigent Policy per meter	E10		3.20	7.55%		507.2	0%	66%	12%	0%	
E1D1 SINGLE PHASE LIFE LINE	E1D		6.90	1.58%		79.8	0%	94%	5%	1%	
E1DI SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	E1D		6.90	3.01%		151.8	30%	66%	4%	1%	
E1E1 LED PROJECTS	E1D		6.90	0.70%		36.1	0%	81%	8%	10%	
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	E1A		9.20	6.16%		413.6	0%	46%	36%	15%	
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Ullenskransmond	E1B		6.90	2.29%		116.3	0%	69%	9%	22%	
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	E1A		11.50	7.53%		632.2	0%	32%	24%	45%	
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	E1B		9.20	5.81%		389.9	0%	66%	22%	12%	
4-Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	E3E		27.60	6.36%		1 282.3	0%	16%	12%	73%	
4-Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	E3E		27.60	5.70%		1 148.0	0%	17%	13%	70%	
4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	E3E		20.70	6.19%		934.7	0%	27%	16%	57%	
2-part, Commercial, Credit, 1 ph	E1C		13.80	8.11%		617.1	0%				
2-part, Commercial, PP, 1 ph	E1C		6.90	8.22%		414.2	0%				
1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)	E1E		13.80	9.64%		970.9	0%				
1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (≥ 800kWh/m 12 mont	E3G		20.70	7.98%		1 206.3	0%				
2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	E3E		41.40	8.29%		2 506.3	0%				
2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	E3E		20.70	7.83%		1 156.6	0%				
TIME OF USE TARIFF: MV	E3A1		1 269.75	85.02%	66.60%	609 935.0	0%				
TIME OF USE TARIFF: LV	E3		186.18	19.56%	46.07%	26 582.6	0%				
Streetlights & OCTV (metered) per kWh (no basic charge)	E7A1		0.10	17.81%		12.9	0%				
Streetlights & OCTV (consumption) (per 100 Watt / month) (non-metered)	E7A2		0.07	156.23%		77.1	0%				

Table 22 shows an analysis of the newly calculated revenue compared with the actual revenue. It shows an increase of 9.86% which is less than the average price increase, but these figures will still be used as basis for the COS study. It also shows where the big differences are. The biggest problem is on 3 phase domestic PP. It is clear that there must have been journal entries that caused the revenue from one category to be negative.

Table 22

OVERSTRAND		CALCULATED REVENUE			
TARIFF NAME	TOTAL R/year	Actual: Reference			
		Total	Difference	% Diff	
Residential indigent as per paragraph A of the Indigent Policy per meter	11 755 877	36 259 491	-24 503 614	-67.6%	
Residential indigent minder as R100 000 No 50 FBE	13 514 871	11 325 723	2 189 147	19.3%	
Residential indigent as per paragraph B, C & D of the Indigent Policy per meter	2 104 986	1 689 736	415 250	24.6%	
E1D1 SINGLE PHASE LIFE LINE	68 498	67 049	1 449	2.2%	
E1DI SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	8 594 594	4 864 153	1 730 442	35.6%	
E1E1 LED PROJECTS	70 314	112 627	-42 313	-37.6%	
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	79 818 360	69 400 851	10 417 509	15.0%	
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Ullenskransmond	2 005 352	1 782 944	222 408	12.5%	
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	1 431 470	1 305 879	125 591	9.6%	
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	135 656 005	117 097 083	18 558 922	15.8%	
4-Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	14 455 333	12 225 209	2 230 124	18.2%	
4-Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	2 676 493	2 257 221	421 272	18.7%	
4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	4 774 626	1 791 547	2 983 079	166.5%	
2-part, Commercial, Credit, 1 ph:	8 448 113	7 424 053	1 024 066	13.8%	
2-part, Commercial, PP, 1 ph	7 208 157	6 251 151	957 006	15.3%	
1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)	353 269	312 782	40 486	12.9%	
1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (≥ 800kWh/m 12 mont	1 210 718	2 570 189	-1 359 471	-52.9%	
2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	26 326 181	23 085 383	3 240 798	14.0%	
2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	9 546 593	8 186 060	1 360 532	16.6%	
TIME OF USE TARIFF: MV	108 220 306	94 986 116	13 234 190	13.9%	
TIME OF USE TARIFF: LV	74 522 104	67 115 112	7 406 993	11.0%	
Streetlights & OCTV (metered) per kWh (no basic charge)	795 606	688 165	107 441	15.6%	
Streetlights & OCTV (consumption) (per 100 Watt / month) (non-metered)	830 079	692 471	137 608	19.9%	
CASUAL SUPPLIES	-	-	-	#DIV/0!	
Availability: NETWORK CHARGES: SERVICED LAND	12 314 682	10 808 176	1 506 506	13.9%	
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	-	(5 799)	5 799	-100.0%	
Other	-	48 700	-48 700	-100.0%	
z	-	312 782	-312 782	-100.0%	
	482 654 854	524 704 594	482 654 854	42 049 741	8.71%

Various values from these tables will be used to calculate various factors.

## 8. NETWORK LOSSES.

The losses in the network are required in various instances. The first step is to determine the amount of energy flowing through each of the networks for each representative load profile. This is done by obtaining the kWh from each customer category from the actual consumption table and allocating it to the relevant point on the network. The result is shown in **Table 23**.

**Table 23**

OVERSTRAND													
kWh CONNECTED BY NETWORK													
Supply position	Total MV at HV sub	Bulk MV	Bulk LV	Commercial	Res	Res Poor	Lights					Total	
	P01	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10		
S00	0	0	0	0	0	0	0	0	0	0	0	0	
S01	0	0	0	0	0	0	0	0	0	0	0	0	
S02	0	0	0	0	0	0	0	0	0	0	0	0	
S03	0	0	0	0	0	0	0	0	0	0	0	0	
S04	0	72 854 638	0	0	0	0	0	0	0	0	0	72 854 638	
S05	0	0	39 551 996	0	0	0	0	0	0	0	0	39 551 996	
S06	0	0	0	18 938 224	82 667 591	21 242 316	2 572 611	0	0	0	0	125 420 742	
S07	0	0	0	0	0	0	0	0	0	0	0	0	
S08	0	0	0	0	0	0	0	0	0	0	0	0	
S09	0	0	0	0	0	0	0	0	0	0	0	0	
	0	72 854 638	39 551 996	18 938 224	82 667 591	21 242 316	2 572 611	0	0	0	0	237 827 378	
												Bulk +SSE	256 670 084
												Difference	7.34%
													237 827 378
													-18 842 706

The next step in the process, to calculate the losses of every network component, is as follows:

- An estimate is made about the loss % for every network component. This is done by considering the impedances of individual network components, the numbers involved and the loads flowing through it.
- The total infeed loads are then added to the relevant losses for every network through which it flows and are then added to the loads through all other networks to yield the total load.
- The loss factors are then modified until the total load, as calculated, is equal to the total load supplied in bulk. This is done by modifying the first pass estimation loss factors by the loss adjustment factor.

The resultant calculations are shown in Table 24 and Table 25.

Table 24

OVERSTRAND												Table 10					
ENERGY BALANCING																	
FIRST PASS - BALANCE TOTALS BY CHANGING LOSS FACTORS ONLY																	
kWh		KWH														MAX	
Input at each network.		Through		Grand		HIGH SEASON				LOW SEASON				DEM			
Supply position	kWh	Network	Total	P	S	O	Tot	P	S	O	Tot	Tot kWh	kVA	DEM	kVA		
S0	0	NL0	256 392 369	10 278 536	27 345 820	28 723 264	66 347 640	30 168 195	75 570 162	84 584 980	190 323 337	256 670 976	478 184	503 885	503 885	503 885	
S1	0	NL1	256 392 369	10 278 536	27 345 820	28 723 264	66 347 640	30 168 195	75 570 162	84 584 980	190 323 337	256 670 976	478 184	503 885	503 885	503 885	
S2	0	NL2	256 392 369	10 278 536	27 345 820	28 723 264	66 347 640	30 168 195	75 570 162	84 584 979 52	190 323 337	256 670 976	478 184	503 885	503 885	503 885	
S3	0	NL3	253 280 220	10 278 536	27 345 820	28 723 264	66 347 640	30 168 195	75 570 162 16	84 584 979 52	190 323 337	256 670 976	478 184	503 885	503 885	503 885	
S4	72 854 638	NL4	248 197 396	10 150 495	27 005 169	28 365 474	65 521 139	29 923 386 31	74 628 75 42	83 531 284 1	187 952 456	253 473 595	497 608	503 885	503 885	503 885	
S5	39 551 998	NL5	171 137 107	7 051 406	19 287 479	18 463 863	44 802 749	21 228 792 2	53 514 410 94	55 853 763 46	130 596 967	175 399 715	382 107	503 885	503 885	503 885	
S6	125 420 742	NL6	125 420 742	5 433 896	14 527 309	14 323 398	34 263 793	15 957 662 93	38 706 448 61	42 563 628 45	97 247 740	131 531 533	309 045	503 885	503 885	503 885	
S7	0	NL7	0	0	0	0	0	0	0	0	0	-	-	-	-	-	
S8	0	NL8	0	0	0	0	0	0	0	0	0	-	-	-	-	-	
S9	0	NL9	0	0	0	0	0	0	0	0	0	-	-	-	-	-	
237 627 378																	
COMPARISONS																	
Supply position		Grand		Low Season				High Season				MAX					
Supply position	Total	Sub-tot	Off-peak	Standard	Peak	Sub-tot	Off-peak	Standard	Peak	Tot kWh	kVA	DEM	kVA				
Bulk Purchases	256670084.2	10 617 101	26 555 265	*****	66 347 640	31 573 436	75 493 205	84 444 965	190 323 337	256 670 976	478 184	503 885	503 885				
Total calculated	256392368.7	10 278 536	27 345 820	*****	66 347 640	30 168 195	75 570 162	84 584 980	190 323 337	256 670 976	478 184	503 885	503 885				
Difference	277 715.44	(338 565.15)	790 554.02	*****	-	*****	76 956 66	140 014 41	-	-	25 701 70	-	-				
% Difference	0.11%	-3.19%	2.98%	2.90%	0.00%	-4.45%	0.10%	0.17%	0.00%	0.00%	5.37%	-	-				
Total losses	7.34%	7.34%															
Adjust losses to																	
Balance grand totals																	

It is important to note that the losses refer to all losses from the Eskom infeed points right down to the customers connected on the LV network and include non-technical losses.

Table 25

OVERSTRAND				
NETWORK LOSSES				
Supply position	Per Network Estimate	Per Network Adjusted	Network Point	Total at Supply Point
N0			S0	0.00%
N1	0.00%	0.00%	S1	0.00%
N2	0.00%	0.00%	S2	0.00%
N3	1.50%	1.23%	S3	1.23%
N4	2.50%	2.05%	S4	3.30%
N5	3.00%	2.46%	S5	5.84%
N6	6.00%	4.91%	S6	11.04%
N7	0.00%	0.00%	S6	11.04%
Total losses				7.34%

These load loss factors will be used in calculating the costs per tariff cost category.

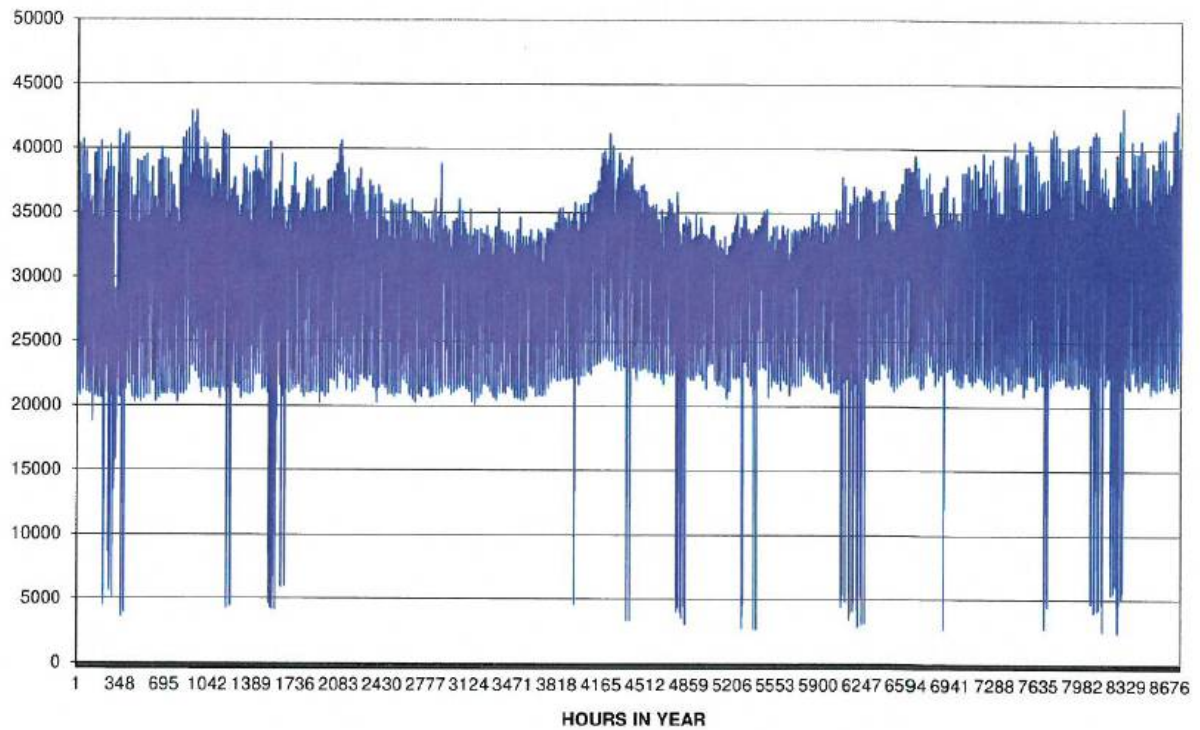
## 9. ESKOM ANALYSIS.

Overstrand receives its electricity from Eskom from 6 points of supply. These actual kWh and Rand values are summarised to represent the total purchase costs for Overstrand as shown in Table 26.



Figure 5

## TOTAL ANNUAL kVA PROFILE



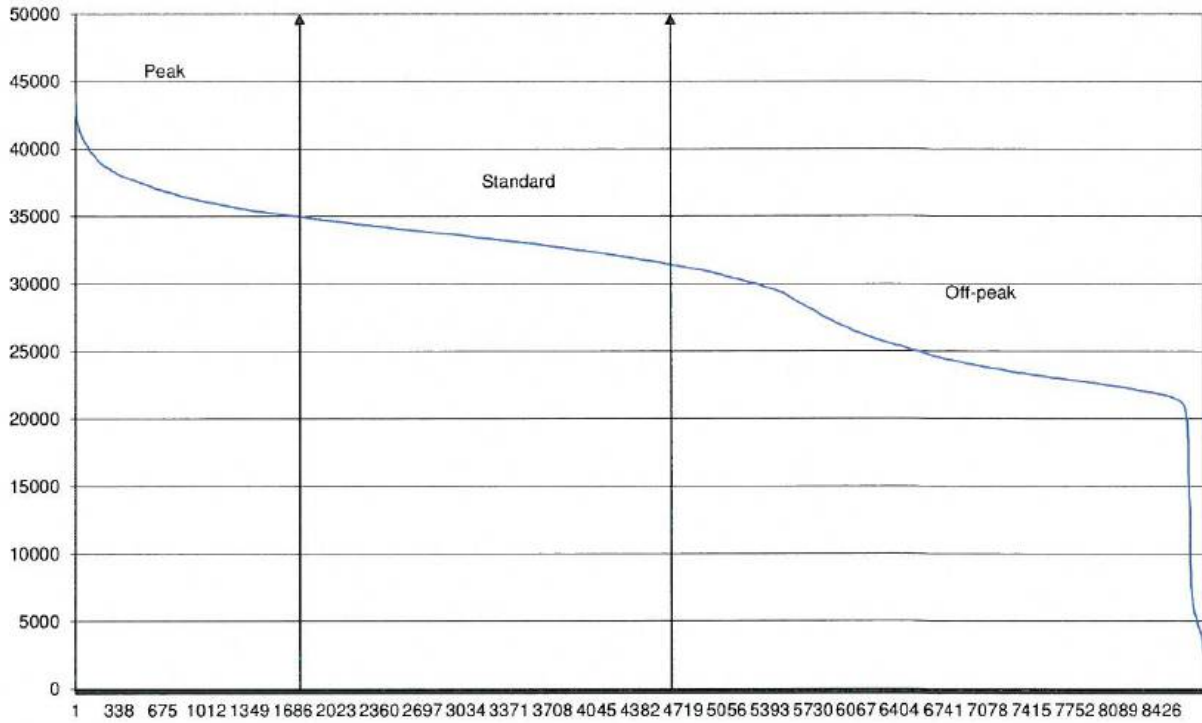
The following observations can be made from this:

- The highest peak was during the winter.
- This shows both the normal town winter peak as well as the typical December holiday peak.

Error! Reference source not found. shows the annual load duration curve. This shows the highest to the lowest  $\frac{1}{2}$  hourly kVA (Y-axis) for all the  $\frac{1}{2}$  hours of the year (x-axis) and gives an indication of the potential to reduce the peak demand.

Figure 6

ANNUAL LOAD DURATION CURVE

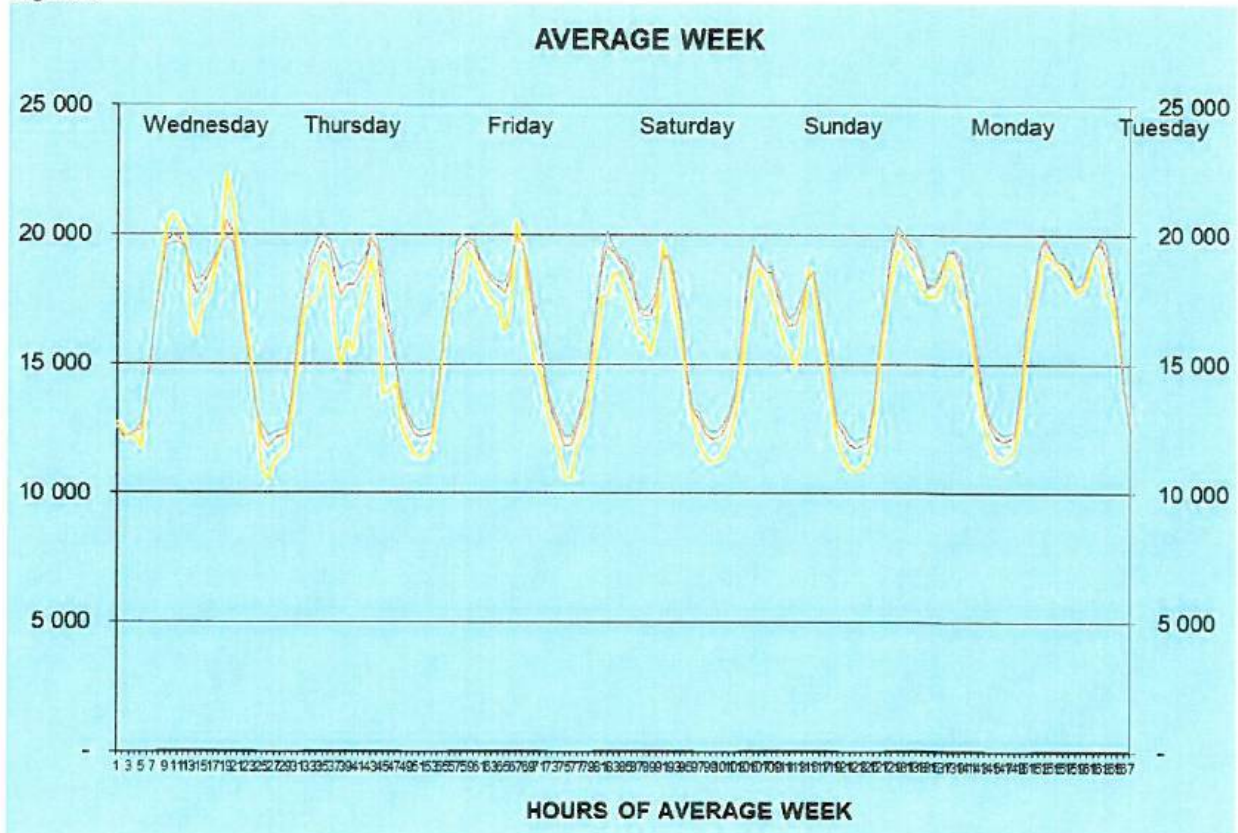


This shows that there is limited opportunity to save on maximum demand charges by only cutting out the peaks for a few hours in the year. Although the potential looks limited for the combined load, it will become clear that there are great opportunities to reduce peaks at each individual Eskom point of supply. Analysis shows that close to 5 MW can be further reduced by managing less than 57 peak hours in the year. This shows the importance of applying demand side management in the pricing signal to customers.

**Figure 7** shows the ½ hourly kVA values (Y-axis) for the following average weeks (7 day ½ hours per week = x-axis) of the total Eskom supply in the year:

- Average for whole year.
- Average for high-demand period
- Average for low-demand period.

**Figure 7**

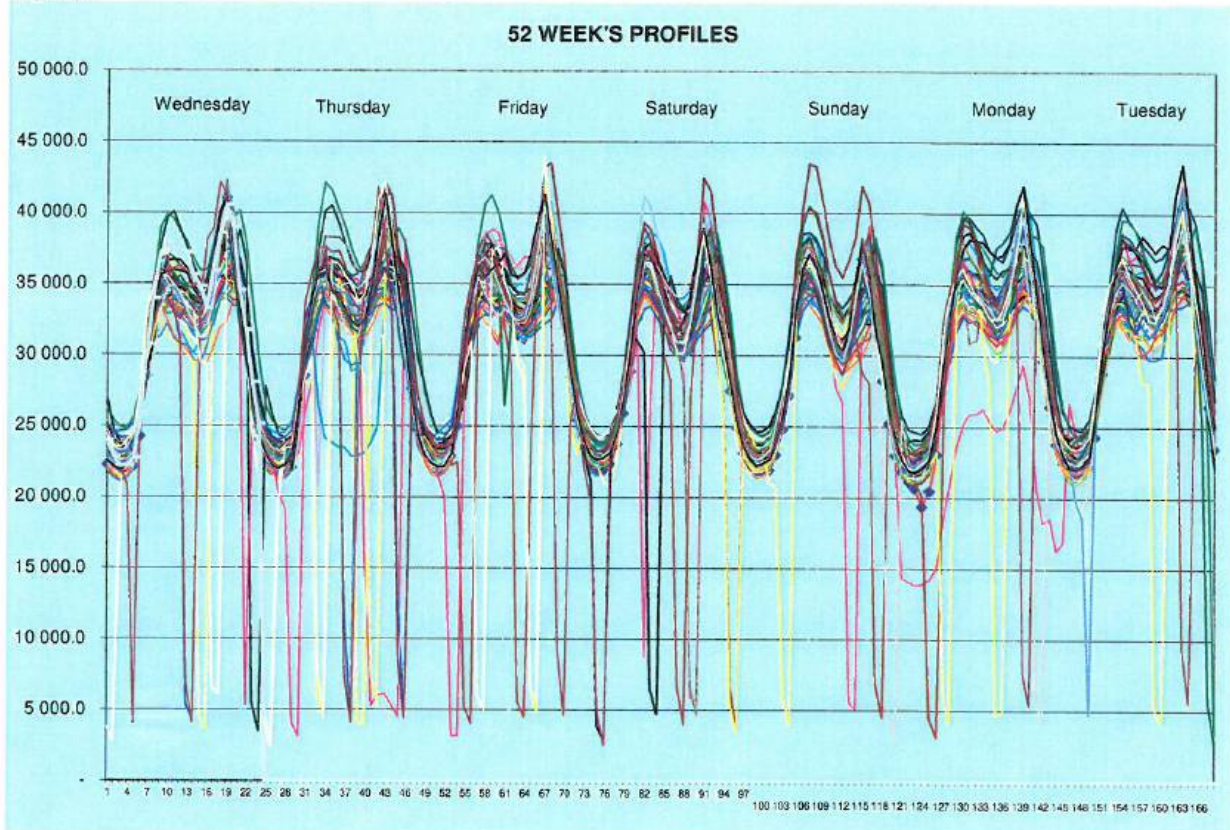


The following can be said in this respect:

- This is similar to other town profiles.
- It shows the very high evening peak especially in the High demand period (mainly from domestic customers).
- With the hot summers there is also a lower peak during the late mornings.
- It shows lower consumption on Saturdays and Sundays but late morning peaks on Sundays.
- Very low levels of consumption during the night.

**Figure 8** Error! Reference source not found. shows the ½ hourly kVA values (Y-axis) for every week of the year (7 day ½ hours per week = x-axis). This is a very important graph as the previous average graph easily hides very important information.

**Figure 8**

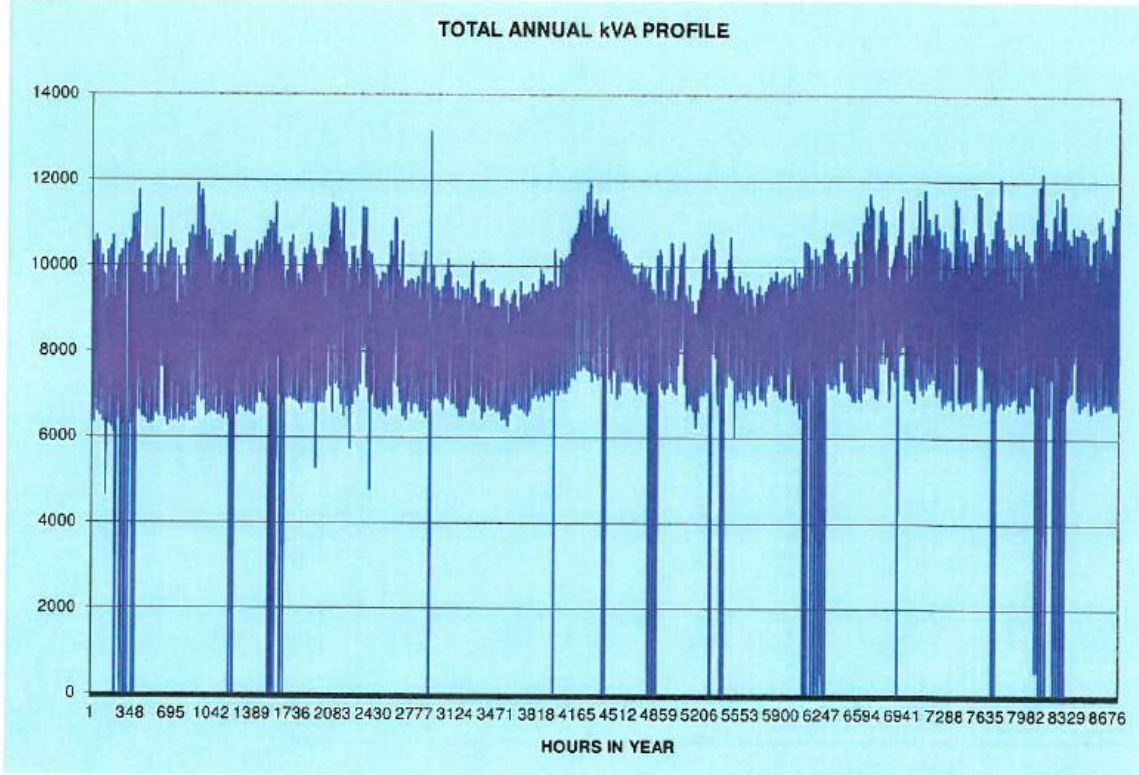


The following can be seen from this:

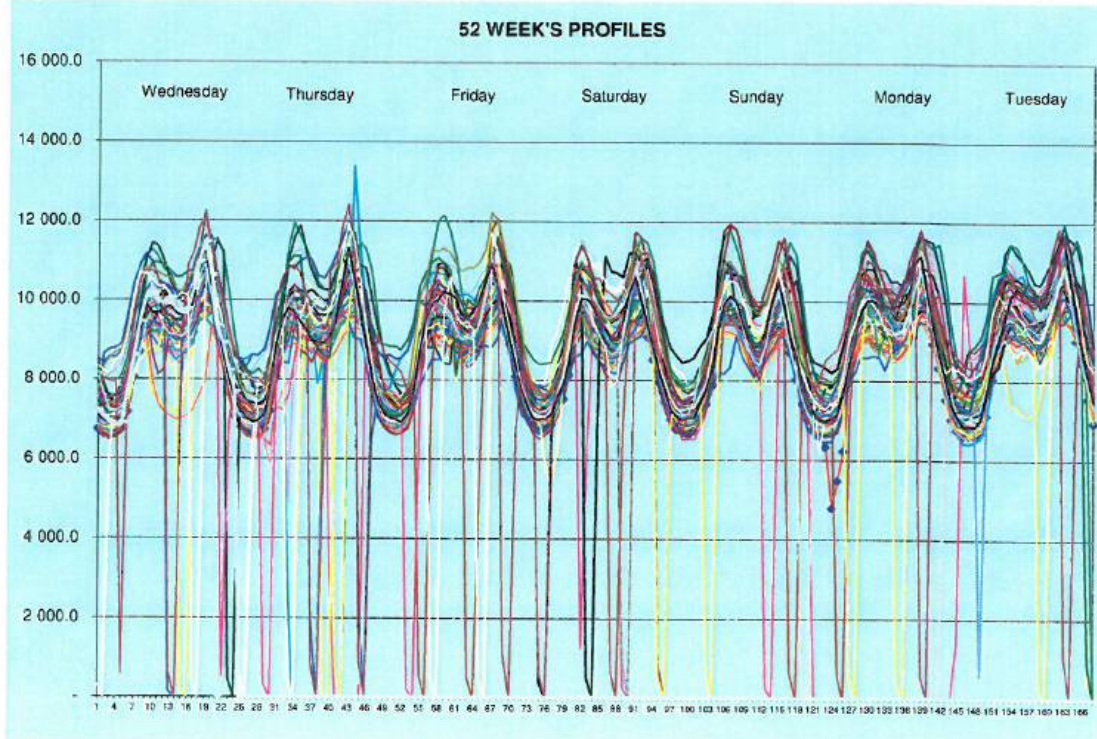
- On the highest peak day of the year, the evening peaks are dominant, but the morning peaks are moving closer.
- It also shows that there are only a few days in the year where the demand actually exceeds 40 MW. That leaves massive opportunity to save more than 5 MW with very limited effort.
- This is a clear message that the key focus for demand reduction must be on domestic evening peaks but the rising morning peaks cannot be ignored.

**Gansbaai.** The annual and weekly profiles for Gansbaai is shown below in Figure 9 and Figure 10:

**Figure 9**



**Figure 10**



**Hawston.** The annual and weekly profiles for Hawston are shown below in Figure 11 and Figure 12.

Figure 11

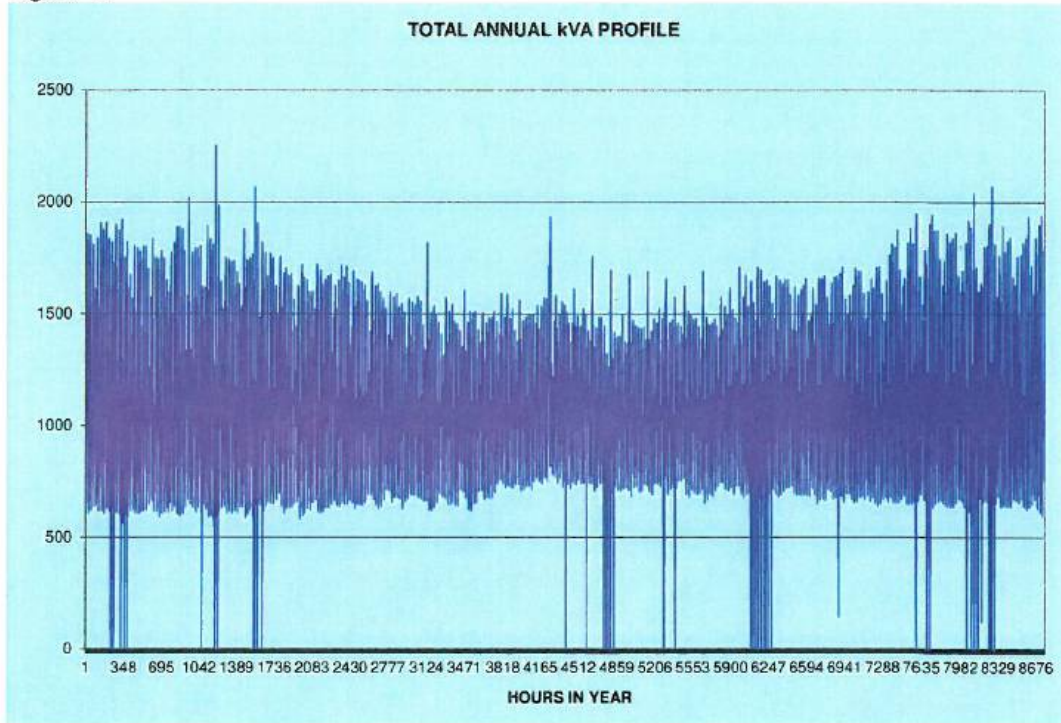
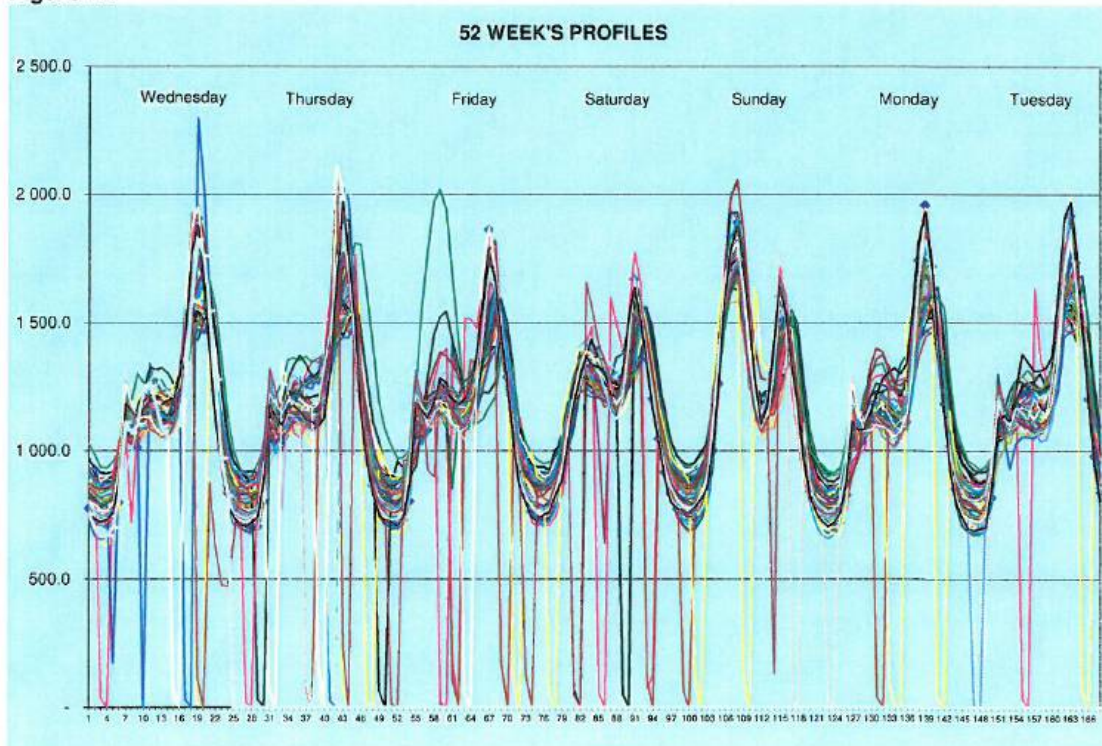


Figure 12



**Hermanus** 11 kV and 66 kV. The annual and weekly profiles, for Hermanus 11 kV and 66 kV combined, are shown below in 13 and Figure 14. These are combined as loads are shifted between the two points of supply.

Figure 13

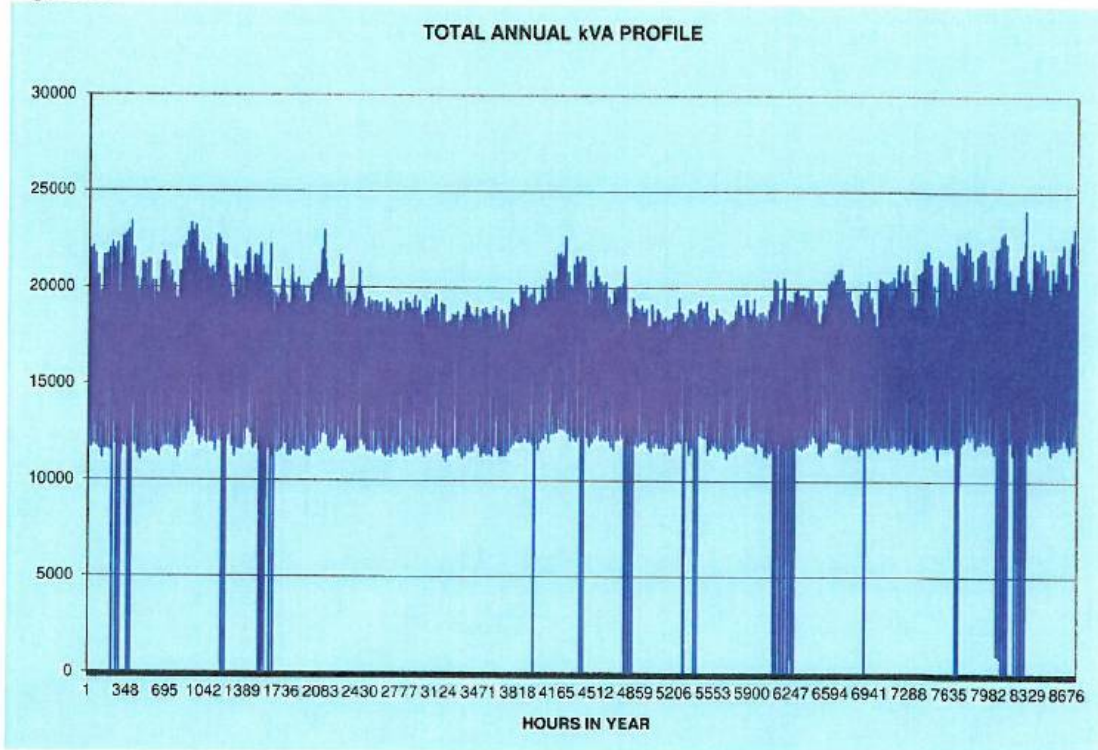
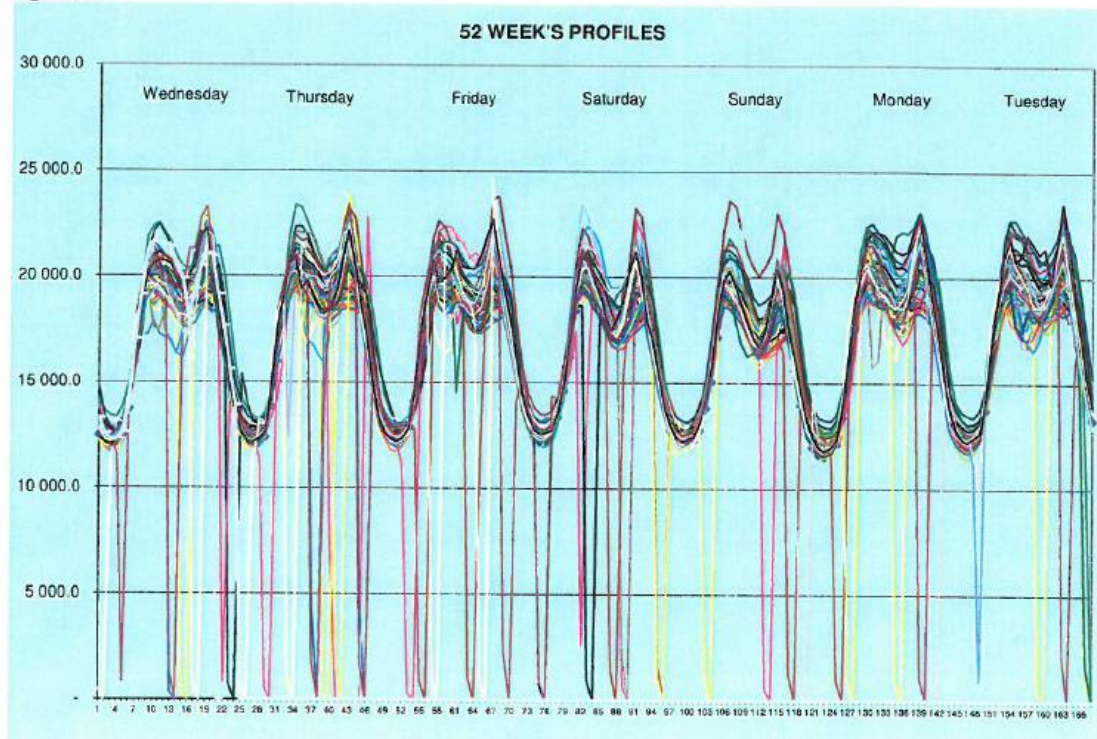


Figure 14



Kleinmond. The annual and weekly profiles for Kleinmond are shown below in Figure 15 and Figure 16.

Figure 15

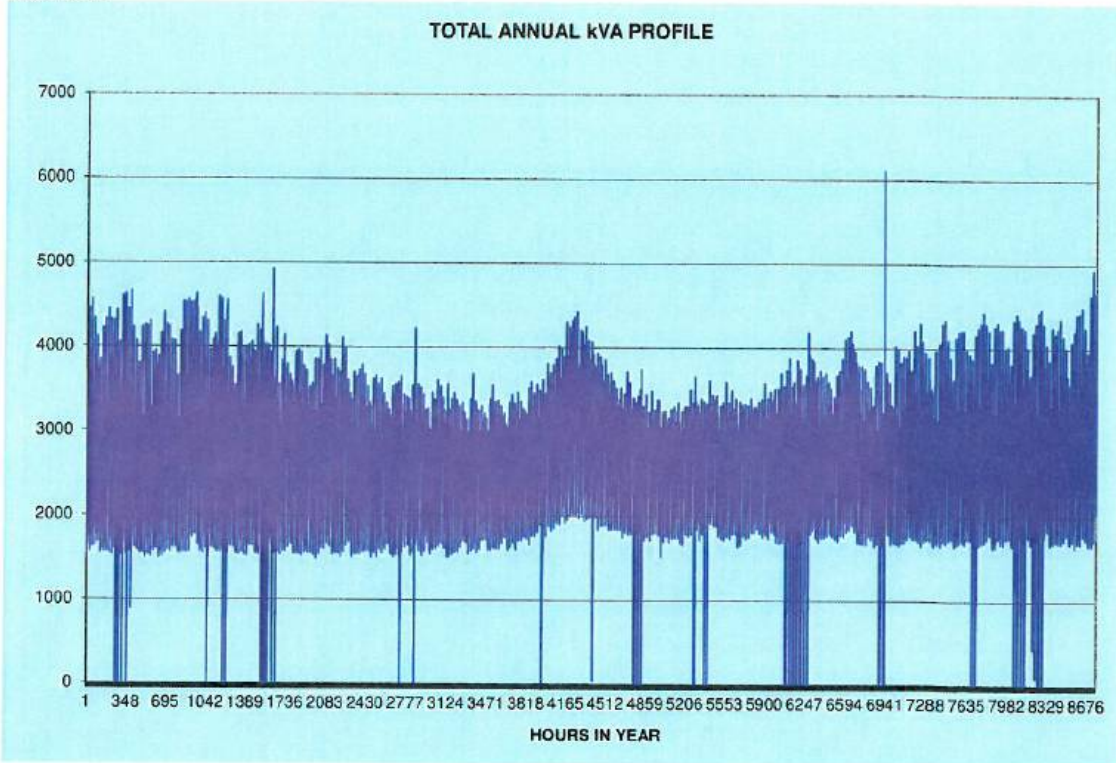
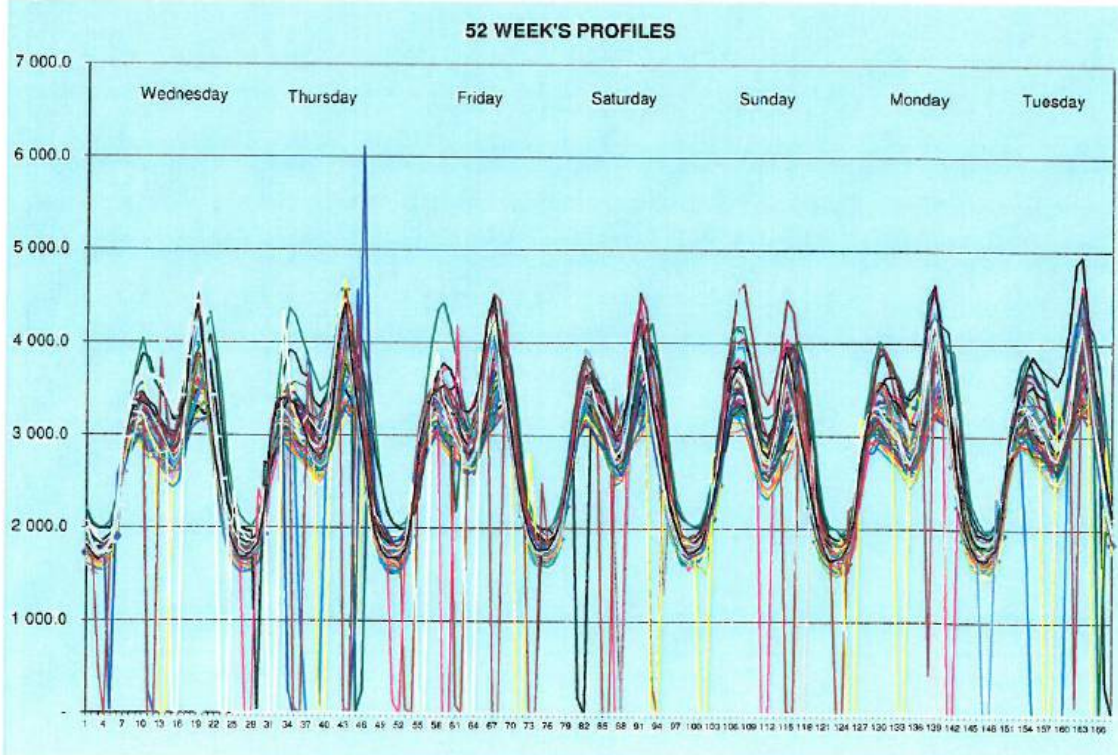


Figure 16



Stanford. The annual and weekly profiles for Stanford are shown below in Figure 17 and Figure 18

Figure 17

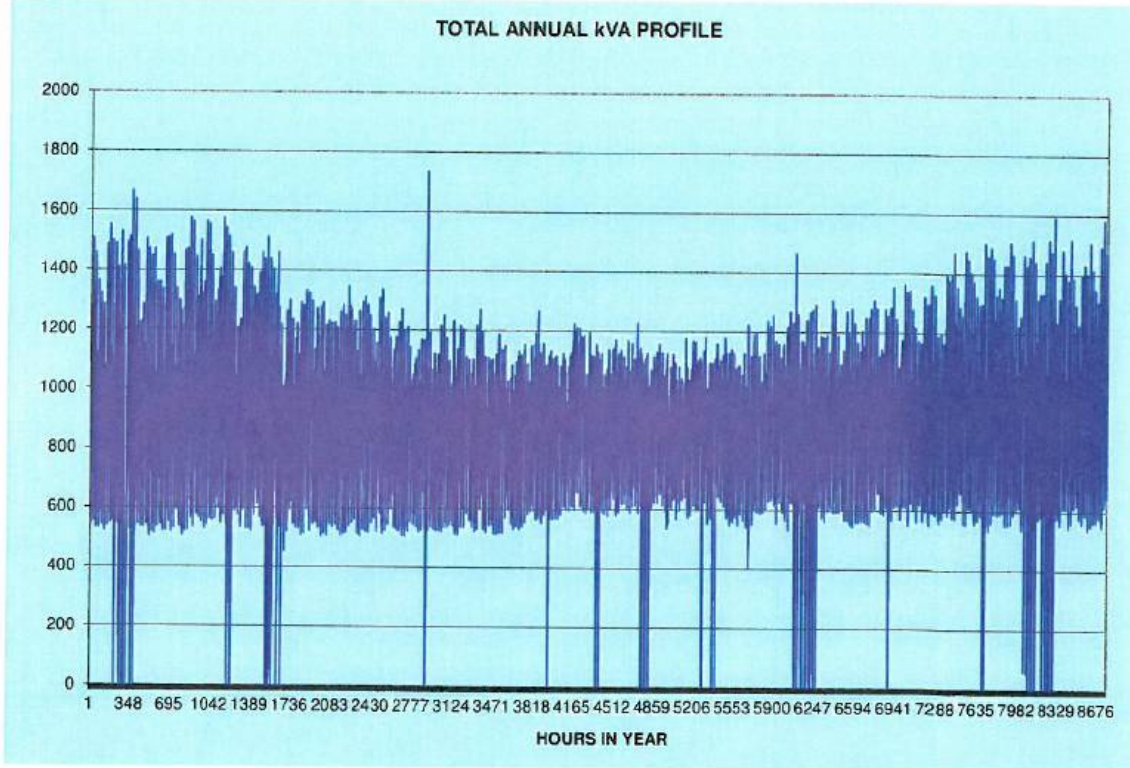
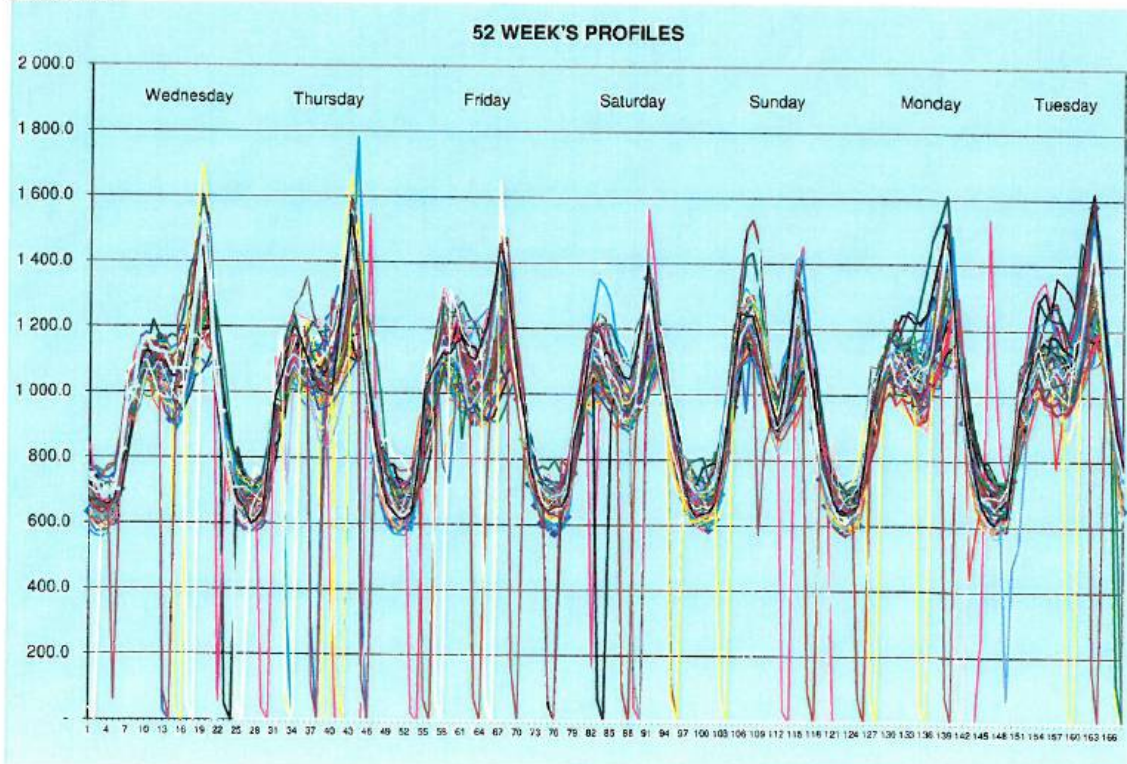


Figure 18



The following conclusions can be made from the analysis of these profiles:

- There is a very clear holiday / seasonal pattern with high increases during December / January.
- This pattern is very dominant in Kleinmond and Gansbaai but also Hermanus.
- The average peaks are more dominant during weekday evenings but a new peak is arising during Sunday mornings.
- The highest peaks for various of the Eskom points took place soon after the return of supply after extended Eskom outages.
- The profile and the Eskom bill for Kleinmond does not contain any kvarh values. This should be investigated and could lead to a massive adjustment from Eskom.
- It is clear that there is very little maximum demand or capacity control by customers or through a geyser control system.

#### 10. REPRESENTATIVE LOAD PROFILE ANALYSIS.

Extensive work is required in respect of load profiles. This refers to the way electricity is used by different customer categories and through different networks. The data used is 12 months of ½ hourly data.

The representative load profiles refer to the typical load profile of customers in a tariff category. The typical profiles that have been accepted nation wide and for which data is separately available include the following:

- Domestic Poor
- Domestic other.
- Commercial.
- Large customers at LV.
- Large customers at MV.
- Streetlights.

Many more were separately evaluated but, in the end, reduced to the ones stated.

The following process was followed to obtain representative load profiles:

- Various annual ½ hourly load profiles were obtained from the meters of Overstrand large customers, mini substations, feeders and Substations.
- These were identified into the various representative load profile categories.
- The profile for streetlights was calculated by using the on times from the day-night switches operating the streetlights.
- Unfortunately, load profiles were only obtained for the Gansbaai and Stanford areas and none from the Hermanus and Kleinmond areas. This will decrease the accuracy of the study.
- These were then used to calculate the relevant representative load profiles.

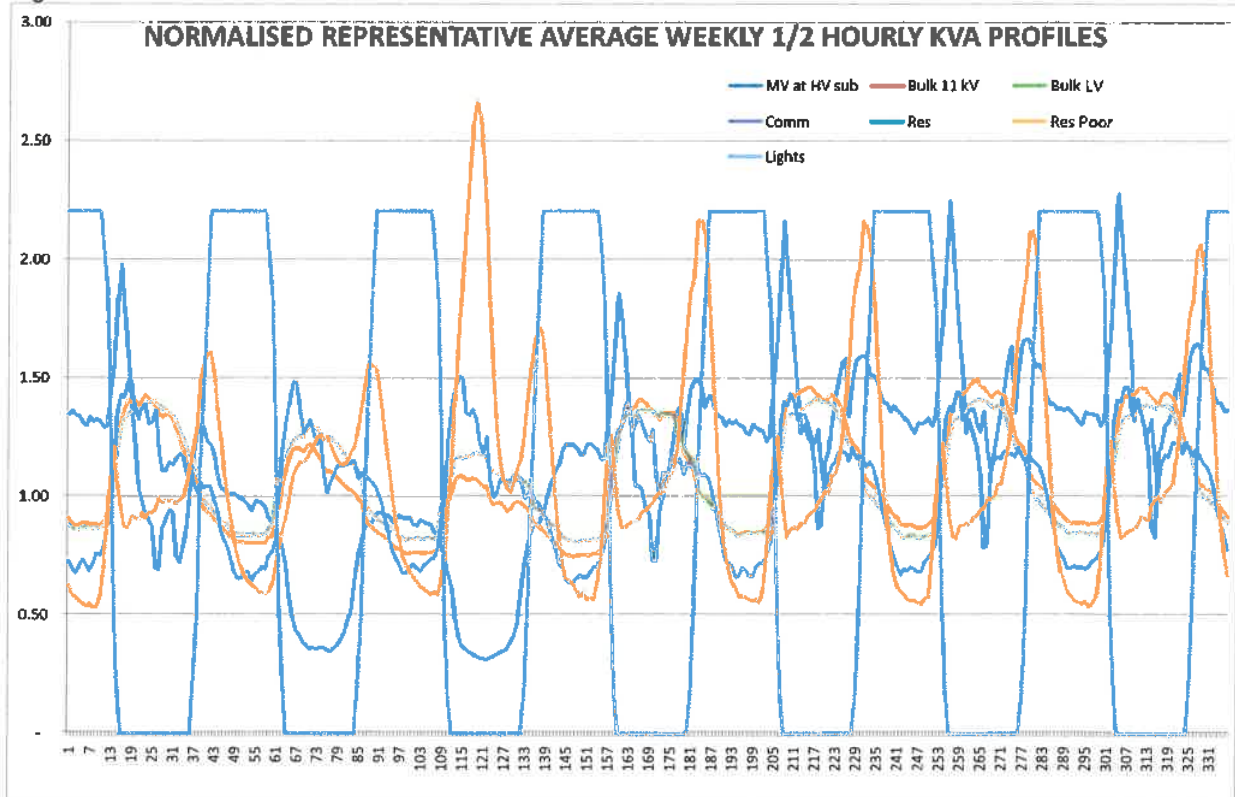
The consumer / substation / feeder profiles used are listed in Table 27.

Table 27

LOAD PROFILES USED FOR REPRESENTATIVE LOAD PROFILE CALCULATIONS	
Load profile type	Meter / feeder name
Munic	Franskraal Water Treatment Works (Three Phase) - PR-06470374 (2022-03-25 15h20m52)Meter - CT: 800/5 VT: 400/400
	Pearly Beach Booster Pump -PR-09320041 (2022-03-25 11h02m18)Meter - CT: 200/5 VT: 400/400
	Stanford - Die OogMeter - CT: 100/5 VT: 400/400
	Pearly Beach Pump -PR-10130006 (2022-03-25 10h25m09)Meter - CT: 300/5 VT: 400/400
	Stanford - Stanford ReservoirMeter - CT: 200/5 VT: 400/400
	Stanford - Stanford RioolplaaMeter - CT: 500/5 VT: 400/400
	De Kelders - KlipgatMeter - CT: 100/5 VT: 400/400
	De Kelders - De Kelders WaterwerkeMeter - CT: 200/1 VT: 400/400
	Blompark - Gansbaai SewerageMeter - CT: 800/5 VT: 400/400
	Gansbaai - Ou Haveri RioolpompMeter - CT: 150/5 VT: 400/400
Industrial MV	GANSBAAI MAN SS - GANSBAAI FABRIEK SS - PR-09080014 (2022-04-22 09h03m53)Meter - CT: 150/5 VT: 11000/110
	Agunion (TOU) -PR-10280041 (2022)Meter - CT: 200/5 VT: 11000/110
	Atlantic Fishing (TOU) - PR-064Meter - CT: 200/5 VT: 11000/110
	Gansbaai - Gansbaai MarineMeter - CT: 250/5 VT: 11000/110
	Gansbaai - Atlantic FishingMeter - CT: 200/5 VT: 11000/110
	Gansbaai Marine (TOU) - PR-09450031 (2022-03-31 12h34m10)Meter - CT: 250/5 VT: 11000/110
	K.J (TOU) - PR-12210020 (2022-04-05 12h06m44)Meter - CT: 200/5 VT: 11000/110
Industrial	Klipgat (TOU) - PR-18370019 (2022-04-06 10h11m58)Meter - CT: 100/5 VT: 400/400
	Sand en Kip (TOU) - PR-11380039 (2022-04-02 10h46m21)Meter - CT: 250/5 VT: 400/400
	Industrial - Burmar ChiksMeter - CT: 200/5 VT: 400/400
	Industrial - Industriële 1712Meter - CT: 100/5 VT: 400/400
	Industrie Erf 1712 (Three Phase) - PR-12350035 (2022-04-06 14h42m56)Meter - CT: 100/5 VT: 400/400
	Gansbaai - MS Genzeget - PR-12260041 (2022-05-05 15h13m47)Meter - CT: 800/5 VT: 400/400
Commercial	Gansbaai Supermark (TOU) - PR-11390090 (2022-04-08 11h04m47)Meter - CT: 150/5 VT: 400/400
	Gansbaai - Dirkie Uys SentrumMeter - CT: 100/5 VT: 400/400
	Dirkie Uys Sentrum (TOU) -PR-16250005 (2022-03-31 14h34m45)Meter - CT: 100/5 VT: 400/400
	Ovenberg Commercial Abalone (TOU) - PR-17180039 (2022-03-31 09h35m19)Meter - CT: 200/5 VT: 400/400
	Mena Investments (Three Phase) - PR-07480014 (2022-04-07 11h28m25)Meter - CT: 300/5 VT: 400/400
	Gansbaai Telkom (TOU) - PR-06310016 (2022-04-05 11h19m18)Meter - CT: 250/5 VT: 400/400
	Great White Junction (TOU) - PR-12450006 (2022-04-07 15h32m50)Meter - CT: 1600/5 VT: 400/400
	Great White Shark JunctionMeter - CT: 1800/5 VT: 400/400
	Gansbaai - TelkomMeter - CT: 250/5 VT: 400/400
	Gansbaai - BirkkieslootMeter - CT: 300/5 VT: 400/400
	Stanford - Birkenhead BreweryMeter - CT: 500/5 VT: 400/400
	Gansbaai - Sand en KipMeter - CT: 250/5 VT: 400/400
	Gansbaai - Gansbaai SupermarkMeter - CT: 150/5 VT: 400/400
	Blompark - Gansbaai AcademiaMeter - CT: 150/5 VT: 400/400
Commercial MS	INDUSTRIAL - INDUSTRIE 1 - PR-10220001 (2022-04-13 09h58m21)Meter - CT: 800/5 VT: 400/400
	INDUSTRIAL - INDUSTRIE 2 - PR-10300001 (2022-04-13 08h31m53)Meter - CT: 800/5 VT: 400/400
	Gansbaai - MS Dyer EilandMeter - CT: 800/5 VT: 400/400
	Stanford - MS Houwel - PR-12420046 (2022-05-10 12h29m33)Meter - CT: 800/5 VT: 400/400
	Stanford - MS Kleine Vallei 1 - PR-13090004 (2022-05-10 11h45m23)Meter - CT: 800/5 VT: 400/400
	Stanford - MS Kleine Vallei 2 - PR-12320014 (2022-05-10 12h06m11)Meter - CT: 800/5 VT: 400/400
	Stanford - MS Kleine Vallei 3 - PR-13080021 (2022-05-10 12h55m24)Meter - CT: 800/5 VT: 400/400
Residential	Birkenhead - Romansbaai DevelopmentMeter - CT: 100/5 VT: 11000/110
	De Kelders - WhalecoveMeter - CT: 400/5 VT: 400/400
	Gansbaai - MS Baleana Bay - PR-07490013 (2022-05-05 13h45m12)Meter - CT: 500/5 VT: 400/400
	Gansbaai - MS Baleana BayMeter - CT: 500/5 VT: 400/400
	Kleinbaai - MS Siebert - PR-15410034 (2022-04-29 14h56m16)Meter - CT: 800/5 VT: 400/400
	Gansbaai - Herberg aan SeeMeter - CT: 250/5 VT: 400/400
	GANSBAAI MAN SS - PEARLY BEACH OVERHEAD LINE - PR-09070025 (2022-04-13 15h08m18)Meter - CT: 150/5 VT: 11000/110
	Herberg aan See (TOU) -PR-11390015 (2022-03-31 15h20m32)Meter - CT: 250/5 VT: 400/400
	Stanford - Riverside VillageMeter - CT: 250/5 VT: 110/110
	Stanford House (TOU) - PR-10090008 (2022-04-07 09h29m04)Meter - CT: 150/5 VT: 400/400
	Klein Paradijs -PR-11120091 (2022-03-25 09h56m19)Meter - CT: 250/5 VT: 400/400
Res MS	Gansbaai - MS Koerperasie - PR-14260035 (2022-05-09 09h14m18)Meter - CT: 800/5 VT: 400/400
	Gansbaai - Ralsana BayMeter - CT: 500/5 VT: 400/400
	Gansbaai - MS De WerfMeter - CT: 800/5 VT: 400/400
	Kleinbaai - MS Groenbergr - PR-15410038 (2022-04-29 15h20m18)Meter - CT: 800/5 VT: 400/400
	Kleinbaai - MS Kleinbaai 1 - PR-03000106 (2022-05-03 12h15m07)Meter - CT: 500/5 VT: 400/400
	Kleinbaai - MS Steenbok - PR-06410049 (2022-05-03 11h44m20)Meter - CT: 800/5 VT: 400/400
	Kleinbaai - MS van Dijk - PR-11480049 (2022-05-03 14h28m55)Meter - CT: 800/5 VT: 400/400
	Pearly Beach - MS Charlie van Breda - PR-08450034 (2022-04-26 15h50m07)Meter - CT: 800/5 VT: 400/400
	Kleinbaai - MS Beester - PR-15400037 (2022-04-29 14h33m19)Meter - CT: 800/5 VT: 400/400
	Kleinbaai - MS Duiker - PR-16420010 (2022-04-26 15h40m35)Meter - CT: 800/5 VT: 400/400
	Franskraal - MS Christine - PR-14080018 (2022-05-04 10h57m22)Meter - CT: 800/5 VT: 400/400
	Franskraal - MS Fourie - PR-16300044 (2022-05-05 10h35m09)Meter - CT: 800/5 VT: 400/400
	Franskraal - MS Pienaar - PR-17370001 (2022-05-05 10h13m21)Meter - CT: 800/5 VT: 400/400
	Pearly Beach - MS Spin - PR-11310038 (2022-04-26 14h55m12)Meter - CT: 800/5 VT: 400/400
	Pearly Beach - MS Twist - PR-14120031 (2022-04-26 15h25m21)Meter - CT: 800/5 VT: 400/400
	Gansbaai - MS Muller - PR-09310006 (2022-05-05 14h06m46)Meter - CT: 800/5 VT: 400/400
	De Kelders - MS Barnard - PR-09040059 (2022-05-09 16h20m37)Meter - CT: 800/5 VT: 400/400
	De Kelders - MS Long - PR-15430027 (2022-05-09 14h28m45)Meter - CT: 1000/5 VT: 400/400
	De Kelders - MS Retreat - PR-14130012 (2022-05-09 14h05m23)Meter - CT: 800/5 VT: 400/400
	De Kelders - MS Vyter - PR-08500052 (2022-05-09 11h54m24)Meter - CT: 800/5 VT: 400/400
	Franskraal - MS Merals - PR-10460043 (2022-05-05 11h36m38)Meter - CT: 800/5 VT: 400/400
	Franskraal - MS Ross - PR-12200072 (2022-05-05 12h38m09)Meter - CT: 800/5 VT: 400/400
	Franskraal - MS Tom - PR-10410035 (2022-05-05 11h59m09)Meter - CT: 800/5 VT: 400/400
	Franskraal - MS Anet - PR-11220015 (2022-05-04 10h36m46)Meter - CT: 800/5 VT: 400/400
	Franskraal - MS Cilliers - PR-15400055 (2022-05-06 11h05m01)Meter - CT: 800/5 VT: 400/400
	Stanford - MS Caldon - PR-12500006 (2022-05-10 14h17m30)Meter - CT: 800/5 VT: 400/400
	Stanford - MS Kortmark - PR-06470052 (2022-05-10 13h53m58)Meter - CT: 800/5 VT: 400/400
	Stanford - MS Market Square - PR-07040052 (2022-05-10 13h02m41)Meter - CT: 800/5 VT: 400/400
	Stanford - MS Badenheist - PR-11410078 (2022-05-10 14h44m25)Meter - CT: 800/5 VT: 400/400
	Gansbaai - MS Bulwerk - PR-14060019 (2022-05-09 10h39m12)Meter - CT: 800/5 VT: 400/400
	Gansbaai - MS De Wet - PR-07470087 (2022-05-09 11h23m05)Meter - CT: 800/5 VT: 400/400
	Gansbaai - MS Franken - PR-14130002 (2022-05-09 09h40m42)Meter - CT: 800/5 VT: 400/400
Res Hol Resort	ODM Arbeidershuis (TOU) - PR-09200023 (2022-03-25 14h13m02)Meter - CT: 100/5 VT: 400/400
	Stanford Die oog (TOU) - PR-16370009 (2022-04-07 12h29m09)Meter - CT: 100/5 VT: 400/400
	HMJ Litenkraalsmond - PR-19040010 (2022-05-04 11h46m56)Meter - CT: 100/1 VT: 11000/110
	ODM Vakansiehuis (TOU) - PR-13460022 (2022-03-25 12h14m01)Meter - CT: 50/5 VT: 400/400
	ODM Hoofkantoor - PR-09050042 (2022-03-25 14h47m39)Meter - CT: 200/5 VT: 400/400
Res Poor	Stanford - MS Tolbos - PR-10070006 (2022-05-10 11h08m20)Meter - CT: 800/5 VT: 400/400
	Masakhane - MS Tshiwete - PR-14490016 (2022-04-29 14h18m49)Meter - CT: 800/5 VT: 400/400
	BLOMPARK - MS KAPOKBLOCM2 - PR-09070048 (2022-04-13 10h18m50)Meter - CT: 500/5 VT: 400/400
	BLOMPARK - MS KAMPEERWEG - PR-09450084 (2022-04-13 09h29m15)Meter - CT: 800/5 VT: 400/400
	Stanford - MS Karimemeyer - PR-10070009 (2022-05-10 10h40m46)Meter - CT: 800/5 VT: 400/400
School / church	Masakhane Primary School (TOU) - PR-15430035 (2022-04-07 14h27m49)Meter - CT: 800/5 VT: 400/400
	Gansbaai Academia (TOU) - PR-09060055 (2022-04-08 11h40m19)Meter - CT: 150/5 VT: 400/400
	Masakhane - MS Masakhane Primary - PR-13460024Meter - CT: 150/5 VT: 400/400
	Masakhane - Masakhane Primary SchoolMeter - CT: 500/5 VT: 400/400

**Figure 19** shows the ½ hourly kVA values (Y-axis) for the average week (7 day ½ hours per week = x-axis) for each of the representative load profiles.

**Figure 19**



These profiles are then used to simulate the load profiles at each of the representative networks.

### 10.1 Network profiles.

To be able to calculate the load on a particular network one firstly has to calculate the profile at every infeed point on the network. This is calculated by:

- Multiplying the total load for every representative load profile being fed in at that point with the representative load profile ratio to establish the total load of every profile.
- The values for every representative profile are then added together.

The next step is to calculate the loads going through every network component.

- Calculate the

The result is an annual profile at N2 (the Eskom supply point).

### 10.2 Profile re-conciliation.

It is essential that an assessment be made of the accuracy of the representative load profiles used. This is done by

- calculating the annual load profile from the LV network up to HV network:
- multiplying consumption at each point on the network times the per unit representative load profile at that point.
- adding up from the LV network up to the highest voltage network including losses at each point up calculations
- and comparing that with the annual purchase load profile.

**Table 27** below shows the maximum demand with date and time for the actual purchase profile and the N2 profile. The maximum demand occurs at a very different time of the year. This can be because of the fact

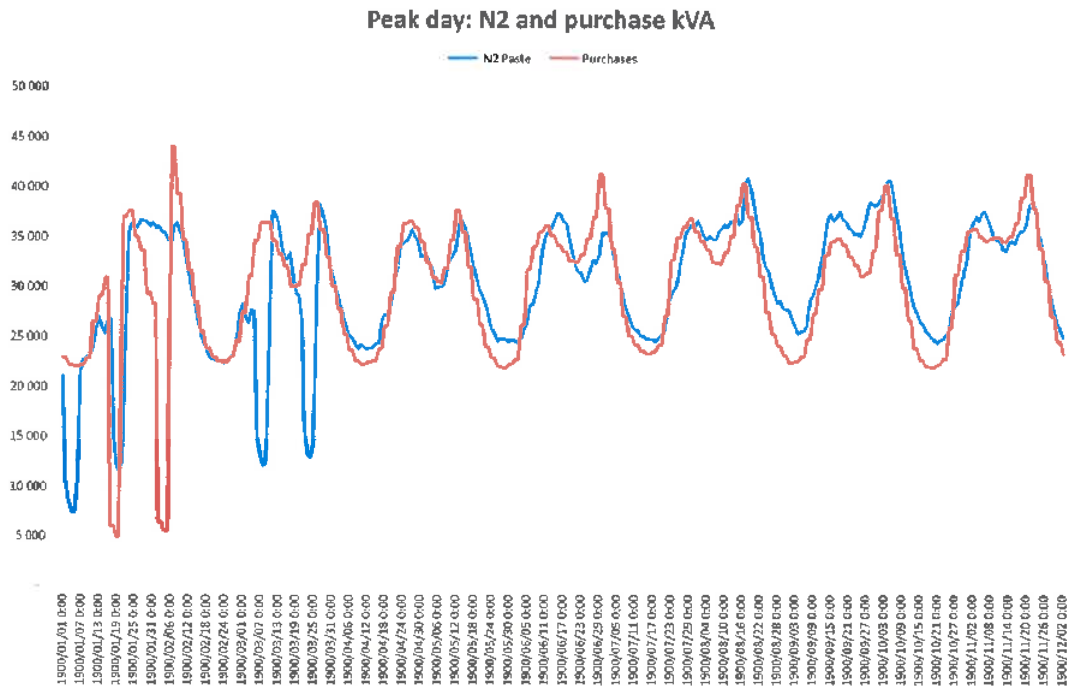
that the representative profiles are all from Gansbaai whereas we know that the biggest demand comes from Hermanus where the winter peaks are more dominant.

**Table 27**

N2 Max	N2 Max date
45 002.19	2021/12/24 11:00
$\Sigma$ kVA at Peak	$\Sigma$ Own Max
45 059.10	62 318.34
Purchase Max	Max date
44 077.67	2022/06/11 18:00
$\Sigma$ kVA at Peak	$\Sigma$ Own Max
34 474.16	62 318.34

Figure 20 shows the ½ hourly kVA profile for the peak purchase and N2 days. It shows a very good correlation in terms of the peak in terms of hour and day of the week. It is also very clear that the high peak just after load shedding has distorted the actual maximum demand and thus the accuracy of this analysis.

**Figure 20**



This concludes the analysis of load profiles. These results will be used later on specifically as basis for the kVA units per network.

### 10.3 Representative Profile Quantities.

The TOU quantities for each of the representative load profiles were then calculated. The per unit representative load profile quantities for the year are then multiplied by the total kWh for each representative load profile. The results are shown in Table 28:

The process followed in the model can be described briefly as follows:

- The ½ hourly kWh and kvarh per unit figures as calculated for each annual profile from above is used as starting point. The per unit value means that each actual half hourly value is divided by the total number of half hours in a year (365 days x 24 hours = 8760).
- In other words, if the total number of kWh used by this profile of customers are multiplied by the per unit values and then again divided by 8760, the full picture for this profile is obtained.
- For each profile the kVA values are then calculated. This is done by calculating the square root of the 1/2 hourly kWh and kvarh and multiplying by 2.
- For each half hour the excess kvarh are then calculated by obtaining the amount of kvarh exceeding the kvarh associated with the kW peak for than ½ hour with a power factor of 0.85.
- The ½ hourly kWh, kvarh and kVA figures are then sorted and summed by:
  - For each month.
  - Season: High and Low.
  - TOU period: Peak, Standard and Off-peak.
  - Excess kvarh during peak and standard periods only.
- The sum of the maximum demands incurred during each month is then calculated as well as the highest maximum demand during the whole year.
- From these the Annual Load Factor (LF) and Excess kvarh % of total kWh are calculated.
- These values are then calculated for each profile.

Table 28

REP PROFILE QUANTITIES	TOTAL				HIGH SEASON			LOW SEASON			Annual		
YEAR	ENERGY	SUM: MAX DEMAND	SUM: MAX DEMAND	MONTHLY LOAD FACTOR	P	S	O	P	S	O	Annual Max	Annual If	Reactive
PROFILE	kWh	kW	kVA	%	kWh	kWh	kWh	kWh	kWh	kWh	kVA	%	Excess kvarh
1MV at HV sub	0	0.00	0.00	71.28%	3.4%	8.7%	11.6%	10.1%	25.5%	35.0%	0.00	71%	24.91%
2Bulk 11 kV	75 397 511	152 880.82	159 472.38	66.83%	4.0%	9.8%	12.8%	10.9%	26.8%	35.8%	14 836.27	58%	0.681%
3Bulk LV	42 123 605	103 356.42	112 095.43	53.16%	3.6%	10.8%	9.3%	11.8%	33.8%	29.5%	10 085.17	48%	3.912%
4Comm	21 146 489	52 376.87	55 662.13	53.68%	3.6%	10.8%	9.3%	12.0%	34.0%	30.0%	4 061.92	48%	2.88%
5Res	92 005 788	228 912.57	233 467.97	60.16%	4.3%	11.2%	11.2%	12.2%	28.7%	32.4%	25 299.39	42%	1.41%
6Res Poor	23 488 848	65 308.62	67 121.09	47.72%	4.3%	11.4%	10.0%	12.9%	30.1%	31.2%	6 330.76	42%	3.24%
7Lights	2 911 860	8 554.02	10 441.51	40.42%	1.2%	5.1%	20.1%	2.9%	11.1%	57.9%	864.50	38%	5.63%

The following should be noted in this respect:

- The average Load factor refers to the total kWh per year divided by the sum of the monthly maximum demand in the year times the total hours in the year. (Total kWh for year) ÷ (Sum 12 kVA maximum demands x hours in year).
- The Annual LF refers to the total kWh per year divided by the highest maximum demand in the year times 12 times the total hours in the year. (Total kWh for year) ÷ (Highest maximum demand in year x 12 x hours in year).
- The % values in each of the TOU periods refer to the % of consumption relative to the total consumption.
- The reactive energy refers to the kvarh as calculated in the Eskom Megaflex tariff. (Sum of: kvarh – 30% of kWh for each ½ hour in peak and standard periods).

This data will be used to calculate the load demands of each profile and the kWh's used in the different time periods.

#### 10.4 Network Profile Quantities.

The network profiles calculated above are now further processed. The maximum demand and TOU ratios are required for further analyses and the results obtained are shown in Table 29

**Table 29**

NETWORK QUANTITIES	YEAR TOTAL					HIGH SEASON			LOW SEASON			YEAR TOTAL	
	YEAR	Reactive P&S	ENERGY	SUM: MAX DEMAND	SUM: MAX DEMAND	KVA LOAD FACTOR	P	S	O	P	S	O	Annual Max
Year	kvarh	kWh	kW	kVA	%	kWh	kWh	kWh	kWh	kWh	kWh	kVA	%
1Purchase	73 776	256 572 640	476 391.98	478 183.75	88.78%	4%	10%	11%	12%	29%	33%	44 077.67	66%
2N2	4 088 916	256 775 848	484 899.30	503 885.45	72.53%	4%	11%	11%	12%	29%	33%	45 020.57	65%
3Total N3	4 088 916	256 775 848	484 899.30	503 885.45	72.53%	4%	11%	11%	12%	29%	33%	45 020.57	65%
4Total N4	4 037 980	253 577 160	478 858.85	497 608.48	72.53%	4%	11%	11%	12%	29%	33%	44 459.75	65%
5Total N5	3 819 179	175 474 990	369 965.24	382 106.87	66.84%	4%	11%	11%	12%	30%	32%	37 714.67	53%
6Total N6	2 370 816	131 548 560	300 742.58	309 045.38	82.14%	4%	11%	11%	12%	29%	32%	31 262.28	48%

These values have the same meaning as in Table 28.

These values will be used to calculate the peak demands at every point on the network and thus to calculate the per unit R/kVA for each network.

#### 11. RINGFENCING.

Before one can calculate the revenue requirement, a ringfencing study needs to be completed to determine the true costs and revenues and specifically overheads that should be charged to Electricity by the municipality. This means that the trial balance of the municipality and the NERSA D-form figures will be different due to a proper ringfencing process being followed.

Because it is best to do cost functionalization as early as possible in the process, it is done as part of the ringfencing study. In other words, the costs within electricity are identified and then costs are allocated from the various support functions in the municipality towards each of the various functions in electricity.

##### 11.1 Key focus areas

There are a host of practices that affect the accuracy of the cost and revenue of current LG electricity distributors. The following ones will take the key attention:

The focus will firstly be on the larger items and thus the 20% of items that have 80% of the impact.

**Services being supplied by Electricity** to the rest of the LG where no charge is levied to cover the cost of supplying such service. The services involved here include the following: Electrical maintenance of LG facilities such as water works, sewerage works, buildings, houses etc.

**Electricity equipment and other resources being used** by the rest of the LG with no charge. This typically includes the following: Heavy vehicles, large machinery, meter readers etc.

**Public lighting** including streetlights, high mast lights, robots, parking lot lights, etc. This service is considered a LG service and not part of electricity supply although the service is provided by Electricity.

**Electricity for own use by LG.** Many municipalities have a different set of tariffs for the supply of electricity for use by its own facilities, such as municipal buildings, stores, sewerage supplies, water pumping and sometimes also for staff. If these tariffs are not cost reflective it has the effect of distorting the true electricity supply cost/revenue and thus surplus. In some cases, an overcharge is made to the LG in the tariff and in other cases an undercharge.

**Services provided to Electricity by the LG.** Typical services include the following: Meter reading and billing, revenue collection, general accounting and administration, telephones, stores, etc. The extent to which this is done, differs significantly between various distributors. The big problem here is the extent of allocation of these costs made to the electricity department:

- Administration and overheads are allocated in terms of turnover instead of more realistic allocation factors, such as the number of staff, the own costs, area of office space etc. The problem with this is that the purchase cost of electricity is close to 70% of the revenue and the tax (surplus) being levied by the LG on electricity makes up a further approximately 20%. This method overstates the true share of the cost by the electricity department by more than 50%.
- Metering and billing costs should typically be allocated according to the share of the cost of the billing system with the number of transactions or actual processing time. Where the revenue is used as a basis, a misallocation is again made.
- A wide range of other methods are being used to allocate the other costs. There are internationally accepted methods that should be used to allocate the costs to ensure a fair burden on the electricity department.

**Funding of capital expenditure.** Assets in municipalities are mainly funded directly from profits / retained income and various grants received by the municipality. Some assets are still funded from external loans. The capital expenditure does not form part of the income statement, except in subsequent years when it appears as depreciation.

**Government Grant funding.** A large portion of LG income is from Government Grants. These are used to subsidise charges to residents but also to fund operating and capital costs. This distorts the normal profitability of departments and complicates the fair allocation of costs and revenues. Proposals will however be made in this respect.

There are a host of practices that affect the accuracy of the cost and revenue of current LG electricity distributors. The focus will firstly be on the larger items and thus the 20% of items that have 80% of the impact. It is one matter to develop a generic methodology to be applied. Things are always different because of the following:

- The way the municipality operates and is structured.
- The availability of data in the required format / level of detail.
- The need to focus on big values that have a significant impact.

## 11.2 Methodology applied

The process starts with an analysis of the Total Municipal Trial Balance for the completed financial year. These are the figures that are used as the basis for the compilation of the Annual Financial statements.

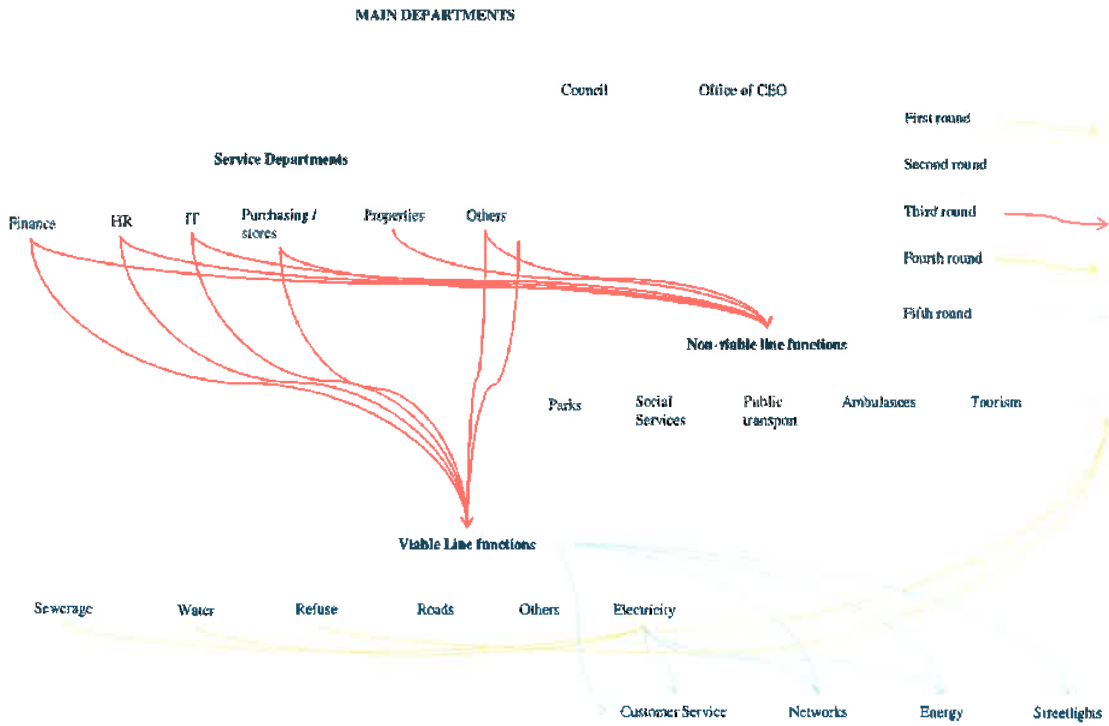
In analysing the Overstrand data the following key steps were followed to achieve accurate ringfencing:

- The data was ordered as follows:
  - The head office, support and administrative functions. These are not considered primary service delivery but act as support to the various line functions and as such the line departments should cover their costs.
  - Community services, the economic services trading services. These are considered the primary service delivery to the community and need to carry all costs of the overheads and service departments.
- The various sub-departments and cost categories are grouped to make viewing practical.

This process is illustrated graphically in Figure 21 below

Figure 21

# OVERSTRAND RINGFENCING PROCESS



**Table 30** shows the trial balance per group before any adjustments.



All the main transactions were analysed and any area where costs / revenues were not transacted correctly were identified. These were checked with the municipality and the required adjustments were made. The trial balance was found to represent the true picture accurately. The positive amounts refer to charges to electricity and negative amounts refer to amounts charged by electricity to the various departments and detailed in the fourth column.

Table 31 below shows more details per account for electricity only.

Some adjustments have however been made to represent the data more accurately for tariff making purposes as shown in Table 32 .

Table 31

83 041	
Sum of Actual Balance Inc Shadow	
	Electricity Total
Row Labels	
IE	377 985 141
Bad Debts Written Off	-
Bad Debts Written Off	-
Bulk Purchases	298 272 081
ESKOM	298 180 040
Self Generation	83 041
Contracted Services	3 849 877
Building	19 719
Electrical	1 204 370
Fire Protection	13 866
First Aid	1 630
Gardening Services	17 374
Maintenance of Buildings and Facilities	51 089
Maintenance of Equipment	4 471
Medical Services (Medical Health Services & Support)	4 200
Meter Management	2 194 776
Pest Control and Fumigation	12 679
Traffic and Street Lights	25 694
Depreciation and Amortisation	26 411 919
Furniture and Office Equipment	67 097
LV Networks	11 808 711
Machinery and Equipment	14 403 711
Employee Related Cost	25 274 853
Acting and Post Related Allowances	190 709
Bargaining Council	9 271
Basic Salary and Wages	14 497 217
Bonus	1 180 348
Cellular and Telephone	120 357
Essential User	440 148
Group Life Insurance	154 712
Housing Benefits	123 457
Medical	851 645
Non-Structured	1 188 970
Non-pensionable	120 272
Pension	7 568 378
Rental Subsidy	115 390
Scarcity Allowance	2 689 502
Standby Allowance	1 232 800
Travel or Motor Vehicle	266 079
Unemployment Insurance	117 846
Interest, Dividends and Rent on Land	15 749 850
Annuity Loans	15 749 850
Inventory Consumed	7 362 443
Materials and Supplies	7 270 797
Standard Rated	91 847
Operational Cost	944 515
Assets less than the Capitalisation Threshold	23 740
Customer/Client Information	125
Drivers Licences and Permits	11 705
Municipal Services	529 109
Printing, Publications and Books	2 425
Skills Development Fund Levy	180 642
Telemetric Systems	5 521
Uniform and Protective Clothing	191 255
II	(481 654 831)
Exchange Revenue	(449 921 368)
Availability Charges	(10 820 620)
Commercial Conventional (3-Phase)	(25 834 879)
Commercial Conventional (Single Phase)	(8 743 246)
Conventional	(67 849 889)
Development Charges	(1 353 829)
Disconnections/Reconnection Fees	(816 656)
Electricity Services Incidental to Energy Sales	(978 789)
Industrial (400 Volts) (Low Voltage)	(163 065 461)
Materials and Equipment	(727 713)
Prepaid	(164 439 455)
Street Lighting	(695 848)
Non-exchange Revenue	(37 772 844)
Drivers Licence Application/Duplicate Drivers Licences	-
Equitable Share	(31 660 857)
Expanded Public Works Programme Integrated Grant	-
Illegal Connections	(132 007)
Integrated National Electrification Programme Grant	(6 000 000)
IZ	1 270 989
Impairment Loss	1 270 989
Electrical Infrastructure	436 197
Electricity	832 979
Furniture and Office Equipment	1 404
Machinery and Equipment	328
Grand Total	(102 856 701)
Total cost	377 985 141
Total Revenue	(480 421 842)
Net	(102 856 701)

Table 32

Sum of Actual Balance Inc Shadow	Refuse Removal Totals	Sewerage Total	Streets and Stormwater Total	Waste disposal Total	Water Total	Solid Waste Total	Electricity Total	Infrastructure & Planning Total	Grand Total
Row Labels									
<b>COST ADJUSTMENTS</b>									
Sewerage Services		67 242 859.39						(67 242 859.39)	
Water Management		67 242 859.39						(67 242 859.39)	
Prepaid Electricity									
Electricity Labour split							(25 274 854.75)		
Electricity Labour split							25 274 854.75		
<b>REVENUE ADJUSTMENTS</b>									
Development Bank of South Africa	5 204 826.37	449 421.19	689 971.98		724 365.36		7 351 828.63	7 351 828.63	14 965 442.91
Development Bank of South Africa	5 161 877.03								5 161 877.03
Integrated National Electrification Programme Grant							6 000 000.00	6 000 000.00	6 000 000.00
Development Charges	42 919.34	468 421.19	689 971.98		724 365.36		1 351 828.63	1 351 828.63	3 303 565.88
<b>New Total Cost</b>	31 141 377	123 879 314	88 487 274	8 399 664	89 047 036	55 378 437	377 585 141	519 393 393	1 422 976 827
<b>New Total Revenue</b>	189 889 747	(189 389 416)	(11 337 754)	(42 087)	(182 051 809)	-	4473 072 014	(575 875 468)	11 427 844 822
<b>New net Income</b>	(57 549 470)	15 679 699	77 129 520	5 267 368	(62 983 174)	55 378 437	(86 988 873)	(56 511 542)	(4 907 969)

### 11.3 Overhead cost allocation

The next step is to calculate the fair portion of the municipal overheads that should be covered by the electricity department. It was previously stated that no overhead costs have been allocated to Electricity. The next section does a calculation of a fair amount which should be allocated to all the line functions in the municipality by overhead and service departments. The first step is to calculate the ratios of various possible allocation factors using actual data.

Various ratios were analysed. The problem found was that in many cases the data required was inadequate in terms of not reflecting the required departments or in many cases were all grouped together. It is however believed that these ratios provide a fair means of allocating overhead costs.

The table below then shows the following:

#### ALLOCATER DATA.

- This refers to the various allocation bases which are to be used.
- The first line shows the data used
- The second line shows the ratio which will be applied in allocating the service department costs to that line department.
- This is calculated by dividing the line department units by the total units of all line departments.

#### ALLOCATION TO LINE DEPARTMENTS

- This shows the amounts allocated from each service department to the various line departments.
- The first column shows the name of the Service department.
- The second column shows the basis for allocation of the cost. Various basis were considered and inputs from staff was obtained at the workshops. Unfortunately, only those where data was provided could be used.
- The third column shows the percentage of the service department costs to be allocated on the basis.
- The cells in yellow shows the amounts allocated from the service department as a (%).
- The other cells show the amounts allocated to each line department.
- The last column shows that the net amounts sum to zero.

#### NEW NET INCOME

- This shows the new costs / revenue per department after the cost allocations.
- The subsequent new net income.

The following should also be noted:

- The cost for the Councillors and admin is not allocated to line departments. This will be offset against Account surplus.
- The Municipal and General is a problematic cost centre because:
  - The majority of grant funding is collected under this account. This will not be off-set against line department costs.
  - Various very big costs which belong to line departments are also collected here. The following is proposed in this respect:
    - Only the big cost items minus the small, related incomes will be allocated to the line departments.
    - Bad debt written off. This mainly relates to rates income thus based on total line depart cost.
    - Depreciation. This is only on common assets. Total line depart cost.
    - Inventory and consumables. Total line depart cost.
    - Interest costs relating to retirement benefits. Line department labour cost.
    - Leave pay. Line department labour cost.
    - Various operational costs. Total line depart cost.
- Municipal manager. All costs allocated to Line departments based on total own costs.
- Financial services.
  - Asset and risk based on asset values.
  - Billing finance based on number of bills per service.
  - Debt collection based on outstanding debt per service.
  - Supply chain based on inventory.
  - Remainder based on total cost. Net amount minus property rates income.

- Corporate services. Total net amount.
  - All HR functions according to staff numbers.
  - Remainder based on total cost.
- Strategy and Economic development. Net amount all based on total cost.
- The number of customers is expressed in thousands. The figure for waste management is doubled as it includes 2 billing items namely refuse removal and sewerage.

The allocation factors are shown in Table 33.

The actual allocations to the various departments are shown in Table 34.

Table 33

Row Labels	Sum of Actual Balance Inc Shadow	Other Comm Services Total	Refuse Removal Totals	Seawater Leaks	Streets and Stormwater Total	Waste disposal Total	Water Total	Solid Waste Total	Electricity Total	Infrastructure & Planning Total	Grand Total
ALLOCATION DATA											
Miscellaneous factors to all line departments											
Total cost (purchase)	125 138 748.31	125 138 748.31	31 141 276.64	123 979 314.20	88 467 273.66	5 309 660.26	89 067 635.77	55 370 437.26	79 293 060.08	221 091 922.51	742 596 905.85
Rate	16.9%	16.9%	4.2%	10.7%	11.9%	0.7%	9.3%	7.5%	10.7%	29.5%	100.0%
Revenue	(29 633 180.42)	(29 633 180.42)	(94 614 696.33)	(109 367 539.13)	(12 034 756.49)	(42 091 321)	(183 115 215.18)	-	(481 604 631.27)	(561 091 150.01)	(1 237 695 093.31)
Rate	19%	19%	7.6%	8.9%	1.0%	0.6%	12.4%	0.0%	38.3%	46.3%	100.0%
Number of customers / mile / vending											
Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Number of meter readings / y											
Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Staff costs	63 488 060.03	63 488 060.03	26 649 098.29	20 065 390.34	31 926 883.79	4 069 097.95	18 227 310.38	911 035.10	26 274 654.71	63 509 669.37	282 295 471.95
Rate	25.2%	25.2%	10.6%	9.0%	13.7%	1.5%	5.2%	10.5%	26.3%	28.3%	100.0%
Staff numbers											
Rate	0.0%	0.0%	1.2%	0.0%	1.8%	0.3%	0.5%	0.2%	92.3%	93.3%	100.0%
Infrastructure Asset values											
Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.00	(1 346.00)	(4 367.10)
Depreciation	14 204 477.87	14 204 477.87	2 380 062.31	17 992 770.30	40 979 023.83	469 423.83	28 340 908.21	3 170.26	26 411 519.27	28 591 216.33	133 726 379.21
Rate	10.6%	10.6%	1.6%	14.5%	30.6%	0.4%	21.2%	0.0%	19.8%	19.9%	100.0%
Outstanding customer debt											
Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.25	0.25
Inventory, contracts & Leases	40 669 250.13	40 669 250.13	75 141.78	5 634 812.34	6 632 901.43	469 569.52	5 221 953.94	25 772 634.56	3 549 872.32	12 072 515.95	202 200 272.80
Rate	20.1%	20.1%	0.0%	2.9%	4.3%	0.2%	2.0%	12.7%	1.3%	55.9%	100.0%
Allocation factors of Common Community service											
Total cost (purchase+leases)	125 138 748.31	125 138 748.31	31 141 276.64	123 979 314.20	88 467 273.66	5 309 660.26	89 067 635.77	55 370 437.26	79 293 060.08	221 091 922.51	742 596 905.85
Rate	28.2%	28.2%	7.0%	26.0%	20.0%	1.2%	15.0%	0.8%	13.7%	29%	100.0%
Allocation factors of Technical services											
Total cost (purchase)	125 138 748.31	125 138 748.31	31 141 276.64	123 979 314.20	88 467 273.66	5 309 660.26	89 067 635.77	55 370 437.26	79 293 060.08	221 091 922.51	742 596 905.85
Rate	21.7%	21.7%	5.4%	21.5%	15.3%	0.9%	12.0%	0.8%	13.7%	29%	100.0%
Allocation factors within Electricity											
Electricity asset (CRC) Depreciation											
Rate											
Electricity asset values (CRC)											
Rate											
Electricity bid costs one bid											
Rate											
Staff numbers											
Rate											

Table 34

Sum of Actual Balance, Inc. Shadow	Other Comm Services Total	Refuse Removal Totals	Sewerage Total	Streets and Stormwater Total	Waste disposal Total	Water Total	Solid Waste Total	Electricity Total	Infrastructure & Planning Total	Grand Total
<b>Row Labels</b>										
<b>ALLOCATION TO LINE DEPARTMENTS</b>										
Grand Total	29,004,720.09	7,008,221.53	22,944,636.18	15,481,861.65	978,207.67	19,726,677.73	10,949,257.62	25,598,783.52	55,616,781.52	0.00
Municipal Manager Total	959,658.83	246,776.25	993,470.52	701,998.66	42,076.27	547,325.20	638,781.62	628,355.89	1,762,038.51	-
Finance Supply Chain Management	1,916,277.64	3,540.54	274,618.24	4,680,701.89	22,153.97	246,651.13	1,244,270.24	917,265.23	5,318,884.38	-
Finance Revenue	334,565.31	1,338,295.44	1,549,552.36	470,222.36	595.35	2,105,722.59	-	6,819,225.99	3,218,984.58	0
Total Finance cost (Revenue and Assessment rates)	(1,305,869.27)	(324,056.69)	(1,233,683.11)	(923,269.59)	(65,412.52)	(720,633.69)	(577,635.39)	(627,515.69)	(2,307,351.67)	-
Revenue and Assessment rates not allocated										
Coding Services Total	103,008.56	53,076.60	197,412.81	197,412.81	17,088.23	91,735.40	19,574.67	5,379,665.67	5,465,111.95	-
Human Resources	1,468,808.47	614,863.57	463,485.89	736,674.56	82,565.69	356,234.28	21,021.95	303,166.57	1,474,373.37	(0)
Ground Support Services										
Remediation Management	5,922,189.44	1,473,782.95	5,857,328.10	4,188,719.48	267,264.02	3,268,939.82	2,629,465.54	10,463,184.87	22,344,837.46	-
Protection Services Total	12,646,903.85	3,417,207.59	12,839,628.74	8,540,701.26	536,658.22	6,900,151.06	5,956,863.10	6,013,535.24	12,969,668.30	-
Economic and Social Development & Tourism Total	1,634,294.71	606,686.27	1,619,462.24	1,155,988.26	68,243.89	642,070.84	723,125.81	1,035,560.03	2,887,410.97	-
NEW COST AFTER ALLOCATION	148,743,479	38,147,506	148,024,212	703,988,163	6,269,668	82,799,883	63,418,738	483,161,953	574,960,683	1,422,976,627
NEW REVENUE	(28,635,646)	(89,199,747)	(101,397,754)	(111,397,754)	(46,091)	(192,081,685)	(46,091)	(473,072,016)	(573,875,446)	(1,427,864,822)
NEW NET INCOME	120,107,833	(50,949,239)	37,626,457	592,590,409	6,223,577	180,708,198	17,321,647	610,089,937	1,001,085,237	(4,044,145)
<b>COMMON COMMUNITY / INFRASTRUCTURE</b>										
Control Room	35,762,824.09	6,864,815.03	36,372,129.40	25,240,306.24	1,514,861.66	19,706,516.52	4,428,976.51	6,792,626.31	(35,498,877.95)	-
Digital/Operational Services	1,089,723.59	268,946.86	1,079,712.39	764,022.67	45,855.38	508,464.89	-	-	-	-
Director: Community Services	3,328,521.18	628,241.12	3,297,384.56	2,352,897.54	141,217.04	1,838,948.27	-	-	-	-
Director: Operational Services	978,928.27	232,398.32	866,001.72	548,891.26	948,891.26	6,791,311.33	-	-	-	-
Fleet Management	12,304,859.57	3,692,063.61	12,199,659.48	8,548,621.66	522,084.98	6,791,311.33	-	-	-	-
Area Manager: General	1,996,539.99	422,188.46	1,690,812.26	1,189,368.41	71,884.12	938,866.37	-	-	-	-
Area Manager: Maintenance	3,964,410.83	869,652.25	3,927,973.29	2,162,653.45	164,210.85	2,181,077.01	-	-	-	-
Area Manager: Rehabilitation	2,068,842.16	512,956.17	2,040,598.17	1,436,071.18	37,390.00	1,308,778.39	-	-	-	-
Area Manager: Streetford	269,276.16	67,910.45	269,781.28	190,365.73	11,425.44	148,821.61	-	-	-	-
Building Control Services	328,800.95	64,262.20	359,463.76	239,215.12	14,366.80	188,084.04	-	-	-	-
Dep. Director: Engineering Plans	4,943,573.76	1,206,342.95	4,796,687.10	3,424,181.31	209,513.73	2,633,313.68	-	-	-	-
Director: Infrastructure & Plan	687,311.84	189,663.21	661,120.07	471,768.43	29,314.16	369,809.46	-	-	-	-
Town Planning	(700,205.61)	(174,246.39)	(600,718.07)	(455,912.29)	(29,708.65)	(308,884.51)	-	-	-	-
Engineering Services	1,094,557.14	294,663.92	1,054,465.06	752,469.68	45,180.87	567,466.18	-	-	-	-
Environmental Management Serv	4,181,974.51	1,033,724.93	4,126,413.38	2,962,532.69	378,693.36	2,287,179.01	-	-	-	-
Geographical Info Systems (GIS)	810,861.45	151,955.54	609,083.55	431,719.23	23,510.46	337,442.44	-	-	-	-
Overseas and Housing Development										
Property Administration	(900,842.24)	(230,105.42)	(651,938.84)	(679,270.70)	(47,768.11)	(530,317.72)	(425,145.13)	(606,424.17)	3,402,248.45	(0.00)
NEW COST AFTER ALLOCATION	781,486,394	47,032,323	801,296,342	129,109,281	7,800,793	160,499,370	89,462,707	469,164,430	539,481,607	1,422,976,627
NEW REVENUE	(21,635,646)	(89,099,747)	(100,300,416)	(11,337,754)	(42,090)	(162,081,685)	-	(73,812,016)	(975,673,446)	(1,427,864,822)
NEW NET INCOME	760,810,748	(42,067,424)	73,056,026	117,771,527	7,758,703	40,417,685	89,650,707	395,352,414	(636,191,839)	(4,044,145)

The resultant trial balance for electricity is shown in made.

Table 35 after all allocations have been

The items are then grouped as per the NERSA requirements as shown in Table 36.  
**Table 35**

	Electricity Income	Elect(Purch/Sales): Gansbaai	Elect(Purch/Sales): Hermanus	Elect(Purch/Sales): Melinmond	Elect(Purch/Sales): Stanford	Electricity Support Total	Service and connection Total	Distribution Total	Streetlight Total	Electricity Total
<b>ELECTRICITY SUMMARY</b>										
Bad Debts Written Off	-	-	-	-	-	-	-	-	-	-
Bulk Purchases	-	84 348 149.33	175 069 392.58	28 957 390.55	9 896 549.46	-	-	-	-	298 272 091
Contracted Services	-	-	-	-	-	-	-	347 696.59	25 694.00	3 549 877
Default	-	-	-	-	-	-	-	-	-	-
Depreciation and Amortisation	-	-	-	-	-	-	-	21 962 307.70	1 000.11	26 411 519
Employee Related Cost	-	-	-	-	-	-	-	15 364 447.71	-	25 274 655
Interest, Dividends and Rent on Land	-	-	-	-	-	-	-	15 541 489.58	-	15 799 850
Inventory Consumed	-	-	-	-	-	-	-	3 786 805.04	1 988 448.14	7 362 043
Operating Leases	-	-	-	-	-	-	-	-	-	-
Operational Cost	-	-	-	-	-	-	-	256 298.87	470 643.72	944 515
Taxes and Subsidies	-	-	-	-	-	-	-	-	-	-
Transmission Line	632 819.85	-	-	-	-	-	-	637 916.34	-	1 270 366.05
Cost ADJUSTMENTS										
ALLOCATION TO LINE DEPARTMENTS										
COMMON COMMUNITY/INFRASTRUCTURE										
Electricity Support Total	-	-	-	-	-	-	-	1 823 780.20	168 543.82	6 282 528
<b>TOTAL COST</b>	922 485	84 870 056	175 069 392	28 957 391	9 896 549	-	-	69 156 592	7 421 216	410 725 409
Default	-	-	-	-	-	-	-	-	-	-
Exchange Revenue	(443 706 331.81)	-	-	-	-	-	-	-	-	(443 706 331.81)
Non-Exchange Revenue	(31 729 443.50)	-	-	-	-	-	-	-	-	(31 729 443.50)
REVENUE ADJUSTMENTS	1 351 826.51	-	-	-	-	-	-	-	-	7 391 828
<b>TOTAL REVENUE</b>	(473 526 346.78)	-	-	-	-	-	-	-	-	(473 526 346.78)
<b>NET INCOME</b>	(472 608 854)	84 870 056	175 069 392	28 957 391	9 896 549	-	-	69 156 592	7 421 216	(69 617 590)

**Table 36**

	Electricity Income	Elect(Purch/Sales): Gansbaai	Elect(Purch/Sales): Hermanus	Elect(Purch/Sales): Melinmond	Elect(Purch/Sales): Stanford	Electricity Support Total	Service and connection Total	Distribution Total	Streetlight Total	Electricity Total
<b>RINGFENCED</b>										
Bulk purchases cost	-	84 348 149.33	175 069 392.58	28 957 390.55	9 896 549.46	-	-	-	-	298 272 091
Operating cost	-	-	-	-	-	-	-	2 109 223	420 644	13 561 843
Shared cost	-	2 287 454	-	-	-	-	-	10 263 587	4 904 158	32 017 691
Depreciation	-	-	-	-	-	-	-	21 962 308	1 000	26 411 519
Interest	-	-	-	-	-	-	-	15 541 487	-	15 749 859
Repairs & Maintenance	632 819.71	-	-	-	-	-	-	117 187 715	2 014 142	23 548 769
Transmission line	632 819.71	-	-	-	-	-	-	637 916	-	1 270 989
Total cost	632 819.71	86 635 604	175 069 392	28 957 391	9 896 549	-	-	69 528 439	7 229 844	410 653 681
Revenue	(473 526 347)	-	-	-	-	-	-	-	-	(473 526 347)
Surplus deficit	(472 893 266)	86 635 604	175 069 392	28 957 391	9 896 549	-	-	69 528 439	7 229 844	(69 617 590)
Surplus %										13%

Before concluding the ringfencing study we need to first consider NERSA revenue requirement.

## 12. REVENUE REQUIREMENT.

This section calculates the revenue requirement for Overstrand using the NERSA method. The calculation of the revenue requirement is shown in Table 38.

Table 38

NERSA RR	Energy	Service and connection Total	Distribution Total	Streetlight Total	Electricity Total
Bulk	300 553 535	-	-	-	298 272 081
Operating cost		2 530 670	7 879 223	420 644	13 581 943
Shared cost		20 746 367	10 983 307	4 804 158	32 017 694
Depreciation		4 408 383	21 962 208	1 000	26 411 519
Interest		-	15 541 481	-	15 749 850
Repairs & Maintenance		6 021 184	11 716 715	2 014 142	23 549 748
Impairment/loss		323	437 506	-	1 270 989
Sub-total cost	300 553 535	33 706 928	68 520 439	7 239 944	410 853 824
Current revenue					(474 343 003)
Surplus: Actual				-15%	(63 489 178)
Total Allowed revenue					(474 343 003)

The following very important facts need to be noted:

- The calculated Head Office / Service department allocation (admin charge) to electricity is equal to 40% own costs excluding Eskom. NERSA is unlikely to accept this high value. Various options were considered but this issue needs to be further discussed.
- If this overhead is adjusted to 25% of own costs the surplus increases to 20% which is equal to the max NERSA benchmark.
- The 40% will thus be used for COS calculations.

Based on this and all the adjustments it is clear that the current Overstrand tariffs do recover the NERSA formula revenue requirement. It is thus proposed that the next part of the study which relate to tariff structures, not total revenue requirement, be based on the current tariff levels.

## 13. COST OF SUPPLY

The next step is to allocate the electricity costs between the various cost functions. The table below firstly shows the cost adjustments and then the method used and the actual allocation of cost per function.

The next step is to functionalise the various costs between the various cost drivers. The 4 types of functions in electricity namely:

- Purchases
- Networks and
- Customer services.
- Streetlights.

The steps to be followed to do this are as follows:

- The costs, as per the trial balance, are firstly allocated directly to the relevant function as prescribed by the particular activity.
- The common costs are then allocated based on various relevant ratio's such as number of staff or asset values.

These calculations were already done in the Ringfencing part of the study.

### 13.1 Cost Classification

The next step is to classify these costs into the different cost types / drivers. The electricity costs, from a tariff point of view are classified as one of the types below:

- R/kWh in terms of the different TOU periods namely, peak, standard and off-Peak.
- R/kVA costs also separated by dedicated and shared per network.
- R/customer as per customer category.
- Rand / light in the case of streetlight maintenance costs.

The way in which these costs are functionalised / classified is shown in **Table 39**.

**Table 9**

COST FUNCTIONALISATION				
		R/kWh	R/kVA	R/Customer
Purchase		All Energy charges levied to munic	All demand and access charges levied to munic	None
Network costs	Capital provision	None	All	None
	Operating and maintenace	None	All	None
Customer Services		None	None	All

The actual functionalisation/ classification of costs is shown in Table 40.

**Table 40**

	R/kWh	Rand/cust	R/kVA	R/light	Total
NERSA RR	Energy	Service and connection Total	Distribution Total	Streetlight Total	Electricity Total
Bulk	300 553 535	-	-	-	298 272 081
Operating cost		2 530 670	7 879 223	420 644	13 581 943
Shared cost		20 746 367	10 983 307	4 804 158	32 017 694
Depreciation		4 408 383	21 962 208	1 000	26 411 519
Interest		-	15 541 481	-	15 749 850
Repairs & Maintenance		6 021 184	11 716 715	2 014 142	23 549 748
Impairment loss		323	437 506	-	1 270 989
<b>Sub-total cost</b>	<b>300 553 535</b>	<b>33 706 928</b>	<b>68 520 439</b>	<b>7 239 944</b>	<b>410 853 824</b>
Current revenue					(474 343 003)
Surplus: Actual				-15%	(63 489 178)
Total Allowed revenue					(474 343 003)

The following points are of note:

- There is a small portion of customer services costs which can be classified in R/kWh. The problem is that the true cost really depends on the number of customers and not the amount of kWh purchased. All customer services costs are therefore classified as R/Customer.
- A portion of the Eskom costs relate to the demand or maximum capacity taken from the network. This will be classified as such later on in the process of detailed cost calculations.

These costs will now be used as a basis for the detailed cost calculations to follow.

### 13.2 Cost allocation: phase 1

The next step is to allocate the various costs per the different cost categories. This is shown in **Table** in respect of the capital portion of the network and customer connections. It also allows for adjustment to reflect the pricing policy of the municipality. In other words, where customers pay outside of the tariff (by way of connection fees, capital contributions, subdivision fees or developer contributions), the full capital provision must not come from the tariff. In this respect staff indicated that all capital costs for new customers / capacity are covered outside of the tariff and thus no adjustment is made.

Table 41

<b>OVERSTRAND</b>							
<b>TOTAL NETWORK CAPITAL REVENUE REQUIREMENT</b>							
Total Network Levilised costs			Adjustment to reflect cash payments		Adjustment: difference: revenue requirement - capital provision in budget		Reconciled
	R/year	%	%			R/year	
Energy	Energy	0	0%	0	<b>LEVELISATION ADJUSTMENT</b>		0
N2	HV	613 548	0%	613 548			625 194
N3	HV/MV	478 998	0%	478 998	Total levelised costs	41 132 353	488 090
N4	MV	7 472 239	0%	7 472 239	Current capital provisio	41 913 071	7 614 067
N5	MV to LV	12 351 806	0%	12 351 806	Difference	780 718	12 586 251
N6	LV	5 823 080	0%	5 823 080	% Adjustment	101.90%	5 933 606
N7			0%	0			0
N8			0%	0			0
Streights		1 273 534	0%	1 273 534			1 297 707
<b>Totals</b>		<b>28 013 204</b>		<b>28 013 204</b>			<b>28 544 913</b>
<b>METERING</b>							
1 PH kWh Pre-paid		11 193 484	0%	11 193 484			11 405 943
3 PH kWh Pre-paid		404 333	0%	404 333			412 008
1 PH kWh		984 113	0%	984 113			1 002 792
3 Ph kWh		235 290	0%	235 290			239 756
3 TOU		552	0%	552			562
3 PH TOU & ct's		85 560	0%	85 560			87 184
TOU RMU & CT/VT's		183 505	0%	183 505			186 988
TOU at HV sub With CB		32 313	0%	32 313			32 926
			0%	-			0
							0
							0
<b>SUB-TOTAL</b>		<b>13 119 149</b>		<b>13 119 149</b>			<b>13 368 159</b>
<b>GRAND TOTAL</b>		<b>41 132 353</b>		<b>41 132 353</b>			<b>41 913 071</b>

The next step is to allocate the support costs (operations, maintenance and administration) relating to the networks and technical customer services. The operating costs per different cost type, network and customer category are shown in Table 42.

Table 42

OVERSTRAND									
OPERATING COST SEPARATION									
		Opex			To calc ratio of Opex		Capex		Network Labour ratio
ENERGY									
NETWORK SUPPORT COST TOTAL			29 298 222		Energy	N0			
CUSTOMER SERVICES TOTAL			30 579 245		HV	N2	613 548		1.0%
LIGHTING			7 238 944		HV/MV	N3	476 998		0.8%
TOTAL			67 116 411		MV	N4	7 472 239		12.3%
Direct Network support	Direct				MV to LV	N5	12 351 806		7.0%
	% shared support	100%	29 298 222		LV	N6	5 823 080		78.9%
					TOTAL		26 739 670		100.0%
		Adjust Factor	Initial ratio	Act Share	ALLOCATED SUPPORT				
N0			0.00%	0.00%					
N1	Energy	100%	0.00%	0.00%					
N2	HV	100%	1.01%	1.01%			295 574		
N3	HV/MV	100%	0.79%	0.79%			230 755		
N4	MV	100%	12.29%	12.29%			3 599 717		
N5	MV to LV	100%	7.04%	7.04%			2 063 023		
N6	LV	100%	78.88%	78.88%			23 109 152		
LIGHTING							7 238 944		
	TOTAL		100.00%	100.00%			36 537 165		
Customer service direct			30 579 245						
	% shared support	0%	-	Total					
	Service connection / Metering share		50.0%	15 289 623					
	Billing share		25.0%	7 644 811					
	Customer service share		25.0%	7 644 811					
			100.00%	30 579 245					
Service connection / Metering Revenue requirement				15 289 623					
Metering	Meter capex RR	Customers	Equivalent meter cost/weight	Equivalent single phase meters	Portion of metering opex	Opex R/y	Metering: Capex and Opex	Total R/cust/m	
1 PH kWh Pre-paid	11 405 943	20 798	1.50	31 197	76.72%	11 790 184	23 136 128	92.7	
3 PH kWh Pre-paid	412 008	363	2.50	958	2.35%	360 023	772 031	168.0	
1 PH kWh	1 002 782	5 705	1.00	5 705	14.03%	2 145 101	3 147 892	46.0	
3 Ph kWh	239 756	682	2.00	1 364	3.35%	512 889	752 625	92.0	
3 TOU	562	1	5.00	5	0.01%	1 880	2 442	209.5	
3 PH TOU & ct's	87 184	124	10.00	1 240	3.05%	466 244	553 428	371.9	
TOU RMU & CT/VTs	186 988	12	15.00	180	0.44%	67 681	254 669	1 766.5	
TOU at HV sub With CB	32 926	1	15.00	15	0.04%	5 640	38 566	3 213.8	
SUB-TOTAL	13 368 159	27 706	52	40 664	100.00%	15 289 623	28 657 781		
Billing/ cust.service	Equivalent cost weight	Number of customers	Equivalent < 50 kW customers	Billing/cust.serv. cost R/y	R/cust/m	15 289 623			
Small <50 kVa	1	27568	27 568	12 664 253	38.28				
Medium <500 kVa	5	1111	5 555	2 551 869	191.41				
Large <2000 kVa	10	8	80	36 751	382.82				
Very large >2000 kVa	20	4	80	36 751	765.64				
Total		28691	33 283	15 289 623					
Sub-Total							30 579 245		
GRAND TOTAL									67 116 411

The following should be noted in this respect:

- The operating costs are as per the ringfenced trial balance.
- The network costs are then allocated as follows:
  - According to the Network capital revenue requirement at first pass.
  - These figures are then adjusted based on inputs from staff to reflect the real case of support costs per network.
- The customer services costs are then split between:
  - Metering according to different connections and metering.
    - This is done by giving a weighting to each of the types of connections. The following in this respect:
- This is a difficult number to determine because records are not kept of difference in these costs.
- This has been done based on experiences elsewhere and inputs from staff.
- An example is the amount of come backs that have been experienced with pre-payment meters compared with conventional 1 phase meters.
- Another example is that the Bulk meters are not read by normal meter readers but by the Distribution staff.

- The effective cost per meter is thus calculated.
- Billing and customer services according to size of customer.
- This is again done by giving a weighting to each size of customer. The following should be noted in this respect:
  - This is one of the most difficult assumptions because records are not kept of customer service costs per size of customer.
  - This has been done based on experiences elsewhere and inputs from staff.
  - An example is that a customer > 50 kVA is a 3 phase customer which means there is a more sophisticated meter or 3 single phase meters that need to read and thus 3 readings to be entered into the billing system compared with only one for a customer < 50 kVA which are mostly 1 phase customers.
  - Staff also indicated that bigger customers have more queries on their electricity bills and they thus spend more time on them.
  - These assumptions are subjective but the best available considering the staff inputs.
    - The effective cost per size of customer is then calculated.

### 13.3 Cost allocation: phase 2

Overstrand purchases all its energy from Eskom on TOU at Megaflex.

For these reasons the Megaflex tariff will be used as a basis to calculate the cost of supply and specifically the energy costs and unit rates.

The summary of Megaflex LG rates is shown in Table 43.

**Table 43**

Megaflex			2021/2022
> 900km			
≥ 66kV & ≤ 132kV	Transmission network access	R/kVA/m	R 11.44
	Network access charge:	R/kVA/m	R 7.96
	Network demand High:	R/kVA/m	R 14.73
	Network demand Low:	R/kVA/m	R 14.73
<b>TOU: High Demand Se</b>	Peak	c/kWh	R 443.27
(June -Aug)	Standard	c/kWh	R 134.27
	Off-peak	c/kWh	R 72.93
<b>TOU: Low Demand Se</b>	Peak	c/kWh	R 144.58
(Sept-May)	Standard	c/kWh	R 99.51
	Off-peak	c/kWh	R 63.11
<b>Electrification and rural</b>		c/kWh	R 10.80
<b>Affordability</b>		c/kWh	R 0.00
<b>Urban low voltage subsidy charge [R/kVA/m]</b>		R/kVA/m	R 19.50
<b>Reliability service</b>		c/kWh	R 0.51
<b>REACTIVE ENERGY (c/</b>	High Demand	c/kvarh	R 19.51
	Low demand	c/kvarh	R 0.00

These values will be used as the initial per unit energy and Demand / Access charges.

### 13.4 Cost allocation: phase 3

The next step is to add the capital cost to the operating costs and then allocating it to the various cost drivers as is shown in Table 44. The cost of the actual streetlights plus overheads is allocated on a per light basis.

Table 44

OVERSTRAND																			
CATEGORISED TOTAL COST																			
ENERGY																			
												300 553 535							
Eskom												300 553 535.11							
Capex																			
Opex																			
TOTAL NETWORK COSTS																			
(System peak week demand)																			
TOTAL				ALLOCATION RATIOS				TOTAL COST											
CAPEX				SUPPORT				SUPPORT											
				Cost	CAPEX			SUPPORT			SUPPORT								
				Type	Demand	Units	PODs	Demand	Units	PODs	Demand	Units	PODs						
		N0	0	R/y	100%	0%	0%	100%	0%	0%	0	0	0						
Energy	Energy	N1		R/y	0%	100%	0%	0%	100%	0%	0	0	0						
HV	HV	N2	625 194	R/y	100%	0%	0%	100%	0%	0%	920 768	0	0						
HV/MV	HV/MV	N3	488 090	R/y	100%	0%	0%	100%	0%	0%	718 645	0	0						
MV	MV	N4	7 514 067	R/y	100%	0%	0%	100%	0%	0%	11 213 784	0	0						
MV to LV	MV to LV	N5	12 586 251	R/y	100%	0%	0%	100%	0%	0%	14 849 274	0	0						
LV	LV	N6	5 933 606	R/y	100%	0%	0%	100%	0%	0%	29 042 758	0	0						
Lights	Lights	N7	1 297 707	R/y	0%	0%	100%	0%	0%	100%	0	0	8 536 650						
				R/y	100%	0%	0%	100%	0%	0%	0	0	0						
			28 544 919								56 645 428		8 836 660						
Service connection / Metering Revenue requirement																			
												Total cost R/Y							
Metering																			
Meter capex RR												Opex R/y							
1 PH kWh Pre-paid												11 405 943		11 730 184		23 136 128			
3 PH kWh Pre-paid												412 008		360 023		772 031			
1 PH kWh												1 002 792		2 145 101		3 147 892			
3 Ph kWh												239 756		512 669		752 625			
3 TOU												562		1 680		2 442			
3 PH TOU & c/s												67 184		466 244		533 428			
TOU RMU & CT/VT's												195 988		67 681		254 669			
TOU at HV sub With CB												32 326		5 640		38 566			
														0		0			
																0			
SUB-TOTAL												13 368 159		15 289 623				26 657 781	
Billing/ cust. service																			
																R/y			
Small <50 kVa														12 664 253		12 664 253			
Medium <500 kVa														2 551 869		2 551 869			
Large <2000 kVa														36 751		36 751			
Very large >2000kVa														36 751		36 751			
Total														15 289 623		15 289 623			
												41 913 071		67 116 411		409 583 017			

The following should be noted in this respect:

- The streetlight maintenance costs are allocated per streetlight.
- All network costs are allocated on the R/kVA basis.
- All customer costs are allocated on the R/customer/month basis.

Based on experience the non-co-incident peak demand method was used as basis to allocate all network costs to customer categories.

The total costs have to be divided by the total number of units applicable to that cost. The units required for this purpose should be derived from the network load and customer details.

To be able to allocate the network costs as a per unit cost (R/kVA), the kVA for each network is required. This was calculated by building up the total load profile of each network starting at LV and working up to the high voltages. It must be noted that the Purchase values differ from the billing data as it is calculated from the load profile data.

The allocation units to be used are shown in Table 45. The network kVA and kWh quantities were obtained from the Quantities tables. The sales data was obtained from the sales data.

Table 45

<b>OVERSTRAND</b>					
<b>TOTAL ALLOCATION UNITS</b>					
<b>NETWORK</b>					
(System peak wee			kVA	kWh	PODs
			kVA	kWh	PODs
		N0	503 885	256 775 848	
Energy	Energy	N1	503 885	256 775 848	
HV	HV	N2	503 885	256 775 848	
HV/MV	HV/MV	N3	503 885	256 775 848	
MV	MV	N4	497 608	253 577 160	
MV to LV	MV to LV	N5	382 107	175 474 990	Total
LV	LV	N6	309 045	131 548 560	
Lights	LV	N6			6 989
		N5/6			
<b>GRAND TOTAL</b>					6 989
<b>Metering</b>					
<b>Metering</b>					
1 PH kWh Pre-paid		20 798			
3 PH kWh Pre-paid		383			
1 PH kWh		5 705			
3 Ph kWh		682			
3 TOU		1			
3 PH TOU & ct's		124			
TOU RMU & CT/VT's		12			
TOU at HV sub With CB		1			
		0			
<b>SUB-TOTAL</b>		27 706			
<b>Billing/ cust.service</b>					
		0			
Small <50 kVa		27 568			
Medium <500 kVa		1 111			
Large <2000 kVa		8			
Very large >2000kVa		4			
<b>Total</b>		28 691			

The next step is to calculate the unit costs. This is done by dividing the total cost per category by the relevant units. The results are shown in Table .

Table 46

<b>OVERSTRAND</b>						
<b>COST PER UNIT</b>						
<b>NETWORK</b>						
(System peak week demand)				kVA	kWh	PODs
				All	c/kWh	R/PODs
		N0		0.00	0.00	0.00
Energy	Energy	N1		0.00	0.000	0.00
HV	HV	N2		1.83	0.00	0.00
HV/MV	HV/MV	N3		1.43	0.00	0.00
MV	MV	N4		22.54	0.00	0.00
MV to LV	MV to LV	N5		38.34	0.00	0.00
LV	LV	N6		93.98	0.00	0.00
Lights	LV	N6		93.98	0.00	101.79
<b>GRAND TOTAL</b>						
<b>Metering</b>		<b>R/C/m</b>				
1 PH kWh Pre-paid		92				
3 PH kWh Pre-paid		178				
1 PH kWh		50				
3 Ph kWh		82				
3 TOU		223				
3 PH TOU & ct's		411				
TOU RMU & CT/VT's		1827				
TOU at HV sub With CB		3272				
NA		0				
<b>AVERAGE</b>		<b>86</b>				
<b>Billing/ cust.service</b>						
		<b>R/C/m</b>				
Small <50 kVa		38				
Medium <500 kVa		191				
Large <2000 kVa		383				
Very large >2000kVa		766				
NA		0				
<b>AVERAGE</b>		<b>44</b>				

The costs obtained up to now reflect the cost of every separate network segment. To have a more practical set of charges these must be set for every network supply position stating the total charges at each point. This involves the network cost closest to the supply position plus all the networks up to that point plus the losses incurred in the networks up to that point. The values stated therefore reflect the total per unit cost of supply at that network supply point. The resultant costs are shown in Table 47.



- The R/kVA costs are split here between the dedicated and shared portion as follows:
  - Dedicated refers to networks which cannot really be shared with other customers. For example, if a development is done based on a particular after diversity maximum demand (ADMD) and supplies to various small and large customers are installed, if customers change their loads the costs do not change, and these networks cannot be used to supply other customers and thus are considered dedicated.
  - Assumptions about this is subjective but also reflects the realities in each municipality. Where there is ongoing growth and customers continue to use the power installed this is not a problem.
  - In areas where economic growth is bad and customers reduce their demands, the risk of revenue loss is higher to municipalities as there are less customers to share the unused capacity with.
  - Overstrand municipality felt that only 40% of the network was considered not practically sharable by other customers.
  - Because of the higher Access demand values, the split is set at 30%.
- These values show the total network costs at each position on the network including the costs and losses of all higher voltage networks up to that point. In other words when a demand of say 10 kVA is incurred at a LV point of supply, the demand at the point of purchase which is increased by the total losses up to that point. Losses thus effect the network and energy costs.
- It is important to note that these are per unit values. For example, the energy costs for each profile will be calculated by using the Eskom energy rates, plus the losses up to each relevant network multiplied by the % of kWh in each TOU period multiplied by the total number of kWh for that profile.
- The Eskom and own network costs are calculated by:
  - Multiplying the sum of the monthly maximum demands by that profile by the Eskom maximum demand and own maximum demand per unit costs.
  - Multiplying the highest annual maximum demand by the Eskom access charge plus losses and the own Access costs.

Before one can go from the costs per tariff cost category to costs per tariff, we need to know the statistics of the loads associated with the various tariffs. Representative load profiles were calculated from available data. These were then analysed and the necessary details calculated under the load profile section.

The following comments in this respect:

- The quantities shown represents the quantities associated with each representative load profile at the relevant network where it is supplied from.
- For example, the kWh represents the kWh used by streetlights supplied from the LV network. The Sum of maximum demands represents the sum of the sum of the 12 highest maximum demands incurred on the network, the Annual maximum demands is the highest maximum demand that Streetlight supplies placed on the network in the year.
- Because the individual maximum demand method is used, the maximum demand values of each profile are used irrespective of when it was incurred.
- These quantities will be used to calculate the per unit charges.

The next step is to now calculate the various per unit charges which should apply in respect of the different customer, network and energy charges relevant to the various periods. This makes use of:

- The position at which the customer is supplied to determine:
  - the R/kVA network costs plus R/kVA Eskom costs.
  - the losses % to be added to Energy and Eskom Demand/Access.
- The type of metering and size of supply to determine the metering and billing / customer service costs.

This is shown in **Table 48**.

Table 48

OVERSTRAND						
30/09/2021						
	347	2021/2022				
TARIFF CODE	Capacity (Amps)	Sub Category	Tariff Structure Category	Phases	Max Voltage	
Residential Indigent as per paragraph A of the Indigent Policy per meter	20	56	5Res_Pool	1:1 PH kWh Pre-paid	1:5small <50 kVA	
Residential Indigent meter as R100 000 No 50 FBE	20	56	5Res_Pool	1:1 PH kWh Pre-paid	1:5small <50 kVA	
Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	20	56	5Res_Pool	1:1 PH kWh Pre-paid	1:5small <50 kVA	
EIDI SINGLE PHASE LIFE LINE	20	56	5Res_Pool	1:1 PH kWh Pre-paid	1:5small <50 kVA	
EIDI SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	20	56	5Res_Pool	1:1 PH kWh Pre-paid	1:5small <50 kVA	
EIDEI LED PROJECTS	20	56	5Res_Pool	1:1 PH kWh Pre-paid	1:5small <50 kVA	
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	30	56	5Res	3:1 PH kWh	1:5small <50 kVA	
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Ulenstranden	30	56	5Res	1:1 PH kWh Pre-paid	1:5small <50 kVA	
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	40	56	5Res	3:1 PH kWh	1:5small <50 kVA	
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	40	56	5Res	1:1 PH kWh Pre-paid	1:5small <50 kVA	
4-Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	90	56	5Res	4:2 Ph kWh	1:5small <50 kVA	
4-Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	90	56	5Res	4:2 Ph kWh	1:5small <50 kVA	
4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	90	56	5Res	2:2 PH kWh Pre-paid	1:5small <50 kVA	
2-part, Commercial, Credit, 1 ph	60	56	4Comm	3:1 PH kWh	1:5small <50 kVA	
2-part, Commercial, PP, 1 ph	30	56	4Comm	1:1 PH kWh Pre-paid	1:5small <50 kVA	
1-Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)	50	56	4Comm	1:1 PH kWh Pre-paid	1:5small <50 kVA	
1-Part, Pre-paid, 3 ph: ≤ 100A (70 kVA) Businesses, Flats, Sport, Churches (≥ 600kWh/m 12 months)	80	56	4Comm	2:2 PH kWh Pre-paid	1:5small <50 kVA	
2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	120	56	4Comm	4:2 Ph kWh	1:5small <50 kVA	
2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	90	56	4Comm	2:2 PH kWh Pre-paid	1:5small <50 kVA	
Bulk: Medium Voltage	0	54	3Bulk 11 kV	7:70U PHU & CTVT's	3:Large <2000 kVA	
Bulk: Low Voltage	0	56	3Bulk LV	8:3 PH TOU & c/s	2:Medium <500 kVA	
Streetlights & CCTV (metered) per kWh (no basic charge)	0.9	56	7Lights	5NA	5NA	
Streetlights & CCTV (consumption) (per unit/per month) (no basic charge)	0.0	56	7Lights	5NA	5NA	
CASUAL SUPPLIES	40	56	4Comm	1:1 PH kWh Pre-paid	1:5small <50 kVA	
Availability: NETWORK CHARGES: SERVICED LAND	20	56	5Res	5NA	5NA	
SMALL SCALE EMBEDDED GENERATION (SSEG)	60	56	4Comm	8:2 PH TOU & c/s	1:5small <50 kVA	
Other	0	56	4Comm	4:2 Ph kWh	1:5small <50 kVA	

The resultant costs per tariff broken up in all the different components are shown in **Table 49**

The consumption values of the various customer categories were previously calculated. These quantities are broken up into the detailed cost categories and not billing quantities. This is done by using the representative load profile, load factor and consumption per TOU period.

- The ratio of consumption Peak, Standard, Off-peak
- and the load factors of the different representative load profiles
- are obtained from the representative load profile quantities.

The consumption quantities per TOU period are shown in Table 50

The following should be noted in this respect:

- The kVA for small customers represents the total maximum kVA placed on the network and not the actual installed capacity of customers. The peak values are calculated from the representative load profile quantities. This corresponds to using the individual maximum demand method for allocating network costs. If the average and access method was used, these values would be slightly different.
- The subsidised quantities: Basic and Free Basic Electricity (FBE) quantities are removed as we calculate costs.
- These quantities have been adjusted so that the same revenue as before is generated.

The total costs per tariff were then calculated by applying the consumption quantities (for the specific tariff and the relevant load profile, network, meter type and customer size), to the costs per tariff cost category. All the costs per tariff cost category are then adjusted, as shown in **Table 52** to ensure that the target revenue is achieved.



Table 51

OVERSTRAND	REVENUES FROM CHARGES APPLICABLE FOR ALL MONTHS OF THE YEAR										HIGH SEASON REVENUES					LOW SEASON REVENUES								
	Basic		Access		MD (all hours)		ALL Energy		Energy Standard		Energy Off-Peak		Reactive energy		Energy Peak		Energy Standard		Energy Off-Peak		Reactive energy			
	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	Yr	
TARIFF CODE	7,269,022	3,128,644	6,642,862	1,428,454	2,390,679	1,932,361	2,390,679	1,932,361	2,390,679	1,932,361	2,390,679	1,932,361	2,390,679	1,932,361	2,390,679	1,932,361	2,390,679	1,932,361	2,390,679	1,932,361	2,390,679	1,932,361	2,390,679	
Residential (budget as per paragraph A of the Budget Policy per meter)	5,624,365	1,879,856	3,631,146	258,876	1,436,535	1,611,513	1,436,535	1,611,513	1,436,535	1,611,513	1,436,535	1,611,513	1,436,535	1,611,513	1,436,535	1,611,513	1,436,535	1,611,513	1,436,535	1,611,513	1,436,535	1,611,513	1,436,535	
Residential (budget as per paragraph B, C & D of the Budget Policy per meter)	276,482	285,659	562,128	130,607	218,433	176,612	218,433	176,612	218,433	176,612	218,433	176,612	218,433	176,612	218,433	176,612	218,433	176,612	218,433	176,612	218,433	176,612	218,433	
EI/DI SINGLE PHASE LIFELINE	69,678	14,553	28,069	6,540	11,105	8,979	11,105	8,979	11,105	8,979	11,105	8,979	11,105	8,979	11,105	8,979	11,105	8,979	11,105	8,979	11,105	8,979	11,105	
EI/DI SINGLE PHASE LIFELINE INDEPENDENT TEMPORARY STRUCTURE	4,978,189	1,418,028	2,735,010	646,973	1,082,026	874,861	1,082,026	874,861	1,082,026	874,861	1,082,026	874,861	1,082,026	874,861	1,082,026	874,861	1,082,026	874,861	1,082,026	874,861	1,082,026	874,861	1,082,026	
EI/DI LFT PROJECTS	209,237	16,261	31,368	7,425	12,418	10,340	12,418	10,340	12,418	10,340	12,418	10,340	12,418	10,340	12,418	10,340	12,418	10,340	12,418	10,340	12,418	10,340	12,418	
4-Pvt. Domestic, Credit, 1 Ph, < 60 Amp (13.8 kVA) (including Pantries)	6,774,162	8,581,110	12,079,167	3,841,246	8,474,425	5,038,121	8,474,425	5,038,121	8,474,425	5,038,121	8,474,425	5,038,121	8,474,425	5,038,121	8,474,425	5,038,121	8,474,425	5,038,121	8,474,425	5,038,121	8,474,425	5,038,121	8,474,425	
4-Pvt. Domestic, Pre-paid, 1 Ph, < 60 Amp (13.8 kVA) (Urban/semi-urban)	508,148	121,854	163,008	54,582	81,869	72,114	81,869	72,114	81,869	72,114	81,869	72,114	81,869	72,114	81,869	72,114	81,869	72,114	81,869	72,114	81,869	72,114	81,869	
4-Pvt. Domestic, Credit, 1 Ph, < 60 Amp (13.8 kVA) (Rural)	81,219	157,268	268,040	70,400	119,659	93,689	119,659	93,689	119,659	93,689	119,659	93,689	119,659	93,689	119,659	93,689	119,659	93,689	119,659	93,689	119,659	93,689	119,659	
4-Pvt. Domestic, Pre-paid, 1 Ph, < 60 Amp (13.8 kVA) (including Pantries)	19,326,302	16,679,498	26,832,981	7,016,768	11,030,176	9,311,668	11,030,176	9,311,668	11,030,176	9,311,668	11,030,176	9,311,668	11,030,176	9,311,668	11,030,176	9,311,668	11,030,176	9,311,668	11,030,176	9,311,668	11,030,176	9,311,668	11,030,176	
4-Pvt. Domestic, Credit, 3 Ph, < 100A (70 kVA)	5,026,642	1,463,363	2,169,336	656,367	1,105,619	870,248	1,105,619	870,248	1,105,619	870,248	1,105,619	870,248	1,105,619	870,248	1,105,619	870,248	1,105,619	870,248	1,105,619	870,248	1,105,619	870,248	1,105,619	
4-Pvt. Domestic, Pre-paid, 3 Ph, < 100A (70 kVA)	104,088	267,733	401,824	119,828	242,004	199,000	242,004	199,000	242,004	199,000	242,004	199,000	242,004	199,000	242,004	199,000	242,004	199,000	242,004	199,000	242,004	199,000	242,004	
4-Pvt. Domestic, Credit, 3 Ph, < 100A (70 kVA)	419,736	490,452	828,642	238,106	370,046	291,596	370,046	291,596	370,046	291,596	370,046	291,596	370,046	291,596	370,046	291,596	370,046	291,596	370,046	291,596	370,046	291,596	370,046	
3-Pvt. Commercial, Credit, 1 Ph	648,189	828,257	1,229,276	327,203	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	
2-Pvt. Commercial, Pre-Paid, 1 Ph (Economic Development Projects)	22,418	38,801	76,162	20,273	29,701	26,075	29,701	26,075	29,701	26,075	29,701	26,075	29,701	26,075	29,701	26,075	29,701	26,075	29,701	26,075	29,701	26,075	29,701	
1-Pvt. Commercial, Pre-Paid, 1 Ph (Economic Development Projects)	648,560	828,257	1,229,276	327,203	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	
2-Pvt. Commercial, Pre-Paid, 3 Ph, < 100A (70 kVA)	93,280	120,520	238,566	62,968	89,146	80,932	89,146	80,932	89,146	80,932	89,146	80,932	89,146	80,932	89,146	80,932	89,146	80,932	89,146	80,932	89,146	80,932	89,146	
2-Pvt. Commercial, Pre-Paid, 3 Ph, < 100A (70 kVA)	648,560	828,257	1,229,276	327,203	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	428,858	483,232	
TIME OF USE TARIFF: LW	733,800	908,860	1,784,263	474,923	678,365	610,860	678,365	610,860	678,365	610,860	678,365	610,860	678,365	610,860	678,365	610,860	678,365	610,860	678,365	610,860	678,365	610,860	678,365	610,860
Streetlights & CCTV (metered) per kWh (no basic charge)	381,712	6,539,060	10,654,091	9,827,269	14,969,864	10,652,207	9,827,269	10,652,207	9,827,269	10,652,207	9,827,269	10,652,207	9,827,269	10,652,207	9,827,269	10,652,207	9,827,269	10,652,207	9,827,269	10,652,207	9,827,269	10,652,207	9,827,269	
Streetlights & CCTV (consumption) (per 100 Watt / month) (non-metered)	1,075,104	14,764,577	12,684,502	5,466,228	9,161,731	6,539,784	9,161,731	6,539,784	9,161,731	6,539,784	9,161,731	6,539,784	9,161,731	6,539,784	9,161,731	6,539,784	9,161,731	6,539,784	9,161,731	6,539,784	9,161,731	6,539,784	9,161,731	
CASUAL SUPPLIES	6,171,941	279,539	585,317	110,276	54,341	69,969	54,341	69,969	54,341	69,969	54,341	69,969	54,341	69,969	54,341	69,969	54,341	69,969	54,341	69,969	54,341	69,969	54,341	69,969
Availability: NETWORK CHARGES: SERVICED LAND	2,984,710	640,963	1,266,263	269,743	124,606	159,149	124,606	159,149	124,606	159,149	124,606	159,149	124,606	159,149	124,606	159,149	124,606	159,149	124,606	159,149	124,606	159,149	124,606	159,149
SMALL SCALE EMBEDDED GENERATION (SSE3)	167,578	-27,043	-55,062	-14,139	-20,003	-16,172	-20,003	-16,172	-20,003	-16,172	-20,003	-16,172	-20,003	-16,172	-20,003	-16,172	-20,003	-16,172	-20,003	-16,172	-20,003	-16,172	-20,003	-16,172
Other	58,851,029	74,047,148	68,653,631	30,468,737	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	
Total	58,851,029	74,047,148	68,653,631	30,468,737	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	41,232,865	55,119,265	

Table 52

Basic adjust	Cap/MD djust	kWh adjust
0.00%	9.81%	0.00%

The following very important point must be noted:

- In the sales analysis it was shown that the calculated revenue using the sales data and tariff data does not exactly achieve the revenue as indicated in the trial balance.
- This is because of inaccurate data provided because of various reasons including journals made in Rand values but not in sales volumes.
- The target sales revenue will thus not be that in the trial balance but that calculated from current tariffs plus adjustments.
- The adjustments are to add back the income foregone from FBE and deduct the additional revenue from streetlights which is an internal revenue.
- The target revenue from the new cost reflective tariffs is shown in **Table 53**.

Table 53

TARGET REVENUE	2021/2022
Previously calculated revenue	524 704 594
Plus Income foregone 2021/2022	36 280 153
Plus additional streetlight revenue	12 652 306
<b>Total</b>	<b>573 637 053</b>

The summary data is shown in **Table 54**.

Table 54

OVERSTRAND				
TOTAL COSTS	TOTAL	REFERENCE	OVERCHARGE	% Overcharge
TARIFF CODE	COST	TARIFF REVENUE	RAND	+% of Tariff
Residential Indigent as per paragraph A of the Indigent Policy per meter	31 836 691	11 765 877	-20 080 814	-170.8%
Residential Indigent minder as R100 000 No 50 FBE	20 408 999	13 514 871	-6 894 128	-51.0%
Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	2 518 464	2 104 986	-413 478	-19.6%
EIDI SINGLE PHASE LIFE LINE	203 650	68 498	-135 152	-197.3%
EIDI SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	15 690 990	6 594 594	-9 086 396	-137.6%
EIEI LED PROJECTS	336 690	70 314	-266 376	-378.8%
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	69 147 464	79 818 360	10 670 896	13.4%
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Uilenskransmond	1 394 446	2 005 352	610 907	30.5%
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	1 224 352	1 431 470	207 118	14.5%
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	133 297 439	135 656 005	2 358 567	1.7%
4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	11 160 917	14 455 333	3 294 416	22.8%
4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	2 050 072	2 678 493	628 421	23.5%
4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	3 984 693	4 774 626	789 934	16.5%
2-part, Commercial, Credit, 1 ph:	7 368 608	8 448 119	1 079 511	12.8%
2-part, Commercial, PP, 1 ph	6 152 722	7 208 157	1 055 435	14.6%
1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)	351 074	353 269	2 195	0.6%
1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (≥ 800kWh/m 12 months)	1 114 113	1 210 718	96 605	8.0%
2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	23 748 308	26 326 181	2 577 873	9.8%
2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	8 433 184	9 546 593	1 113 408	11.7%
TIME OF USE TARIFF: MV	118 739 862	106 220 306	-10 513 556	-9.7%
TIME OF USE TARIFF: LV	87 142 891	74 522 104	-12 620 787	-16.9%
Streetlights & CCTV (metered) per kWh (no basic charge)	7 927 960	795 606	-7 132 353	-896.5%
Streetlights & CCTV (consumption) (per 100 Watt / month) (non-metered)	6 391 297	830 079	-5 561 217	-670.0%
CASUAL SUPPLIES	-	-	-	0.0%
Availability: NETWORK CHARGES: SERVICED LAND	13 089 647	12 314 682	-774 965	-6.3%
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	-61 480	-	61 480	
Other	-	-	-	0.0%
<b>Total</b>	<b>573 637 053</b>	<b>524 704 594</b>	<b>-48 932 459</b>	
	573 637 053	0.00%		

The results are illustrated below in Figure 22 in % of cost and in Figure 23 in Rand difference between cost and current revenue. The vertical axis refers to % over or under recovery and the horizontal axis refer to the tariff.

Figure 22

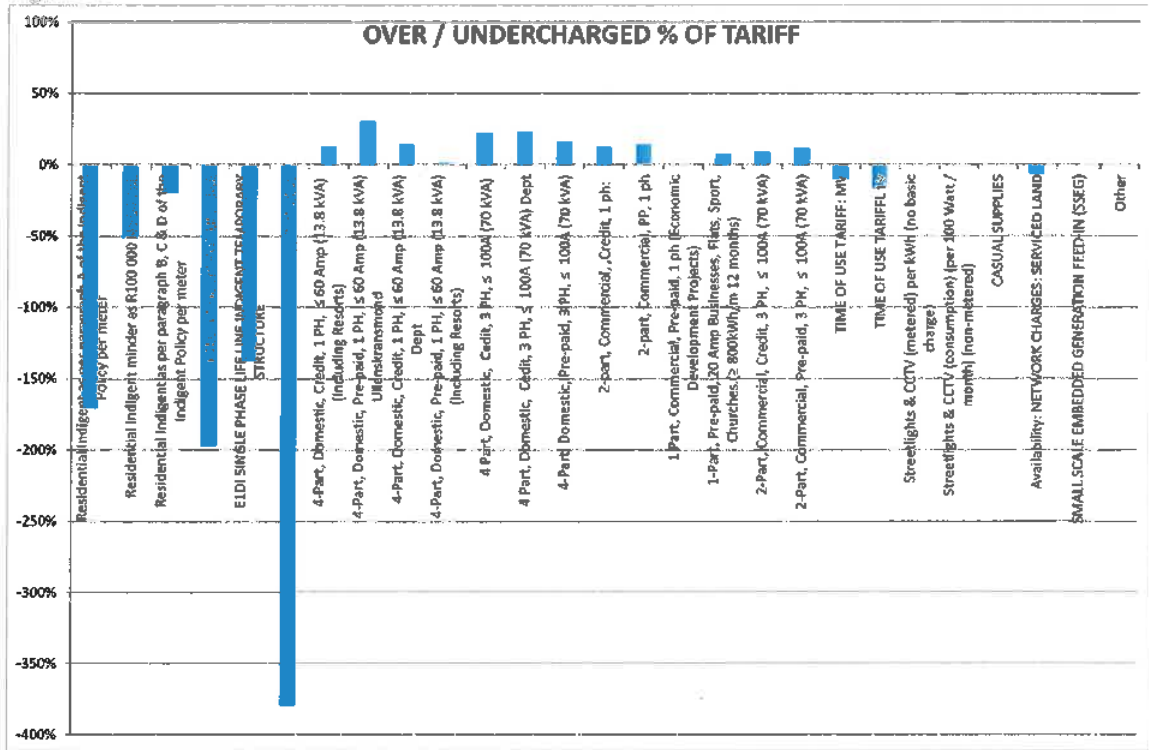
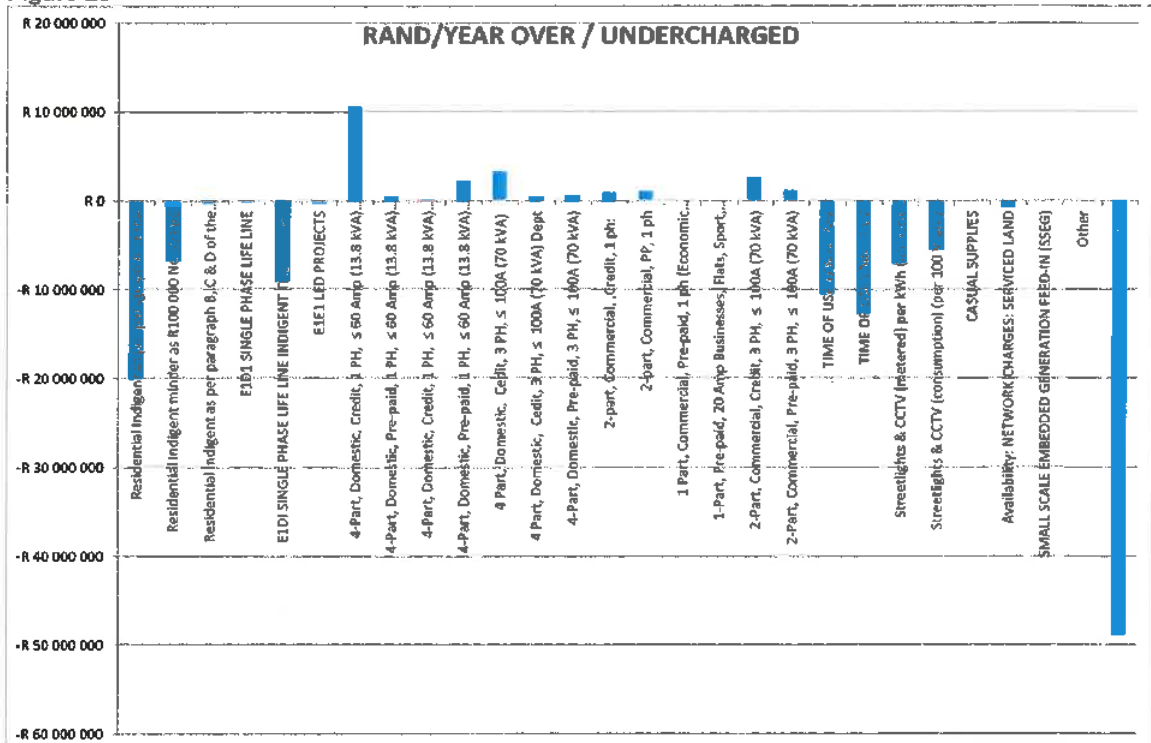


Figure 23



13.5 Tariff structure analysis

The cost of supply analysis shows the total cost vs revenue impact of the various tariffs. This section compares the current tariff components with the costs for the same tariff components. This is illustrated in Table 55.



## 14.1 Pricing Policy Drivers

It is now clear that the tariffs fall short in being cost reflective tariffs. The challenge is to determine what must guide the changes to be made to become more cost reflective. This section proposes the pricing principles and policies to be followed in making tariff changes.

The key sources used for purpose of formulating these policies are:

- The South African Constitution.
- The South African Electricity Pricing Policy (EPP).
- Municipal Finance Management Act (MFMA).
- Municipal Systems Act (MSA).

NERSA regulates the electricity tariffs in South Africa. The NERSA policies and guidelines thus have to be followed. There are however various NERSA guidelines in conflict with some of the legislation and regulations. The results of the cost of supply study must thus be used to move NERSA in accepting the municipal proposals.

### 2.1 General Tariff Principles

Section 16 of the Electricity Regulation Act of 2006 states that the setting of prices, charges, tariffs and the regulation of revenues:

- 
- a. must enable an efficient licensee to recover the full cost of its licensed activities, including a reasonable margin or return;
  - b. must provide for or prescribe incentives for continued improvement of the technical and economic efficiency with which services are to be provided;
  - c. must give end users proper information regarding the costs that their consumption imposes on the licensee's business;
  - d. must avoid undue discrimination between customer categories; and
  - e. may permit the cross-subsidy of tariffs to certain categories of customers.

Principles obtained from the Municipal Systems Act are as follows:

- a. Users of municipal services should be treated equitably in the application of tariffs.
- b. The amount individual users pay for services should generally be in proportion to their use of that service.
- c. Low income households must have access to at least basic services through:
  - tariffs that cover only operating and maintenance costs;
  - special tariffs or life line tariffs for low levels of use or consumption of services or for basic levels of service; or
  - any other direct or indirect method of subsidisation of tariffs for low income households.
- d. Tariffs must reasonable reflect the costs associated with rendering the service, including capital, operating, maintenance, administration and replacement costs, and interest charges.
- e. Tariffs must be set at levels that facilitate the financial sustainability of the service, taking into account subsidisation from sources other than the service concerned.
- f. Provision may be made for the promotion of local economic development through special tariffs for categories of commercial and industrial users.
- g. The economical, efficient and effective use of resources, the recycling of waste and other appropriate environmental objectives must be encouraged.
- h. The extent of subsidisation of tariffs for low income households and other categories of users should be fully disclosed.
- i. A tariff policy may differentiate between different categories of users, debtors, service providers, services, service standards, geographical areas and other matters as long as such differentiation does not amount to unfair discrimination.

## 14.2 Pricing policy.

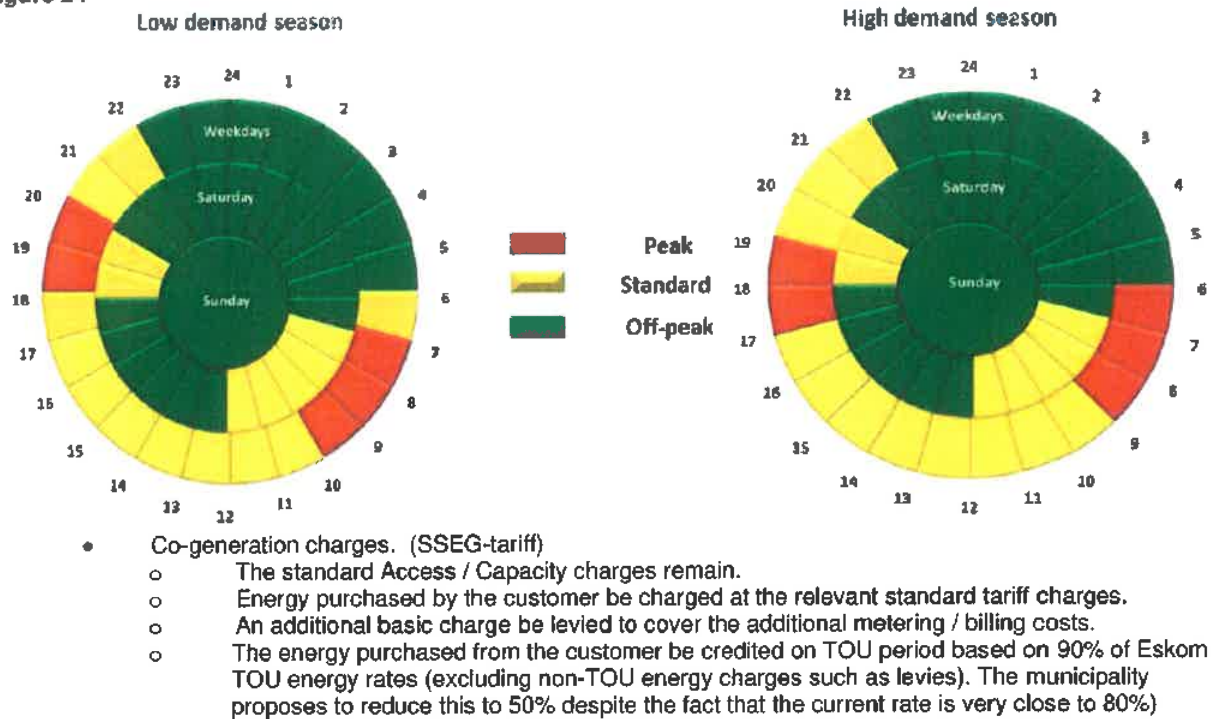
In view of the findings to date, the summarised pricing policy is provided below:

- It should be in line with the National Electricity Pricing Policy.
- All tariffs should be set as close as possible to the cost of supply.
- Indigent customers as registered in terms of indigent policy.
  - These customers limited to 30 Amps will be charged the full cost reflective fixed charges.
  - The full fixed charges, except for the infrastructure charge, be off-set by the equitable share.
  - Free Basic Electricity (FBE) of 50 kWh/m off-set by equitable share.
  - Remove the IBT structure and replace with single energy rate.
- Cross subsidisation of low usage domestic customers (poor but not indigent) customers should be done as follows:
  - Criteria to include limited consumption.
  - Customers limited to 30 Amps will be charged the full cost reflective fixed charges.
  - The full fixed charges, except for the infrastructure charge, off-set by the equitable share.
  - Remove the IBT structure and replace with single energy rate.
  - No FBE is granted.
- All small customers (domestic / business) > 30 Amp should have a fully cost reflective tariff:
  - A basic charge to reflect the fixed metering, billing, revenue collection and customer services costs.
  - A capacity charge based on the installed / limited capacity of the customer. In other words, the total network costs as calculated for that tariff before (using the relevant demand allocation method), is now divided by the customers' actual capacity.
  - An energy charge that covers the full energy cost, losses and surplus mark-up.
- All large customers should be charged on a TOU tariff with structure and TOU slots as per the Eskom Megaflex tariff applicable to Overstrand including changes over time:
  - Basic charge.
  - Capacity charge based on the highest of the following:
    - Notified demand or highest **annual** maximum demand to cover Eskom Access charge plus dedicated municipal network costs.
  - Maximum demand charge based on **monthly** highest maximum during Peak and Standard Periods only. (the municipality insist to also apply the demand charge during off-peak periods. The consultant supports not charging the maximum demand charge during off-peak periods as it has been shown in other areas that some consumers can increase their consumption during these periods without jeopardising the municipal costs or infrastructure.)
  - Energy charges for:
    - High Demand (June, July and August) and Low demand (all other months)
    - Peak, Standard and Off-peak (See diagram below)
  - Reactive energy charge based on kvarh in excess of 30% of kWh during all peak and Standard period for both seasons.
  - Public holidays treated as the day they fall on.
  - The tariffs should be different small consumers (<100 kVA), LV and MV.

This means that each customer will pay an average price depending on its own TOU ratio's and load factor. This is the same as applied by Eskom on its TOU tariffs.

TOU periods are as shown in Figure 24.

Figure 24



### 14.3 Cross subsidies to the poor.

In view of the proposed pricing policy, it is further proposed that the tariffs for Indigents and 30 Amp customers are not increased structurally. The extent of the cross subsidy in this case is then calculated.

The results of these calculations are shown in Table 56.

Table 56

SUBSIDY ANALYSIS						
Tariffs to be subsidised	Customers	Tot Cost	Current revenue	Shortfall	FBE	Subsidy
Residential Indigent as per paragraph A of the Indigent Policy per meter	3 967	31 836 691	11 755 877	20 080 814	36 280 153	-16 199 339
Residential Indigent minder as R100 000 No 50 FBE	3 032	20 408 999	13 514 871	6 894 128		6 894 128
Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	148	2 518 464	2 104 986	413 478		413 478
E1D1 SINGLE PHASE LIFE LINE	48	203 650	68 498	135 152		135 152
ETD1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	2 449	15 650 950	6 594 594	9 056 356		9 056 356
ETÉ1 LED PROJECTS	112	336 690	70 314	266 376		266 376
<b>TOTAL</b>		<b>70 985 485</b>	<b>34 109 140</b>	<b>36 876 345</b>	<b>36 280 153</b>	<b>596 192</b>
Total revenue excluding subsidy customers		490 595 454				
Total subsidy as % of Base revenue						0.12%

This subsidy % is of non-subsidised revenue. The question thus is what the charge for the indigent customers should be. The following in this respect. The NERSA benchmark for non-IBT tariffs is shown in Table 57 for 2022/2023.

Table 57

Table 6: Average domestic IBT benchmarks

Domestic Inclining Block Tariffs (IBTs)				
	Block 1 (0-50 kWh) R.c/kWh	Block 2 (51-350 kWh) R.c/kWh	Block 3 (351-600 kWh) R.c/kWh	Block 4 (>600 kWh) R.c/kWh
Excl VAT	R1.2396 - R1.3523	R1.6259 - R1.7386	R2.3182 - R2.4470	R2.7851 - R2.8617
Incl VAT	R1.4255 - R1.5551	R1.8698 - R1.9994	R2.6659 - R2.8140	R3.2029 - R3.3139

Table 7: Alternative domestic low IBT

Domestic Low IBT		
	Block 1 (0-350 kWh) R.c/kWh	Block 2 (>350 kWh) R.c/kWh
Excl VAT	R1.5776 - R1.6582	R2.2860 - R2.3986
Incl VAT	R1.8142 - R1.8069	R2.6288 - R2.7584

Table 8: Alternative domestic high IBT

Domestic High IBT		
	Block 1 (0-350 kWh) R.c/kWh	Block 2 (>350 kWh) R.c/kWh
Excl VAT	R1.5293 - R1.6259	R2.2539 - R2.3504
Incl VAT	R1.7587 - R1.8698	R2.5919 - R2.7030

Table 9: Average domestic non-IBT benchmarks

Domestic Non- IBT		
	Domestic Low (0-400 kWh) R.c/kWh	Domestic High (>400 kWh) R.c/kWh
Excl VAT	R1.7386 - R1.8513	R2.1894 - R2.2698
Incl VAT	R1.9994 - R2.1290	R2.5178 - R2.6103

Table 58 shows the calculation of the marginal Eskom purchase costs. The marginal costs do not refer to the average Eskom purchase price but the price of the domestic customers on its own. In other words, the impact that domestic customers have on increasing the access charge, maximum demand charge, energy charges during the various periods and the reactive energy charges.

Table 58

DOMESTIC ENERGY / MARGINAL ESKOM COST ANALYSIS			
Eskom			2021/2022
Transmission network charges [R/kVA/m]	R/kVA/m		11.44
Distribution network charges			
Network capacity charge	R/kVA/m		22.26
Network demand charge	R/kVA/m		42.21
Urban low voltage subsidy charge [R/kVA]	R/kVA/m		-

Energy charges			Ancillary service charge [c/kWh]	Electrification and rural network subsidy charge [c/kWh]	Total
High demand season [Jun - Aug]	Peak	R/kWh	443.27	0.55	10.80
	Standard	R/kWh	134.27	0.55	10.80
	Off Peak	R/kWh	72.93	0.55	10.80
Low demand season [Sep - May]	Peak	R/kWh	144.58	0.55	10.80
	Standard	R/kWh	99.51	0.55	10.80
	Off Peak	R/kWh	69.11	0.55	10.80

Domestic characteristics												
DATA PER												
BILLING CYCLE	HIGH SEASON						LOW SEASON					
	P	S	O	P	S	O	Monthly LF	Annual LF	Reactive Energy % of kWh	Losses		
MONTH	kWh (FOUR)	kWh (FOUR)	kWh (FOUR)	kWh (FOUR)	kWh (FOUR)	kWh (FOUR)	%	%	%	%		
Domestic	4%	11%	11%	12%	26%	32%	71.3%	70.7%	24.9%	11.29%		
Dom Poor	4%	11%	10%	13%	30%	31%	66.8%	58.0%	0.7%	11.29%		

Vending c	PP cust	R/cust/m
2052032	20592	8.304326

EFFECTIVE R/KWH	Transmission network charges [R/kVA/m]		Distribution network charges		Energy charges High demand season [Jun - Aug]			Energy charges Low demand season [Sep - May]			Reactive Energy c/kWh	Sub-Total Energy c/kWh	Total c/kWh	Eskom Increase 2021/2022 0.00%	Vending R/cust/m	GRAND TOTAL	
	Network capacity charge [R/kVA/m]	Network demand charge [R/kVA/m]	Urban low voltage subsidy charge [R/kVA/m]	Peak c/kWh	Standard c/kWh	Off Peak c/kWh	Peak c/kWh	Standard c/kWh	Off Peak c/kWh								
c/KWH	R/kVA/m	R/kVA/m	R/kVA/m	R/kVA/m	0	484.62	145.62	84.26	155.93	110.88	74.48	19.51					
Eskom charges	11.44	22.26	42.21	-		21.76	18.11	10.48	21.24	35.45	25.82	4.86	138.73	155.02	155.0231	1.28	156.30
Domestic	2.467	4.798	9.027	-		21.59	18.46	9.42	22.34	37.10	25.88	0.13	134.92	153.41	153.4062	3.32	156.73
Dom Poor	3.006	5.850	9.829	-													

The following in this respect:

- The Megaflex charges are those applicable to Overstrand municipality.
- The TOU consumption ratios and load factors were calculated from the representative load profiles.
- The monthly vending costs is the total vending cost divided by the number of customers divided by 12. This is then converted to a c/kWh for each domestic tariff category.
- This shows that the marginal cost of Eskom purchases for Indigent customers is 150 c/kWh in 2021/2022 values.
- The NERSA low benchmark does at least cover the marginal Eskom cost.
- If only the marginal vending costs is added it comes to 155 c/kWh.
- It is thus proposed that the charge to indigents be set equal to the highest of the NERSA benchmark even if it only makes a small contribution to the operating costs.
- In time this can be reviewed depending on the subsidy on non-subsidised customers.

The equitable share is calculated as shown in Table 59 and compared with the actual amount applied. What this is showing is that the subsidy provided by the equitable share covers more than required for indigent consumers and in fact also covers the subsidies to other poor domestic consumers.

Table 59

TARIFF	CUSTOMERS	FBE KWH	BASIC CHARGE SUBSIDY	ENERGY CHARGE	TOTAL BASIC SUBSIDY	TOTAL UNITS SUBSIDY	TOTAL FBE SUBSIDY
Residential Indigent as per paragraph A of the Indigent Policy per meter	3 907.00	2 143 000.00	356.20	126.24	16 700 060.80	2 705 323.20	19 405 404.00
Residential Indigent minder as R100 000 No 50 FBE	3 032.00		291.60	126.24	10 605 574.40	-	10 605 574.40
Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	148.00		291.60	126.24	517 681.60	-	517 681.60
E1D1 SINGLE PHASE LIFE LINE	48.00		291.60	126.24	167 961.60	-	167 961.60
E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	2 449.00	1 321 100.00		127.62	-	1 665 987.82	1 665 987.82
E1E1 LED PROJECTS	112.00			127.62	-	-	-
<b>GRAND TOTAL</b>	<b>9 696.00</b>	<b>3 464 100.00</b>	<b>1 221.00</b>	<b>760.20</b>	<b>27 995 498.40</b>	<b>4 391 311.02</b>	<b>32 386 809.42</b>
						Trail Balance	- 31 650 537.00
						DN	725 972.42
							-2%

Table 60 shows the subsidy with the proposed restructured tariffs.

Table 60

SUBSIDY ANALYSIS: NEW						
Tariffs to be subsidised	Customers	Tot Cost	New revenue	Shortfall	FBE	Subsidy
Residential Indigent as per paragraph A of the Indigent Policy per meter	3 907	31 836 691	34 793 250	-2 956 558	-	-2 956 558
Residential Indigent minder as R100 000 No 50 FBE	3 032	20 408 999	24 129 842	-3 720 843	-	-3 720 843
Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	148	2 518 464	2 334 798	183 666	-	183 666
E1D1 SINGLE PHASE LIFE LINE	48	203 650	302 201	-98 551	-	-98 551
E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	2 449	15 680 990	18 953 143	-3 272 153	-	-3 272 153
E1E1 LED PROJECTS	112	336 690	612 609	-275 919	-	-275 919
<b>TOTAL</b>	<b>0</b>	<b>70 985 485</b>	<b>80 513 234</b>	<b>-9 964 439</b>	<b>-</b>	<b>-9 964 439</b>
Total revenue excluding subsidy customers	0	0	0	0	0	0
Total revenue excluding subsidy customers	0	490 595 454	-	-	-	0
Total subsidy as % of Base revenue						-2.01%

The equitable share amount will however now increase to R45 mill.

## 15. INDIGENT POLICY

The current indigent and tariff policy as previously indicted is inconsistent:

- Residential Indigent as per paragraph A of the Indigent Policy per meter:
  - They get charged the full basic charge but it is off-set against the equitable share except the infrastructure levy.
  - They get 50 kWh/m for free. Apparently this is not off-set by the equitable share.
- Residential Indigent less than R100 000 No 50 FBE
  - They get charged the full basic but a portion gets off-set by the equitable share. They do not receive any FBE.
- Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter Category B,C and D.
  - They get charged the full fixed charges.
- E1D1 single phase life line, E1DI single phase life line indigent temporary structure & E1E1 LED projects
  - These consumers are not charged any fixed charges.
  - Only indigent temporary structure consumers receive FBE.

This is very inconsistent. The reason given for this difference is that the last three categories mostly don't have any accounts and therefore it is not possible to charge a basic charge and then cover that with the equitable share. I believe the reasoning is not correct and is an accounting challenge that can be addressed. The proposed Indigent policy is as follows:

- Indigent consumers apply and if they qualify in terms of the criteria:
  - One of the criteria should be that capacity be limited to 30 Amps.
  - Get charged the full Basic and capacity charge off-set by equitable share.
  - Receive 50 kWh/m of FBE off-set by equitable share.
  - They pay the infrastructure levy.
  - Standard energy charge.
- Poor but not indigent consumers including economic development projects, sports entities, churches etc:
  - These entities all have to apply for relief.
  - Capacity be limited to 30 Amps.
  - Get charged the full Basic and capacity charge off-set by equitable share.
  - They pay the infrastructure levy.
  - They receive no FBE.

The calculations show the following:

- The new calculated equitable share amount will increase to more than R45 mill.

In this way almost the full subsidies to the poor will be covered by the equitable share and not by other consumers.

## 16. SCENARIOS

There is uncertainty as to what direction to take in respect of the proposed tariffs specifically in terms of the domestic tariffs and specifically relating to the capacity charges and 20 Amp limit for indigent / poor. The following must however change:

The IBT rates for consumers > 20 Amp must be changed to single energy rate. This is because of the artificially inflated high block rates which are providing an incorrect price signal to consumers with renewable energy (SSEG) and is causing revenue losses far exceeding cost savings. In view of this, the following options will be considered.

### Option 1. (20 Amp cut-off)

- Implement a 20 Amp tariff for indigents consumers:
  - Apply full cost reflective basic charge.
  - Retaining IBT but maybe reducing blocks.
  - Subsidise the basic charge exceeding the infrastructure charge and 50 kWh/m FBE.
- Implement a 20 Amp tariff for low usage consumers:
  - Apply full cost reflective basic charge.
  - Retaining IBT but maybe reducing blocks.
  - Subsidise the basic charge exceeding the infrastructure charge.
- Implement cost reflective tariffs.
  - > 20 Amps 1 phase with basic and capacity charges and single energy rate.
  - ≥20 Amp 3 phase with basic and capacity charges and single energy rate.

### Option 2. (30 Amp cut-off)

- Same as above but use 30 Amp instead of 20 Amps.

### Option 3. No capacity charges / limits.

- Implement tariff for indigents consumers:
  - Apply full cost reflective basic charge.
  - Retaining IBT but maybe reducing blocks.
  - Subsidise the basic charge exceeding the infrastructure charge and 50 kWh/m FBE.
- Implement tariff for all other consumers:
  - Apply full cost reflective basic charge based on average fixed cost.
  - Implement single energy rate tariff.

Various other scenarios can be selected but these were thought to represent the most practical. A swot analysis of the various scenarios is shown in **Table 61** below.

Table 61

EVALUATION OF SCENARIOS	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
<p><b>Option 1. (20 Amp out-of)</b></p> <ul style="list-style-type: none"> <li>o Implement a 20 Amp tariff for indigents consumers:</li> <li>o Apply full cost reflective basic charge.</li> <li>o Retaining IBT but maybe reducing blocks.</li> <li>o Subsidise the basic charge exceeding the infrastructure charge and 50 kWh/m PBE.</li> <li>o Implement a 20 Amp tariff for low usage consumers:</li> <li>o Apply full cost reflective basic charge.</li> <li>o Retaining IBT but maybe reducing blocks.</li> <li>o Subsidise the basic charge exceeding the infrastructure charge.</li> <li>o Implement cost reflective tariffs.</li> <li>o &gt; 20 Amps 1 phase with basic and capacity charges and single energy rate.</li> <li>o &lt;=20 Amp 3 phase with basic and capacity charges and single energy rate.</li> </ul>	<p>Load shifting will take place</p> <p>Complies with national policy</p> <p>Network constraints will reduce</p> <p>Network outages will reduce</p> <p>Non-indigent consumers will fall out.</p> <p>SSEG revenue losses will be limited.</p> <p>Large irregular users will pay fair share.</p>	<p>Equitable share will increase.</p> <p>Provides too much subsidies.</p> <p>Requires billing / vending changes.</p> <p>Increased awareness of electricity.</p> <p>Lower carbon footprint with energy shift.</p> <p>Better consumer relationship.</p> <p>Better appreciation of subsidies.</p> <p>More consumers convert to pre-payment.</p>	<p>Massive Eskom and network savings.</p> <p>Consumer education.</p> <p>Increased awareness of electricity.</p> <p>Lower carbon footprint with energy shift.</p> <p>Better consumer relationship.</p> <p>Better appreciation of subsidies.</p> <p>More consumers convert to pre-payment.</p>	<p>Consumer negative reaction.</p> <p>Consumers bypass meters.</p> <p>A lot of consumer call outs.</p> <p>Less consumers install Renewable power.</p> <p>Billing / vending challenges.</p> <p>Implementation challenges.</p>
<p><b>Option 2. (30 Amp out-of)</b></p> <ul style="list-style-type: none"> <li>o Same as above but use 30 Amp instead of 20 Amps.</li> </ul>	<p>Still retaining some capacity signals</p> <p>Less low usage consumer call outs.</p> <p>Load shifting for &gt; 30 Amp consumers.</p> <p>Large irregular users will pay fair share.</p> <p>Network constraints will reduce only in upper market areas</p> <p>Network outages only reduce in upper market areas</p>	<p>Indigents remain / increase</p> <p>Little load shifting for 30 Amp</p> <p>Poor area network constraints remain / get worse.</p>	<p>Same as for 1 but to a <b>larger extent</b> but limited mainly to upper market areas.</p>	<p>Network constraints in poor areas remain / increase.</p> <p>Does not comply with national policy.</p> <p>Ongoing increased Eskom costs and network upgrading requirements.</p>
<p><b>Option 3. No capacity charges / limits.</b></p> <ul style="list-style-type: none"> <li>o Implement tariff for indigents consumers:</li> <li>o Apply full cost reflective basic charge.</li> <li>o Retaining IBT but maybe reducing blocks.</li> <li>o Subsidise the basic charge exceeding the infrastructure charge and 50 kWh/m PBE.</li> <li>o Implement tariff for all other consumers:</li> <li>o Apply full cost reflective basic charge based on average fixed cost.</li> <li>o Implement single energy rate tariff.</li> </ul>	<p>Little changes required.</p> <p>No unnecessary call outs.</p> <p>No pressure to bypass meters due to capacity limits.</p> <p>SSEG consumer losses limited.</p>	<p>No load shifting achieved.</p> <p>Low capacity consumers subsidise, high capacity consumers.</p> <p>SSEG consumers request bigger capacity to increase SSEG capacity.</p>	<p>Very little.</p>	<p>Ongoing network and Eskom peaks.</p> <p>Escalating Eskom and network costs.</p> <p>Increase indigent subsidies required.</p> <p>Consumer ignorance continues.</p> <p>No appreciation for subsidies.</p> <p>Demands for more subsidies.</p>

The consultants recommendation remains that indigents and poor be limited to 20 Amps to receive subsidisation of basic and / or capacity charges. The municipality wants the limit to be set at 30 Amps. The biggest challenges with this option are the following:

- If indigents and poor are limited to 30 Amps, it becomes the criteria to receive reduction in fixed charges.
- That means that all other consumers have to be placed on > 30 Amps which is 40 Amps which means that the majority of load shifting benefit will be lost.
- Otherwise some other criteria needs to be developed. This problem can be addressed by limiting the amount of electricity consumer per month for indigents / semi indigents. This also has the problem that various indigents with multiple households use more electricity than normal households which should not be subsidised.
- Another alternative is to allow a bigger connection where more than one household is on one property.
- The consultant accepts the municipality past practice of granting a 30 Amp connection especially in view of the large number of backyard dwellers. It simply wants to highlight the challenge of differentiation.

## 17. PROPOSED TARIFFS

In view of the proposed pricing policy the following tariffs are proposed for Overstrand as shown below:

**Table 62.** It shows the following:

- The current tariffs,
- The current costs escalated to 2021/2022.

**Table 63.** It shows the following:

- The current tariff
- The proposed rates before annual price increase.

A slight adjustment is made to achieve the revenue target as shown in green.



The following should be noted:

- The basic Capacity and energy charges will be the same for all domestic consumers as proposed by the municipality. Although the cost of supply study indicates differences between indigent, low usage and high consumers.
- The basic charges for single and three phase consumers do however differ.

## 18. FINANCIAL IMPACT

The tariffs have been developed in a way that will ensure revenue neutrality from a tariff structure point of view:

- Provision has been made for customers to reduce their circuit breaker capacity thereby building in a small safety margin.
- With the application of cost reflective basic and amp charges, the net revenue loss when customers install renewable energy will be minimised.
- Some savings opportunity is opened by buying surplus renewable energy from customers at a price below that of Eskom power.
- With the more aggressive capacity charges, customers will be more inclined to reduce their peak capacity rather than energy thereby reducing Overstrand's Eskom and own network costs without sacrificing much municipal revenue thereby increasing profitability.

The proposed tariffs thus hold very little risk but real opportunities.

## 19. TARIFF IMPACT

The two tables below show the overall impact on customers on each tariff on average. This is for the tariffs before phase in (in other words the whole impact). The impact of each would be about a quarter of this if phased in over 4 years. **Table 64** shows the impact if all tariffs were cost reflective.

**Table 64**

OVERSTRAND		2022/2023 Proposed	2022/2023 Reference	Difference	Structure change	Initial cost reflectiveness
CALCULATED REVENUE		R/year	7.47% Rand		%	
65A	Residential Indigent as per paragraph A of the Indigent Policy p	34 794 057	12 634 041	22 160 016	175.40%	-170.8%
65B	Residential Indigent minder as R100 000 No 50 PBE	24 130 469	14 524 431	9 606 038	65.14%	-51.0%
E1D	Residential Indigent as per paragraph B, C & D of the Indigent P	2 334 839	2 262 229	72 610	3.21%	-19.6%
E1D	E1DI SINGLE PHASE LIFE LINE	302 211	73 615	228 596	310.53%	-197.3%
E1D	E1DI SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCT	18 953 649	7 067 210	11 886 439	167.43%	-137.8%
E1D	E1DI LED PROJECTS	612 632	75 566	537 066	710.72%	-376.8%
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including	74 241 008	85 780 791	-11 539 783	-13.45%	13.4%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Ullensk	1 906 997	2 155 152	-248 155	-11.51%	30.5%
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	1 229 634	1 538 400	-308 566	-20.06%	14.5%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Includi	139 003 939	145 789 509	-6 785 570	-4.65%	1.7%
E3E	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	11 526 951	15 535 146	-4 008 196	-25.80%	22.8%
E3E	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	2 191 645	2 878 576	-686 932	-23.86%	23.5%
E3E	4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	3 973 481	5 131 291	-1 157 810	-22.56%	16.5%
E1C	2-part, Commercial, Credit, 1 ph:	8 063 278	9 079 193	-995 915	-10.97%	12.8%
E1C	2-part, Commercial, PP, 1 ph	6 531 338	7 746 606	-1 215 269	-15.99%	14.6%
E1E	1 Part, Commercial, Pre-paid, 1 ph (Economic Development Proj	356 506	379 658	-23 152	-6.10%	0.6%
E3G	1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (C	1 160 935	1 301 159	-140 224	-10.78%	6.0%
E3E	2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	25 501 568	28 292 747	-2 791 179	-9.87%	9.8%
E3E	2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	8 995 965	10 259 729	-1 264 958	-12.32%	11.66%
65A.1	TIME OF USE TARIFF: LV	127 624 651	116 304 363	11 320 288	9.73%	-9.7%
65	TIME OF USE TARIFF: LV	83 363 517	80 088 906	3 274 611	16.57%	-16.9%
E7A.1	Streelights & CCTV (metered) per kWh (no basic charge)	8 609 727	855 038	7 754 689	906.94%	0.0%
E7A.2	Streelights & CCTV (consumption) (per 100 Watt / month) (not	7 074 065	892 086	6 181 978	692.98%	0.0%
65	CASUAL SUPPLIES	-	-	-	#DIV/0!	0.0%
65	Availability: NETWORK CHARGES: SERVICED LAND	14 067 444	13 234 589	832 855	6.29%	-6.3%
E18	SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	-84 762	-	-84 762	#DIV/0!	0.0%
0	Other	-	-	-	-	0.0%
0	z	2 398	-	2 398	#DIV/0!	0.0%
1	Total	616 487 741	563 900 028	53 587 713	8.69%	0.0%
1		616 487 741	0.00%	-	-	0.0%

**Table 65** shows the impact of the phased structure change for year one before the average price increase.

Table 65

OVERSTRAND		2023/2024 Proposed	2022/2023 Reference	Difference	Structure change	Initial cost reflectiveness
CALCULATED REVENUE		R/year	Reference	R/and	%	
Nr	TARIFF NAME					
BSA	Residential Indigent as per paragraph A of the Indigent Policy p	36 097 366	12 634 041	23 463 345	185.72%	-170.8%
BSB	Residential Indigent minder as R100 000 No 50 FBE	25 477 523	14 524 431	10 953 092	75.41%	-51.0%
E1D	Residential Indigent as per paragraph B, C & D of the Indigent P	2 259 433	2 262 229	-2 796	-0.12%	-19.6%
E1D	E1D1 SINGLE PHASE LIFE LINE	125 688	73 615	52 054	70.71%	-197.3%
E1D	E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCT	9 783 046	7 087 210	2 695 836	38.04%	-137.8%
E1D	E1E1 LED PROJECTS	195 784	75 566	120 218	159.09%	-378.8%
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including	98 263 464	85 780 791	12 482 693	14.55%	13.4%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Lifensh	2 115 866	2 155 152	-39 286	-1.82%	30.6%
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	1 643 245	1 538 400	104 844	6.82%	14.5%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Includ	142 628 727	145 789 509	-3 160 782	-2.17%	1.7%
E3E	4-Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	14 408 258	15 535 146	-1 126 889	-7.25%	22.8%
E3E	4-Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	2 681 366	2 878 578	-197 210	-6.85%	23.5%
E3E	4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	4 768 845	5 131 261	-332 446	-6.46%	16.5%
E1C	2-part, Commercial, Credit, 1 ph:	8 731 599	9 079 193	-347 594	-3.83%	12.8%
E1C	2-part, Commercial, PP, 1 ph	7 368 909	7 746 606	-377 697	-4.88%	14.6%
E1E	1-Part, Commercial, Pre-paid, 1 ph (Economic Development Proj	369 964	379 658	-9 693	-2.55%	0.6%
E3G	1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches, C	1 251 457	1 301 159	-49 702	-3.82%	8.0%
E3E	2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	27 274 696	28 292 747	-1 018 051	-3.60%	9.8%
E3E	2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	9 828 419	10 259 723	-431 304	-4.20%	11.7%
BSA1	TIME OF USE TARIFF MW	119 145 839	116 304 363	2 841 576	2.44%	-9.7%
BS	TIME OF USE TARIFF LV	83 446 396	80 088 906	3 357 490	4.19%	-16.9%
E7A1	Streetlights & CCTV (metered) per kWh (no basic charge)	2 789 710	655 038	1 938 672	226.74%	0.0%
E7A2	Streetlights & CCTV (consumption) (per 100 Watt / month) (not	2 437 581	892 066	1 545 495	173.24%	0.0%
BS	CASUAL SUPPLIES	-	-	-	#DIV/0!	0.0%
BS	Availability: NETWORK CHARGES: SERVICED LAND	13 442 603	13 234 589	208 214	1.57%	-6.3%
E1B	SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEGI)	-84 762	-	-84 762	#DIV/0!	0.0%
0	Other	-	-	-	-	0.0%
0	z	2 398	-	2 398	#DIV/0!	0.0%
1	Total	616 487 741	563 900 028	52 587 714	9.35%	0.0%
1		616 487 741	6.00%	0.00		

The following very important points are to be noted in this respect:

- The total revenue will remain the same in respect of customers who are to receive relief from the equitable share. Thus, the revenue will either come from the consumer or from the equitable share if they qualify.
- It thus shows a big increase in respect of the Indigents and semi-indigents as the new revenue will include the amounts coming from the equitable share.
- The capacities that have been assumed for consumers is what is considered realistic. Some consumers may however reduce their capacity below what has been assumed which could lead to some revenue loss. A 15% reduction by consumers have been assumed to cater for any possible revenue losses.
- In all other cases the impact is close to ¼ of the impact of the final implementation.
- This is per tariff category and thus for some of the sub tariffs the impact will be different as the various domestic tariffs are grouped together.

The impact for each customer will however be different. It will depend on the utilisation of the capacity provided to customers and the extent to which electricity is used in the peak times:

- The following customers will generally see increased bills:
  - Those that are not utilising their capacity and are not willing to reduce / manage their capacity, due to the Capacity/Access charges.
  - Customers who need large capacity only for a few months in the year.
  - TOU customers who use a lot of electricity during the expensive Winter Peak times and are not willing / able to shift load out of these periods.

If these tariffs are phased in over 4 years, customers will have time to adapt to the new rates and thus manage their bills. The impacts shown in the table above will thus be 1/4 for each of the 4 years.

## 20. CUSTOMER IMPACT

The detailed impact on domestic customers have been further analysed and is illustrated. Table 66 shows the current and proposed charges before phase in or annual increase.

Table 66

DOMESTIC TARIFF IMPACT:													
RESTRUCTURED WITHOUT PRICE INCREASE AND PHASE IN													
Existing Tariff 2022/2023 Actual Tariffs	Basic		Capacity		Energy		Block 1 rate	Block 2 rate	Block 2 size	Block 3 rate	Block 3 size	Block 4 rate	Block 4 size
	Capacity Amps	Per month R/m	Per A (installed) R/A/m	Block 1 rate c/kWh	Block 1 size kWh/m	Block 2 rate c/kWh							
Residential Indigent as per paragraph A of the Indigent Policy per meter	30	438.660		1.555	50.00	1.555	350.00	2.329	600	2.919	10000.00		
Residential Indigent minder as R100 000 No 50 FBE	30	438.660		1.555	50.00	1.555	350.00	2.329	600	2.919	10000.00		
Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	40	438.660		1.555	50.00	1.555	350.00	2.329	600	2.919	10000.00		
E1D1 SINGLE PHASE LIFE LINE	30	0.000		1.555	50.00	1.555	350.00	2.329	600	2.919	10000.00		
E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	30	0.000		1.572	50.00	1.572	350.00	2.329	600	0.000	10000.00		
E1E1 LED PROJECTS	30	0.000		1.572	50.00	1.572	350.00	2.329	600	0.000	10000.00		
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	40	438.660		1.693	50.00	1.693	350.00	2.472	600	3.037	10000.00		
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Uitenhage	30	438.660		1.555	50.00	1.555	350.00	2.329	600	2.919	10000.00		
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	50	438.660		1.693	50.00	1.693	350.00	2.472	600	3.037	10000.00		
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	40	438.660		1.555	50.00	1.555	350.00	2.329	600	2.919	10000.00		
4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	120	877.310		1.699	50.00	1.699	350.00	2.462	600	3.018	10000.00		
4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	120	877.310		1.699	50.00	1.699	350.00	2.462	600	3.018	10000.00		
4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	90	877.310		1.569	50.00	1.569	350.00	2.339	600	2.901	10000.00		
<b>Proposed</b>													
Residential > 30 Amps 1 ph	30	156.04	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 1 ph	40	156.04	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 1 ph	50	156.04	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 1 ph	60	156.04	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 1 ph	70	156.04	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 3 ph	60	189.28	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 3 ph	90	189.28	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 3 ph	120	189.28	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 3 ph	150	189.28	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		
Residential > 30 Amps 3 ph	180	189.28	7.88	1.663	50.00	1.66	350.00	1.66	600.00	1.66	10000.00		

Table 67 shows the revenue on existing and proposed tariffs, then the Rand impact of the % change. It also shows the number of consumers on each tariff and the average consumption and selected capacity of these.

Table 67

IMPACT: TOTAL IMPACT EXCLUDING PRICE INCREASE		kWh/m	100	200	300	400	500	600	700	800	900	1000
Amps	EXISTING REVENUE		100	200	300	400	500	600	700	800	900	1000
30	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA)	439	594	750	905	1 099	1 332	1 565	1 857	2 149	2 441	2 733
40	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA)	439	594	750	905	1 099	1 332	1 565	1 857	2 149	2 441	2 733
50	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA)	439	594	750	905	1 099	1 332	1 565	1 857	2 149	2 441	2 733
60	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA)	439	594	750	905	1 099	1 332	1 565	1 857	2 149	2 441	2 733
70	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA)	439	594	750	905	1 099	1 332	1 565	1 857	2 149	2 441	2 733
60	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	877	1 047	1 217	1 387	1 596	1 844	2 092	2 394	2 696	2 998	3 300
90	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	877	1 047	1 217	1 387	1 596	1 844	2 092	2 394	2 696	2 998	3 300
120	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	877	1 047	1 217	1 387	1 596	1 844	2 092	2 394	2 696	2 998	3 300
150	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	877	1 047	1 217	1 387	1 596	1 844	2 092	2 394	2 696	2 998	3 300
180	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	877	1 047	1 217	1 387	1 596	1 844	2 092	2 394	2 696	2 998	3 300
	to											
Amps	PROPOSED REVENUE	0	100	200	300	400	500	600	700	800	900	1 000
30	Residential > 30 Amps 1 ph30	392	559	726	891	1 057	1 224	1 390	1 556	1 723	1 889	2 055
40	Residential > 30 Amps 1 ph40	471	637	804	970	1 136	1 303	1 469	1 635	1 801	1 968	2 134
50	Residential > 30 Amps 1 ph50	550	716	882	1 049	1 215	1 381	1 548	1 714	1 880	2 048	2 213
60	Residential > 30 Amps 1 ph60	629	795	961	1 128	1 294	1 460	1 626	1 793	1 959	2 125	2 292
70	Residential > 30 Amps 1 ph70	707	874	1 040	1 206	1 373	1 539	1 705	1 871	2 038	2 204	2 370
60	Residential > 30 Amps 1 ph60	662	828	994	1 161	1 327	1 493	1 660	1 826	1 992	2 158	2 325
90	Residential > 30 Amps 1 ph90	898	1 064	1 231	1 397	1 563	1 730	1 896	2 062	2 228	2 395	2 561
120	Residential > 30 Amps 1 ph120	1 135	1 301	1 467	1 633	1 800	1 966	2 132	2 299	2 465	2 631	2 797
150	Residential > 30 Amps 1 ph150	1 371	1 537	1 703	1 870	2 036	2 202	2 368	2 535	2 701	2 867	3 034
180	Residential > 30 Amps 1 ph180	1 607	1 773	1 940	2 106	2 272	2 439	2 605	2 771	2 937	3 104	3 270
	#											
Amps	CHANGE IN REVENUE											
30.00	Residential > 30 Amps 1 ph30	-46	-35	-25	-14	-42	-108	-175	-301	-426	-552	-678
40.00	Residential > 30 Amps 1 ph40	32	43	54	65	37	-30	-96	-222	-348	-473	-599
50.00	Residential > 30 Amps 1 ph50	111	122	133	144	116	49	-18	-143	-269	-395	-520
60.00	Residential > 30 Amps 1 ph60	190	201	212	222	195	128	61	-64	-190	-316	-441
70.00	Residential > 30 Amps 1 ph70	269	280	290	301	273	207	140	14	-111	-237	-363
60.00	Residential > 30 Amps 1 ph60	-215	-219	-223	-226	-269	-351	-433	-568	-704	-840	-975
90.00	Residential > 30 Amps 1 ph90	21	17	14	10	-33	-115	-197	-332	-468	-603	-739
120.00	Residential > 30 Amps 1 ph120	257	254	250	246	204	122	40	-86	-231	-367	-502
150.00	Residential > 30 Amps 1 ph150	494	490	486	483	440	358	276	141	5	-131	-266
180.00	Residential > 30 Amps 1 ph180	730	726	723	719	676	594	512	377	241	106	-30
Amps	CHANGE %	0	100	200	300	400	500	600	700	800	900	1 000
30.00	Residential > 30 Amps 1 ph30	-10.6%	-6.0%	-3.3%	-1.5%	-3.8%	-8.1%	-11.2%	-16.2%	-19.5%	-22.6%	-24.8%
40.00	Residential > 30 Amps 1 ph40	7.4%	7.3%	7.2%	7.2%	3.4%	-2.2%	-6.2%	-12.0%	-16.2%	-19.4%	-21.9%
50.00	Residential > 30 Amps 1 ph50	25.4%	20.5%	17.7%	15.9%	10.5%	3.7%	-1.1%	-7.7%	-12.5%	-16.2%	-19.0%
60.00	Residential > 30 Amps 1 ph60	43.3%	33.8%	28.2%	24.6%	17.7%	9.6%	3.9%	-3.5%	-8.8%	-12.9%	-16.2%
70.00	Residential > 30 Amps 1 ph70	61.3%	47.1%	38.7%	33.3%	24.9%	15.5%	8.9%	0.8%	-5.2%	-9.7%	-13.3%
60.00	Residential > 30 Amps 1 ph60	-24.6%	-20.9%	-18.3%	-16.3%	-16.9%	-19.0%	-20.7%	-23.7%	-26.1%	-28.0%	-29.5%
90.00	Residential > 30 Amps 1 ph90	2.4%	1.7%	1.1%	0.7%	-2.0%	-6.2%	-9.4%	-13.9%	-17.3%	-20.1%	-22.4%
120.00	Residential > 30 Amps 1 ph120	29.3%	24.2%	20.5%	17.8%	12.8%	6.6%	1.9%	-4.0%	-8.6%	-12.2%	-15.2%
150.00	Residential > 30 Amps 1 ph150	56.3%	46.8%	40.0%	34.8%	27.6%	19.4%	13.2%	5.9%	0.2%	-4.4%	-8.1%
180.00	Residential > 30 Amps 1 ph180	83.2%	69.3%	59.4%	51.8%	42.4%	32.2%	24.5%	15.7%	6.9%	3.5%	-0.9%

The average percentages only represent the average. The case will be different for each customer. It will depend largely on how effective customers utilise their capacity. In other words, customers with large capacity and low consumption will see higher increases and those with low capacity and high consumption will see lower increases. This clearly shows that only customers that are not willing to reduce / manage their capacity or have irregular usage over the months in the year will pay significantly more. If these tariffs are phased in over 3 years customers will have time to adapt to the new rates and thus manage their bills.

The impact on Business consumers is illustrated here. Table 68 below show the existing and proposed tariffs.

Table 68

BUSINESS										
RESTRUCTURED WITHOUT PRICE INCREASE AND PHASE IN										
Existing Tariff 2021/2022	Capacity Amps	Per month R/m	Basic	Capacit y Per A (Installe d) R/A/m	Energy					
					Block 1 rate c/kWh	Block 1 size kWh/m	Block 4 rate c/kWh	Block 4 size kWh/m	Block 4 rate c/kWh	Block 4 size kWh/m
2-part, Commercial, Credit, 1 ph;		90	424.62			2,344	100000.00		303	617
2-part, Commercial, PP, 1 ph		60	424.82			2,209	100000.00		454	414
1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)		30	16.65			2,527	100000.00		12	971
1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches.(≥ 800kWh/m 12 months)		60	16.65			2,788	100000.00		30	1 206
2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)		90	832.98			2,344	100000.00		328	2 505
2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)		180	832.98			2,209	100000.00		236	1 157
Proposed										
2-part, Commercial, Credit, 1 ph;		90	145.35	10.95	1,528	100000.00				
2-part, Commercial, PP, 1 ph		60	145.35	10.95	1,528	100000.00				
1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)		30	0.00	0.00	2,527	100000.00				
1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches.(≥ 800kWh/m 12 months)		60	181.41	10.95	1,528	100000.00				
2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)		90	181.41	10.95	1,528	100000.00				
2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)		180	181.41	10.95	1,528	100000.00				

The impact for typical customers, either remaining on the same tariff but with new structure or to the new tariff with basic and capacity charges, is shown in Table 69.

Table 69

IMPACT: TOTAL IMPACT EXCLUDING PRICE INCREASE		kWh/m	100	200	300	400	500	600	700	800	900	1000
Amps	<b>EXISTING REVENUE</b>											
90	2-part, Commercial, Credit, 1 ph:	439	691	942	1 194	1 446	1 698	1 950	2 202	2 454	2 706	2 958
60	2-part, Commercial, PP, 1 ph	439	676	913	1 151	1 388	1 626	1 863	2 100	2 338	2 575	2 812
30	1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)	0	272	543	815	1 086	1 358	1 629	1 901	2 172	2 444	2 715
60	1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (≥ 800kWh/m 12 mon)	0	300	599	898	1 198	1 498	1 798	2 097	2 397	2 697	2 996
90	2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	877	1 129	1 381	1 633	1 885	2 137	2 389	2 641	2 893	3 144	3 396
180	2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	877	1 115	1 352	1 589	1 827	2 064	2 302	2 539	2 776	3 014	3 251
	<b>to</b>											
Amps	<b>PROPOSED REVENUE</b>											
90	Proposed2-part, Commercial, Credit, 1 ph: 90	1 243	1 407	1 571	1 736	1 900	2 064	2 228	2 393	2 557	2 721	2 885
60	Proposed2-part, Commercial, PP, 1 ph60	881	1 045	1 209	1 373	1 538	1 702	1 866	2 030	2 195	2 359	2 523
30	Proposed1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)30	518	683	847	1 011	1 175	1 340	1 504	1 668	1 832	1 997	2 161
60	Proposed1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (≥ 800kWh/m)	381	1 045	1 209	1 373	1 538	1 702	1 866	2 030	2 195	2 359	2 523
90	Proposed2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)90	1 276	1 440	1 605	1 769	1 933	2 097	2 262	2 426	2 590	2 754	2 919
180	Proposed2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)180	2 363	2 527	2 691	2 855	3 020	3 184	3 348	3 513	3 677	3 841	4 005
	<b>to</b>											
Amps	<b>CHANGE IN REVENUE</b>											
90.00	Proposed2-part, Commercial, Credit, 1 ph: 90	804	717	629	541	454	366	278	191	103	15	-72
60.00	Proposed2-part, Commercial, PP, 1 ph60	442	369	296	223	149	76	3	-70	-143	-216	-289
30.00	Proposed1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)30	518	411	304	198	89	-18	-125	-233	-340	-447	-555
60.00	Proposed1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (≥ 800kWh/m)	881	745	610	474	339	204	68	-67	-202	-338	-473
90.00	Proposed2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)90	399	311	223	136	48	-39	-127	-215	-302	-390	-479
180.00	Proposed2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)180	1 495	1 412	1 339	1 266	1 193	1 120	1 047	974	901	827	754
	<b>to</b>											
Amps	<b>CHANGE %</b>											
90.00	Proposed2-part, Commercial, Credit, 1 ph: 90	183.3%	103.6%	66.7%	45.3%	31.4%	21.6%	14.3%	8.7%	4.2%	0.6%	-2.4%
60.00	Proposed2-part, Commercial, PP, 1 ph60	100.7%	54.5%	32.4%	19.3%	10.8%	4.7%	0.2%	-3.3%	-6.1%	-8.4%	-10.3%
30.00	Proposed1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)30	0.0%	151.4%	55.9%	24.1%	8.2%	-1.3%	-7.7%	-12.2%	-15.7%	-18.3%	-20.4%
60.00	Proposed1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (≥ 800kWh/m)	0.0%	246.7%	101.8%	52.8%	28.3%	13.8%	3.8%	-3.2%	-8.4%	-12.5%	-16.6%
90.00	Proposed2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)90	45.4%	27.5%	16.2%	9.3%	2.6%	-1.8%	-5.3%	-9.1%	-10.5%	-12.4%	-14.1%
180.00	Proposed2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)180	169.3%	126.7%	99.1%	79.7%	65.3%	54.3%	45.5%	38.3%	32.4%	27.5%	23.2%

It is believed that if phased in over 3 years this impact should be acceptable and the results should be very good for the municipality.

## 21. BULK TOU TARIFFS

TOU tariffs must continue to be applied to Bulk consumers and even be applied to small customers. This is because:

- It offers opportunities for customers to shift load thereby reducing their own costs without any detrimental financial impact on the municipality.
- It offers savings to the municipality when the system peaks are reduced due to customer load shifting.
- Municipal own purchase costs can be reduced when the tariff is applied to internal consumption points such as sewerage works.
- This is a requirement in terms of the EPP.

Table 70 shows the markup of the existing TOU tariffs on the various Eskom charges. It is clear that it contains very distorted signals and need to be changed ASAP.

Table 70

Existing MV	Access	Demand	Energy Peak	Energy Standard	Energy Off-Peak	Energy Peak	Energy Standard	Energy Off-Peak
Eskom	19.40	14.73	4.937	1.581	0.915	1.693	1.204	0.808
Existing tariff	32.80	41.15	4.050	1.246	0.692	4.050	1.246	0.692
R/kWh markup	13.40	26.42	(0.887)	(0.335)	(0.229)	2.357	0.043	(0.116)
% Markup	69%	179%	-18%	-21%	-24%	133%	4%	-14%
Existing LV	Access	Demand	Energy Peak	Energy Standard	Energy Off-Peak	Energy Peak	Energy Standard	Energy Off-Peak
Eskom	19.40	14.73	4.94	1.58	0.91	1.69	1.20	0.81
Existing tariff	32.80	41.15	4.102	1.298	0.744	4.102	1.298	0.744
R/kWh markup	13.40	26.42	(0.835)	(0.283)	(0.170)	2.409	0.095	(0.064)
% Markup	69%	179%	-17%	-18%	-19%	142%	8%	-8%

The Cost of Supply study follows an approach of applying % surcharges to achieve the required revenue. When this is applied to the TOU energy rates, the tariffs are seriously distorted. This is because the same % surcharge on the more expensive Peak energy charges cause a very high c/kWh mark-up compared with that on the cheaper off-peak period. This means that when customers shift load from the Peak to Standard or Off-peak, the loss in revenue far exceeds the savings in Eskom purchase costs.

The tariffs are then redesigned by applying the same c/kWh on all energy rates but to still achieve the same revenue as shown in Table 71. It also shows the load shifting impact of the initial tariffs. Under the proposed tariffs the load shift impact is zero as the mark-up in the different periods are the same and thus no net revenue (change in revenue minus charge in purchase cost) is lost.

**Table 71**

TOU TARIFF REDESIGN				HIGH SEASON CHARGES			LOW SEASON CHARGES			Reactive energy	Total
				Energy Peak	Energy Standard	Energy Off-Peak	Energy Peak	Energy Standard	Energy Off-Peak	kvarh	
				kWh	kWh	kWh	kWh	kWh	kWh		Rand
<b>ESKOM MEGAFLEX</b>											
	Megaflex		Increase	4.546	1.456	0.642	1.559	1.109	0.744		
MV	With escalation		2022/2023	4.937	1.581		1.693	1.204	0.808		
				HIGH SEASON CHARGES			LOW SEASON CHARGES			Reactive energy	Total
	Customer service	Access	MID (all hours)	Energy Peak	Energy Standard	Energy Off-Peak	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy	Total
	Customers	kVA	kVA	kWh	kWh	kWh	kWh	kWh	kWh	kvarh	Rand
<b>TIME OF USE TARIFF: MV</b>											
	Markup	12	15 117	2 755 211	6 801 858	8 150 019	8 470 016	21 075 834	25 601 702		72 857 159
Consumption			15 117	2 755 211	6 801 858	8 150 019	8 470 016	21 075 834	25 601 702		
Initial tariff	2 848.79		27.66	53.45	5.827	1.865	1.089	1.998	1.420	0.954	
R/kWh markup				0.889	0.285	0.165	0.305	0.217	0.146		
% Markup				18%	18%	18%	18%	18%	18%		
Revenue: Initial Tariff	410 226	5 017 457	8 021 459	16 053 343	12 691 962	8 799 890	16 923 991	28 936 650	24 420 739		122 275 735
New tariff	2 848.79	27.66	53.45	5.165	1.509	1.143	1.321	1.432	1.036		
Revenue: New tariff	410 226	5 017 457	8 021 459	14 231 201	12 305 549	9 314 918	16 271 940	30 172 531	26 530 455		122 275 735
R/kWh markup				0.228	0.228	0.228	0.228	0.228	0.228		
% Markup				4.62%	14.42%	24.92%	13.47%	15.94%	28.21%		
<b>Load shift impact initial tariff:</b>				Savings in Eskom cost			Savings in Eskom cost			Savings in Eskom cost	
				3.36	3.95	0.60	0.49	0.59	0.69		
			Peak to Standard	4.02	4.75	0.72	0.88	1.04	0.76		
			Peak to Off-Peak	0.67	0.79	0.12	0.40	0.47	0.07		
			Standard to Off-peak								
<b>TIME OF USE TARIFF: LV</b>											
	Markup	60	1 656	2 755 211	6 801 858	8 150 019	8 470 016	21 075 834	25 601 702		
Consumption			1 656	2 755 211	6 801 858	8 150 019	8 470 016	21 075 834	25 601 702		
Initial tariff	776.49	40.89	84.06	5.970	1.912	1.108	2.047	1.465	0.977		
R/kWh markup				1.033	0.331	0.191	0.354	0.252	0.169		
% Markup				21%	21%	21%	21%	21%	21%		
Revenue: Initial Tariff	559 071	812 643		16 447 850	13 003 894	9 016 146	17 339 893	30 672 336	25 020 872		112 872 694
New tariff	776.49	40.89	84.06	5.202	1.546	1.150	1.354	1.466	1.073		
Revenue: New Tariff	559 071	812 643		14 382 341	12 556 235	9 614 093	16 582 862	30 946 194	27 470 256		112 872 694
R/kWh markup				0.265	0.265	0.265	0.265	0.265	0.265		
% Markup				5.36%	15.74%	28.93%	15.63%	21.99%	32.75%		

The following is important to note from this change to TOU tariffs:

- The basic, capacity and demand charges remain the same.
- The energy charges are set with the same c/kWh markup on each Eskom TOU energy charge.
- The revenue from each TOU tariff remains the same (difference in yellow)
- This is done by adjusting the c/kWh markup (in green).

**21.1 Bulk TOU tariff impact study**

Although the cost of supply study proposes tariffs that are cost reflective with subsidies for the poor it is important to get an idea of the impact on individual customers. Normally individual impact studies are done for all Bulk customers. Not all load profile data available to the municipality was made available for analysis. There was also an argument that the load profile data may not be displayed with any customer names. The data that was made available was analysed to illustrate the individual customer impact.

The tariffs used for the analysis is shown in Table 72. It refers to the current tariffs and the proposed tariffs phased on over 4 years with a 10% average increase for 2023/2024.

A 9/1/07

Table 72

TOU TARIFFS FROM COS		Actual 2022-2023				Proposed 2023-2024				10%	% increase	0%	0%
All rates include surcharges.		BASIC	ACCESS	MAXIMUM	ENERGY	BASIC	ACCESS	MAXIMUM	ENERGY		BASIC	MAXIMUM	ENERGY
SEGMENT		CHARGE	DEMAND	DEMAND	CHARGE	CHARGE	DEMAND	DEMAND	CHARGE		CHARGE	DEMAND	CHARGE
Tariff Name	Code	R/Cm	R/kVAm	R/kWh	R/kWh	R/Cm	R/kVAm	R/kWh	R/kWh		R/Cm	R/kVAm	R/kWh
S.A Low voltage consumers (Tariff c)		LV											
TOU TARIFFS		Basic	Access	Demand		Basic	Access	Demand					
TIME OF USE TARIFF: LV	Basic: MD (H/Low): MD/acc	4 171.66	32.80	41.15	-	4 225.04	34.67	46.55	-	1.28%	5.7%	19.2%	
	Energy: High: P/S/OP : R/kWh	4.0503	1.2463	0.8923		4.7620	1.5257	0.8855	0.0537	17.6%	22.4%	27.9%	
	Energy: Low: P/S/OP : R/kWh	4.0503	1.2463	0.8923		3.8938	1.4219	0.8581	0.0537	-4.5%	14.1%	23.7%	
TIME OF USE TARIFF: MV	Basic: MD (H/Low): Acc/MD	3 689.45	32.80	41.15	-	3 257.33	36.31	57.08	-	-11.7%	16.8%	38.7%	
	Energy: High: P/S/OP (R/kWh)	4.1023	1.2981	0.7444		4.8150	1.5765	0.9398	0.0537	17.4%	21.8%	26.1%	
	Energy: Low: P/S/OP : R/kWh	4.1023	1.2981	0.7444		3.9228	1.4747	0.9092	0.0537	-4.4%	13.6%	22.1%	

Previously the impact was calculated based on the load profiles which were not received for the Hermanus Area. The actual billing TOU data was thus used. The result of this analysis is illustrated in Table 73 for one customer.

Table 73

MONTH	Days	ENERGY			DEMAND				MD highest kVA	MD highest kW	TOTAL ENERGY kWh (FOR)	TOTAL P&S kverh	KVA LOAD FACTOR %	P kWh (FOR)	S kWh (FOR)	D kWh (FOR)
		Peak kWh (FOR)	Standard kWh (FOR)	Off-Peak kWh (FOR)	MD - kVA ALL	MD - kW ALL	MD P&S									
202007	31	665	2 198	1 645	29.00		29.00	145		4 658	214	22.19%	18.41%	48.87%	35.01%	
202008	31	1 212	3 075	1 789	29.00		29.00	145		6 047	278	28.66%	20.04%	50.87%	29.09%	
202009	31	1 291	3 327	1 868	33.00		33.00	145		6 457	288	28.93%	19.90%	51.25%	28.81%	
202109	31	1 358	3 335	1 970	37.00		37.00	145		6 670	304	33.94%	20.48%	50.00%	29.54%	
202011	31	1 446	3 703	1 877	31.00		31.00	145		7 025	321	31.08%	20.89%	52.85%	28.71%	
202012	31	1 442	3 755	1 978	39.00		39.00	145		7 185	328	25.24%	20.07%	52.41%	27.59%	
202101	31	1 358	3 587	1 819	30.00		30.00	145		6 865	313	31.88%	19.80%	52.25%	27.96%	
202102	31	1 737	4 817	2 035	46.00		46.00	145		8 579	351	25.56%	20.13%	58.16%	23.72%	
202103	31	1 807	4 830	2 100	41.00		41.00	145		8 737	368	29.19%	20.69%	55.26%	24.04%	
202104	31	1 826	4 859	2 429	40.00		40.00	145		9 114	418	31.21%	20.04%	53.31%	25.55%	
202105	31	1 470	3 845	1 945	35.00		35.00	145		7 282	331	28.42%	20.24%	52.98%	26.80%	
202106	31	1 521	3 929	2 472	29.00		29.00	145		7 922	361	37.42%	19.20%	49.60%	31.20%	
TOTALS		17 333	45 263	23 899	49		409	145		86 595	3 950	29.00%	20.02%	52.27%	27.71%	

The calculation of the revenue for each of the tariff components for each month is shown in Table 74. This is done for each of the tariff options.

Table 74

	Admin Charge	Network access charge:	Network demand charge:	Peak c/kWh	Standard c/kWh	Off-peak c/kWh	Reactive energy (c/kverh)	Total	c/kWh
26-Jan-53	2 961.21	1 791	1 749	3 786	3 140	1 404	10	14 841	316
27-Jan-53	2 961.21	1 791	1 749	5 305	4 414	1 501	13	17 735	293
28-Jan-53	2 961.21	1 791	1 990	4 604	4 460	1 545	14	17 366	268
29-Jan-53	2 961.21	1 791	1 628	4 868	4 471	1 628	15	17 363	260
30-Jan-53	2 961.21	1 791	1 870	5 164	4 965	1 551	16	18 317	261
31-Jan-53	2 961.21	1 791	2 352	5 142	5 049	1 635	16	18 946	264
30-Apr-53	2 961.21	1 791	1 809	4 846	4 809	1 586	15	17 818	260
01-May-53	2 961.21	1 791	2 774	6 159	6 458	1 682	19	21 844	255
02-May-53	2 961.21	1 791	2 473	6 444	6 475	1 736	19	21 900	251
03-May-53	2 961.21	1 791	2 412	6 512	6 534	2 008	20	22 219	244
04-May-53	2 961.21	1 791	2 111	5 242	5 156	1 609	16	18 886	260
05-May-53	2 961.21	1 791	1 749	6 658	5 638	2 109	18	20 924	264
Total	35 534	21 488	24 667	64 731	61 551	19 994	193	228 158	263

This is then done for all customers. The results are shown in Table 75. It shows the following impact for each customer. There are 113 TOU consumers. The table shows the impact for all Bulk customers. The names have been hidden for privacy.

- Old to New TOU

Negative (-) amounts shown reduction in bill and positive (+) amounts show increases.

Table 75

IMPACT SUMMARY							
Old to New TOU Band	Diff %	Annual LF	Monthly LF	Energy cost	KWH	c/kWh	Highest MD
1 220	0.54%	21.5%	29.0%	146 276	86 595	168.92	46
517	0.33%	21.3%	29.1%	87 527	59 722	146.56	32
65 867	3.48%	42.4%	50.2%	1 622 579	1 022 066	158.75	275
7 850	2.29%	24.6%	33.4%	246 314	146 415	168.23	68
(520)	-0.33%	26.1%	32.6%	94 368	63 967	147.53	28
6 472	1.87%	32.5%	40.4%	257 260	159 361	161.43	56
4 837	1.24%	56.1%	62.8%	312 429	206 410	151.36	42
5 674	2.16%	33.3%	43.2%	188 993	125 394	150.72	43
138 698	2.46%	77.1%	80.8%	5 191 372	3 649 436	142.25	540
577 654	2.60%	81.2%	84.8%	20 715 975	14 644 662	141.46	2 060
18 697	4.02%	22.8%	27.7%	333 373	215 493	154.70	108
4 155	1.77%	26.6%	31.0%	156 902	100 065	156.80	43
3 359	1.12%	36.8%	38.7%	221 099	132 350	167.06	41
20 419	3.55%	39.5%	43.5%	461 085	304 552	151.40	88
(1 884)	-1.27%	19.4%	26.6%	81 956	49 352	166.06	29
106 560	2.19%	48.8%	57.3%	4 308 668	2 901 084	148.52	678
20 288	3.47%	45.8%	53.6%	480 117	325 001	147.73	81
11 460	2.60%	28.9%	34.5%	332 083	197 406	168.22	78
21 416	4.08%	28.9%	39.1%	402 845	270 776	148.77	107
101 703	2.61%	60.2%	66.9%	3 516 970	2 380 231	147.76	451
3 132	1.50%	21.5%	33.5%	133 013	88 526	150.25	47
965	0.51%	22.8%	32.4%	116 889	80 048	146.02	40
9 767	3.05%	27.3%	36.2%	229 745	153 178	149.99	64
(1 192)	-0.74%	24.8%	28.2%	92 980	60 847	152.81	28
36 369	3.32%	47.8%	57.1%	941 631	599 194	157.15	143
2 409	1.12%	22.7%	30.8%	137 676	87 603	157.16	44
2 409	1.12%	22.7%	30.8%	137 676	87 603	157.16	44
15 510	3.04%	27.2%	38.7%	392 548	238 082	164.88	
(1 497)	-0.82%	23.2%	26.3%	110 475	63 084	175.12	31
4 124	1.31%	47.3%	56.0%	240 263	161 458	148.81	39
70 727	2.44%	51.6%	54.9%	2 542 502	1 758 989	144.54	389
137 581	2.62%	81.6%	84.8%	4 858 579	3 416 635	142.20	478
18 263	2.67%	48.5%	55.0%	568 055	373 692	152.01	88
40 990	2.80%	42.5%	49.3%	1 242 906	859 735	144.57	231
6 079	1.71%	23.6%	32.0%	243 980	171 466	142.29	83
(4 292)	-3.99%	22.1%	30.5%	50 789	32 920	154.28	17
(4 292)	-3.99%	22.1%	30.5%	50 789	32 920	154.28	17
3 382	1.79%	22.6%	26.4%	116 535	73 375	158.82	37
10 963	3.32%	18.8%	23.9%	223 901	130 020	172.20	79
2 360	0.89%	33.7%	39.1%	189 513	120 885	156.77	41
5 713	2.08%	37.2%	45.0%	200 786	133 688	150.19	41
(3 582)	-3.17%	20.9%	28.7%	55 058	34 742	158.48	19
27 449	4.10%	31.1%	40.2%	531 335	343 736	154.58	126
43 054	2.45%	58.4%	65.4%	1 554 721	1 094 416	142.06	214
7 476	1.95%	29.9%	40.6%	287 155	175 590	163.54	67
31 730	2.87%	37.6%	55.4%	925 314	595 977	155.26	181
2 649	1.07%	28.4%	36.8%	171 123	107 071	159.82	43
12 607	2.65%	44.7%	50.7%	379 717	258 462	146.91	66
3 657	3.02%	5.5%	8.9%	39 034	26 369	148.03	55
(6 810)	-11.90%	8.5%	12.4%	8 120	5 235	155.11	7
8 677	3.83%	15.1%	27.7%	137 374	95 205	144.29	72
77 249	1.98%	45.7%	54.9%	3 423 351	2 280 044	150.14	570
45 704	2.61%	40.3%	48.5%	1 483 422	1 041 222	142.47	295
47 194	3.89%	31.2%	34.9%	986 696	581 424	169.70	213
231 756	2.07%	41.9%	50.5%	9 796 100	6 472 325	151.35	1 765
5 654	3.37%	11.2%	17.5%	83 775	56 791	147.51	58
5 559	2.24%	21.8%	35.0%	167 923	104 866	160.13	55
16 542	6.59%	5.3%	13.6%	116 018	71 663	161.89	155
30 388	3.78%	35.2%	41.0%	650 756	419 167	155.25	136
152 984	4.12%	11.1%	15.4%	2 406 059	1 635 295	147.13	1 687
487 643	2.32%	69.1%	75.5%	19 319 546	13 568 298	142.39	2 242
520 284	2.33%	86.7%	89.6%	20 845 518	14 686 807	141.93	1 934
210 462	2.58%	66.4%	73.6%	7 474 812	5 254 355	142.26	903
57 233	1.66%	46.6%	54.3%	3 004 691	1 969 613	152.55	483
42 814	2.63%	32.8%	42.9%	1 344 537	929 740	144.61	324
44 722	7.80%	15.1%	20.4%	383 146	261 565	146.48	198

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IMPACT SUMMARY							
Old to New TOU		Annual	Monthly				
Hand	Diff %	LF	LF	Energy cost	kWh	c/kWh	Highest MD
10 727	2.30%	33.5%	41.8%	362 107	220 331	164.35	75
59 615	3.33%	46.1%	51.0%	1 542 997	972 614	158.64	241
16 490	4.50%	18.3%	21.8%	252 075	141 324	178.37	88
(3 130)	-2.50%	23.8%	31.0%	65 841	41 648	158.09	20
340	0.25%	11.3%	17.0%	63 329	37 769	167.68	38
1 901	0.87%	25.6%	32.5%	143 677	89 739	160.10	40
7 847	2.23%	35.4%	44.6%	268 102	167 642	159.93	54
(6 534)	-9.12%	17.6%	27.2%	21 134	13 887	152.19	9
799	0.41%	32.9%	45.7%	127 740	89 459	142.79	31
(3 779)	-3.58%	18.8%	225.9%	49 778	32 975	150.96	20
13 899	6.67%	6.4%	76.2%	92 792	48 417	191.65	87
747	0.49%	15.7%	188.9%	83 834	56 540	148.27	41
3 842	1.09%	43.1%	517.7%	270 663	181 402	149.21	48
2 138	0.78%	28.4%	340.3%	184 048	121 730	151.19	49
1 372	0.48%	57.0%	683.6%	220 059	149 715	146.99	30
5 029	1.35%	56.5%	677.5%	297 063	202 782	146.49	41
(8 464)	-17.76%	22.5%	269.5%	2 951	1 967	150.03	1
(4 241)	-4.32%	10.5%	126.6%	38 504	21 249	181.20	23
27 174	5.65%	17.7%	212.9%	326 839	198 957	164.28	128
31 708	4.84%	36.2%	434.2%	523 297	358 198	146.09	113
(4 531)	-6.43%	4.2%	50.4%	12 185	7 360	165.56	20
(847)	-0.61%	22.6%	270.6%	75 170	49 385	152.21	25
5 784	2.52%	16.5%	198.2%	148 065	99 820	148.33	69
(1 223)	-0.80%	20.5%	245.8%	87 119	53 840	161.81	30
41 956	6.30%	19.9%	238.7%	475 606	317 091	149.99	182
(6 144)	-7.93%	16.7%	200.2%	24 761	14 617	169.40	10
(413)	-0.26%	22.1%	265.2%	92 836	58 081	159.84	30
893	0.45%	14.5%	174.2%	116 752	76 283	153.05	60
25 384	3.65%	45.3%	543.4%	575 447	388 725	148.03	98
4 364	2.61%	14.9%	178.4%	91 108	61 205	148.86	47
(1 026)	-0.98%	6.5%	78.3%	35 306	22 303	158.30	39
30 549	9.09%	7.8%	93.6%	174 281	107 321	162.39	157
27 344	5.62%	15.1%	181.3%	335 034	207 767	161.25	157
1 655	0.76%	30.5%	365.9%	148 919	93 497	159.28	35
(4 825)	-7.24%	3.9%	47.4%	9 879	6 568	150.41	19
(3 710)	-3.48%	21.2%	254.2%	49 362	35 259	140.00	19
(4 548)	-3.86%	32.5%	390.5%	63 043	42 762	147.43	15
115	0.07%	20.9%	250.4%	91 806	60 311	152.22	33
84 409	3.58%	55.0%	660.3%	2 085 723	1 339 940	155.66	278
12 079	5.04%	12.9%	155.1%	135 738	98 478	137.84	87
18 806	3.79%	37.9%	454.6%	392 091	265 490	147.69	80
5 490	1.49%	45.0%	540.3%	285 908	185 375	154.23	47
1 456	0.74%	27.5%	330.4%	126 845	81 996	154.70	34
3 967 526	2.49%						

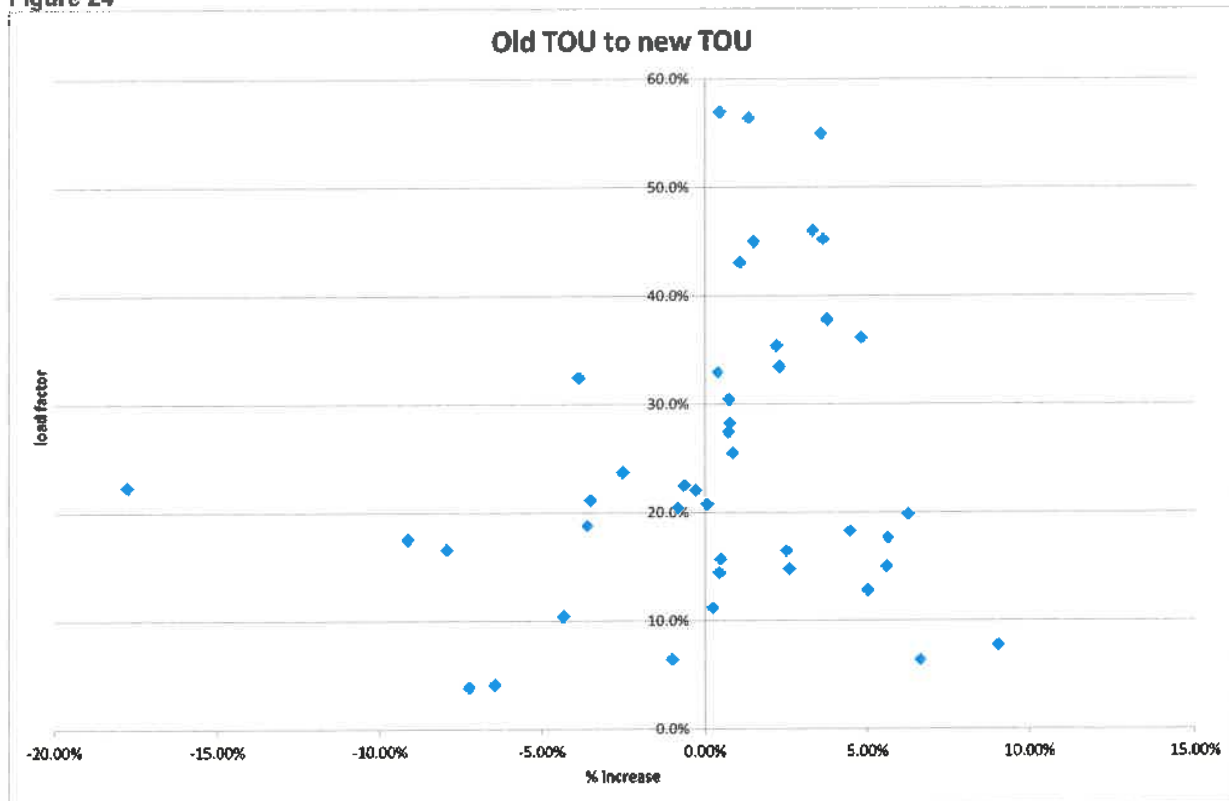
The year 1 phase in impact for MV and LV consumers are shown in the Table 76 below.

Table 76

Voltage	Sum of Old TOU	Sum of New TOU	Diff	Diff %
LV	33374409.06	34290621.37	916212.3053	2.7%
MV	125731688.7	128783002.1	3051313.365	2.4%
Grand Total	159106097.8	163073623.4	3967525.671	2.5%

The average trend is in line with the cost of supply study. The impacts are illustrated graphically in Figure 24.

Figure 24



## 21.2 TOU tariff recommendations

The biggest problems with the current TOU tariffs are as follows:

- The general tariff levels are understated.
- The TOU differentiation does not match the Eskom TOU tariffs and are not seasonally differentiated.
- This causes overcharges during some periods and undercharges during other periods.
- It also creates inconsistent load shifting impact for the municipality.
- The Demand and Capacity charges are not differentiated by Voltage.

The following is thus proposed in this respect:

- The tariffs thus be developed based on the cost of supply results.
- The differentiation will be changed as per cost differences.
- The markup on energy will be in R/kWh and not in %.
- A TOU tariff also needs to be created for small consumers.

## 22. SMALL SCALE EMBEDDED GENERATION (SSEG)

The important issue in respect of SSEG customers is that they must be on a cost reflective tariff with fixed and capacity / demand charges close to cost. A new TOU tariff for small consumers, <100 kVA, has been developed. Any consumer can select this tariff, but all SSEG consumers must be on this tariff. It is subject to an application and payment for the supply and installation of a 4 wire, 4 quadrant TOU meter. The tariff has been designed as follows:

- The basic charge equal to the small consumer 3 phase basic charge plus the difference in cost between a 3 phase non-TOU meter and a TOU meter supply.
- The capacity charge is set at the average of the Domestic and Commercial tariff capacity charge.
- The energy rates are set equal to the Bulk LV plus the additional losses on the LV network.
- The reactive energy charge set equal to the Eskom reactive energy charge.

The SSEG Feed-in tariff, which caters for consumers who want to feed-in to the network, is as follows:

- An additional basic charge to cater for the additional metering & administration costs to administer the feed-in.
- The energy credit rates are set at 90% of Eskom Megaflex TOU energy rates (excluding the non-TOU energy rates) applicable to Overstrand.
- This tariff applies to any customer wanting to feed-in irrespective of whether they have a LV or MV connection.
- Various other conditions apply.

Currently SSEG consumers are on the standard domestic or commercial tariff with a single energy Feed-in rate. These consumers will have to move to the new tariffs over a period of time, but all new SSEG consumers will be supplied on these tariffs. No TOU data is currently available on these consumers and thus no impact studies can be done. It is however expected that the feed-in rate would yield a higher average credit. The proposed rates for the TOU for Small consumers and the SSEG feed-in tariff are shown in **Table 77** below.

**Table 77**

E5	TIME OF USE TARIFF SMALL CUSTOMER <100 KVA					
E5A1	Basic charge	R/POS/m			315.25	New
E5A3	Network Capacity Charge R/Amp/phase/month	R/kVA/m			9.38	New
E5A6	Hi-Demand: Peak kWh Unit Charge	c/kWh			4.817	New
E5A5	Hi-Demand: Standard kWh Unit Charge	c/kWh			1.727	New
E5A4	Hi-Demand: Off Peak kWh Unit Charge	c/kWh			1.114	New
E5A9	Low Demand: Peak kWh Unit Charge	c/kWh			1.830	New
E5A8	Low Demand: Standard kWh Unit Charge	c/kWh			1.380	New
E5A7	Low Demand: Off Peak kWh Unit Charge	c/kWh			1.016	New
	Reactive Energy charge	c/kkvarh			19.51	New
E18	<b>SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)</b>					
E18A2	Feed-in Tariff c/kWh	c/kWh	-73.22	-83.9		
E18A3	Hi-Demand: Peak kWh Unit Charge	c/kWh		-83.9	-398.943	375%
E18A4	Hi-Demand: Standard kWh Unit Charge	c/kWh		-83.9	-120.843	44%
E18A5	Hi-Demand: Off Peak kWh Unit Charge	c/kWh		-83.9	-65.637	-22%
E18A6	Low Demand: Peak kWh Unit Charge	c/kWh		-83.9	-130.122	55%
E18A7	Low Demand: Standard kWh Unit Charge	c/kWh		-83.9	-89.559	7%
E18A8	Low Demand: Off Peak kWh Unit Charge	c/kWh		-83.9	-56.799	-32%

The municipality feels that the proposed 90% of Eskom TOU energy charges is too high a price for feed-in energy. An analysis was then done to determine what that would come to in terms of c/kWh. The analysis was done as follows:

- The Overstrand representative load profile data was used as basis for customer loads.
- These were then applied to typical consumption quantities.
- The PV size for each type of consumer was then adjusted to achieve target feed-in %.
- The feed-in % were set at 20%, 40%, 60% and 100%. No compensation would be paid for feed-in exceeding the amount of load actually used by the consumer and thus it is limited to 100% in a year.

The results showed that the average feed-in payment to the SSEG consumers would be between 91 and 96 c/kWh. This is less than 14% more than the current rate.

TOU TARIFF IMPACT STUDY									
PV Size	%infeed	Voltage	kWh TOT	a	New TOU	New TOU	Old TOU	Old TOU	
		Voltage	kWh	b	New TOU	c/kWh	Old TOU	c/kWh	
148	20%	Bulk	-88 863	0	(81 541)	92	(73 756)	83	
15	20%	Comm	-8 766	0	(8 009)	91	(7 277)	83	
4	20%	Dom	-2 630	0	(2 406)	92	(2 183)	83	
202	40%	Bulk	-175 505	0	(165 648)	94	(145 669)	83	
20	40%	Comm	-17 555	0	(16 532)	94	(14 571)	83	
6	40%	Dom	-5 256	0	(4 933)	94	(4 362)	83	
253	60%	Bulk	-262 790	0	(250 857)	95	(218 115)	83	
25	60%	Comm	-26 279	0	(25 047)	95	(21 811)	83	
7	60%	Dom	-7 884	0	(7 487)	95	(6 544)	83	
303	80%	Bulk	-350 829	0	(337 052)	96	(291 188)	83	
30	80%	Comm	-35 082	0	(33 664)	96	(29 118)	83	
9	80%	Dom	-10 524	0	(10 063)	96	(8 735)	83	
352	100%	Bulk	-438 140	0	(422 617)	96	(363 656)	83	
35	100%	Comm	-43 814	0	(42 220)	96	(36 366)	83	
10	100%	Dom	-13 145	0	(12 629)	96	(10 910)	83	

It must also be remembered that the industry is moving towards a competitive market where consumers will be allowed to buy their energy and sell their excess energy in the market. If the price paid for feed-in energy is too low, it will simply be sold to other traders. This means the savings that could be achieved by the municipality will be lost.

The other fact to be remembered is the load shifting by consumers:

- The Tariff energy markup is typically:
  - 20% surplus.
  - 10% losses.
  - Total 30%
  - $30\% \times 154 \text{ c/kWh} = 46.2 \text{ c/kWh}$
- Savings in feed-in energy.
  - Losses = 10%
  - Eskom non-TOU energy rate =
    - 'Electrification and rural network subsidy charge [c/kWh] = 10.8
    - 'Ancillary service charge [c/kWh] = 0.55
  - 10% TOU energy price discount = 10% of (aver 96 to 91 c/kWh) = 0.94 c/kWh
  - Total =  $10.8 + 0.55 + 20\% \times 94 = 30.15 \text{ c/kWh}$

This if the feed-in rate is too low consumers will simply shift load from the evening to the day when they have surplus energy. That will mean that for every kWh shifting  $46.2 + 30.15 = 76.35 \text{ c/kWh}$  for net revenue would be lost.

Eskom is paying its consumers at 100% of its TOU energy rates and this is becoming the norm.

The consultants recommendation remains at 90% of Eskom TOU energy rates or 94 c/kWh for non-TOU consumers. The current municipal Feed-in rate is 83.9 c/kWh. The proposed rate is only 12.04% higher than the current rate but now the municipality feels they want to reduce it to 50% which would be equal to a 44% reduction. This change is not supported by the consultant in view of the details provided.

## 23. PHASE IN

It is accepted that the proposed tariff structure changes will have a marked impact on customers. Some customers will pay much less and others much more. For this reason, the possibility to phase the changes in evenly over 4 years could be considered. This can be done as follows:

- Calculate the difference between the current charge and the proposed charge. (basic, Amp, R/kVA, energy).
- Divide the difference by 4 and add to the current charge.
- Then add annual price increase %.
- In year two add 1/4 of the difference and year three the full difference.
- Continue this trend to the end of the 4 year phase in.
- The TOU for small customers and TOU tariff at LV and Embedded tariffs are not phased in because it is either a new tariff or there are very few customers on the tariff.
- In some cases combine different tariffs to reduce the total number.

The phased in rates are shown in Table 78 below.



**24. TARIFF SCHEDULE**

The proposed tariff schedule is shown in Table 79. It shows the proposed rates excluding annual price increase but including the phase in only restructuring.

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Table 79

OVERSTRAND ELECTRICITY TARIFF SCHEDULE		2020/2021	2021/2022	2022/2023	2022/2023	2023/2024	2022/2023 + 2023/2024 Increase	
Tariff Code	Details	Exclude VAT	Exclude VAT	After increase	Restructured	Restructured with phase in and increase		
EF	<b>FIXED CHARGES</b>			7.47%		0.00%		
EF1	Infrastructure Charge per Meter per month	R/POS/m	16.65	16.65	16.65	16.65	0.00%	
E1	<b>SINGLE PHASE : Domestic</b>							
	<b>4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)</b>							
E1A	Basic Monthly charge per meter	R/POS/m	356.2	406.17	436.66	156.04	368.01	-16.11%
	Capacity charge	R/Amp/Phase/m				7.88	1.97	New
E1A2	IBT BLOCK 1 0 - 350 kWh	c/kWh	136.67	156.61	166.31	166.29	167.80	-0.30%
E1A3	IBT BLOCK 2 351 - 600 kWh	c/kWh	200.72	230.01	247.19	166.29	216.28	-12.51%
E1A4	IBT BLOCK 3 > 600 kWh	c/kWh	246.62	282.6	303.71	166.29	269.35	-11.31%
E1B	<b>4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)</b>							
E1B1	Basic Monthly charge per meter	R/POS/m	356.2	406.17	436.66	156.04	368.01	-16.11%
	Capacity charge	R/Amp/Phase/m				7.88	1.97	New
E1B2	IBT BLOCK 1 0 - 350 kWh	c/kWh	126.24	144.66	155.47	166.29	158.17	1.74%
E1B3	IBT BLOCK 2 351 - 600 kWh	c/kWh	189.15	216.75	232.94	166.29	216.28	-7.15%
E1B4	IBT BLOCK 3 > 600 kWh	c/kWh	237.06	271.65	291.94	166.29	260.53	-10.76%
E1C	<b>2-part, Commercial, Credit, 1 ph:</b>							
E1C1	Basic Monthly charge per meter	R/POS/m	356.2	406.17	436.66	156.04	368.01	-16.11%
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E1C2	kWh Unit cost - Credit Meters	c/kWh	204.55	234.39	251.90	164.26	229.99	-8.70%
E1C	<b>2-part, Commercial, PP, 1 ph</b>							
E1C1	Basic Monthly charge per meter	R/POS/m	356.2	406.17	436.66	156.04	368.01	-16.11%
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E1C3	kWh Unit cost - Pre-paid meters	c/kWh	192.76	220.88	237.38	164.26	229.99	-3.11%
E1D	<b>months). Informal dwellings Indigents 90 kW/m for free.</b>							
E1D1	Basic Monthly charge per meter (Covered by Equitable share)	R/POS/m				156.04	39.01	New
	Capacity charge (Covered by Equitable share)	R/Amp/Phase/m				7.88	1.97	New
E1D1	IBT BLOCK 1 0 - 350 kWh	c/kWh	127.62	146.24	157.16	166.29	158.17	0.64%
	IBT BLOCK 2 351 - 600 kWh	c/kWh	127.62	146.24	157.16	166.29	216.28	97.61%
	IBT BLOCK 3 > 600 kWh	c/kWh	127.62	146.24	157.16	166.29	260.53	65.77%
E1E	<b>1 Part, Commercial, Pre-paid, 20 Amp 1 ph (Economic Development Projects)</b>							
	Basic Monthly charge per meter	R/POS/m				156.04	39.01	New
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E1E1	IBT BLOCK 1 0 - 350 kWh	c/kWh	220.5	252.67	271.54	164.26	244.72	-9.88%
E3	<b>THREE PHASE: Commercial &amp; Domestic</b>							
E3E	<b>4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)</b>							
E3E1	Basic Monthly charge per meter	R/POS/m	712.39	816.33	877.31	189.26	705.30	-19.61%
	Capacity charge	R/Amp/Phase/m				7.88	1.97	New
E3E2	IBT BLOCK 1 0 - 350 kWh	c/kWh	137.96	168.09	169.90	166.29	159.28	-6.25%
E3E3	IBT BLOCK 2 351 - 600 kWh	c/kWh	201.55	230.96	248.21	166.29	216.98	-12.58%
E3E4	IBT BLOCK 3 > 600 kWh	c/kWh	245.09	280.85	301.63	166.29	259.17	-14.13%
E3E	<b>4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)</b>							
E3E1	Basic Monthly charge per meter	R/POS/m	712.39	816.33	877.31	189.26	705.30	-19.61%
	Capacity charge	R/Amp/Phase/m				7.88	1.97	New
E3E6	IBT BLOCK 1 0 - 350 kWh	c/kWh	127.45	146.04	156.95	166.29	159.28	1.49%
E3E7	IBT BLOCK 2 351 - 600 kWh	c/kWh	189.93	217.64	233.90	166.29	216.99	-7.23%
E3E8	IBT BLOCK 3 > 600 kWh	c/kWh	235.59	269.96	290.13	166.29	259.17	-10.67%
E3E	<b>2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)</b>							
E3E9	Basic Monthly charge per meter R	R/POS/m	712.39	816.33	877.31	189.26	705.30	-19.61%
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E3E10	kWh Unit charge	c/kWh	204.55	234.39	251.90	164.26	229.99	-8.70%
E3E	<b>2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)</b>							
E3E11	Basic Monthly charge per meter	R/POS/m	712.39	816.33	877.31	189.26	705.30	-19.61%
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E3E12	kWh Unit charge	c/kWh	192.76	220.88	237.38	164.26	219.10	-7.70%
E3G	<b>1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches, (≥ 900kWh/m 12 months)</b>							
	Basic Monthly charge per meter	R/POS/m				156.04	39.01	New
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E3G1	kWh Unit charge	c/kWh	243.29	278.79	299.62	164.26	265.78	-11.29%
E5	<b>TIME OF USE TARIFF: MV</b>							
E5A1	Basic charge	R/POS/m	3387.47	3881.7	4171.86	2848.79	3840.94	-7.93%
E5A3	Network Capacity Charge kVA: Notified Maximum Demand	R/kVA/m	25.39	30.52	32.80	38.76	34.29	4.54%
E5A2	Network Demand Charge kVA: Utilised capacity	R/kVA/m	91.9	99.29	41.16	74.90	49.59	20.50%
E5A6	Hi-Demand: Peak kWh Unit Charge	c/kWh	328.89	376.88	405.03	516.52	432.90	6.88%
E5A5	Hi-Demand: Standard kWh Unit Charge	c/kWh	101.2	115.97	124.63	180.91	138.70	11.29%
E5A4	Hi-Demand: Off Peak kWh Unit Charge	c/kWh	56.22	64.42	68.23	114.29	80.50	16.27%
E5A9	Low Demand: Peak kWh Unit Charge	c/kWh	328.89	376.88	405.03	192.11	351.80	-13.14%
E5A8	Low Demand: Standard kWh Unit Charge	c/kWh	101.2	115.97	124.63	143.16	129.27	8.72%
E5A7	Low Demand: Off Peak kWh Unit Charge	c/kWh	56.22	64.42	68.23	103.63	77.83	12.42%
	Reactive Energy charge	c/kvarh				19.51	4.88	New
E5	<b>TIME OF USE TARIFF: LV</b>							
E5A1	Basic charge	R/POS/m	3445.29	3433	3689.45	776.49	2961.21	-19.74%
E5A3	Network Capacity Charge kVA: Notified Maximum Demand	R/kVA/m	25.39	30.52	32.80	57.31	38.69	18.68%
E5A2	Network Demand Charge kVA: Utilised capacity	R/kVA/m	31.8	38.29	41.16	117.90	60.31	46.56%
E5A6	Hi-Demand: Peak kWh Unit Charge	c/kWh	333.12	381.72	410.23	520.19	437.72	6.70%
E5A5	Hi-Demand: Standard kWh Unit Charge	c/kWh	105.41	120.79	129.81	184.59	143.51	10.55%
E5A4	Hi-Demand: Off Peak kWh Unit Charge	c/kWh	60.45	69.27	74.44	117.96	85.32	14.61%
E5A9	Low Demand: Peak kWh Unit Charge	c/kWh	333.12	381.72	410.23	195.78	356.62	-13.07%
E5A8	Low Demand: Standard kWh Unit Charge	c/kWh	105.41	120.79	129.81	146.83	134.07	3.28%
E5A7	Low Demand: Off Peak kWh Unit Charge	c/kWh	60.45	69.27	74.44	107.30	82.66	11.03%
	Reactive Energy charge	c/kvarh				19.51	4.88	New

OVERSTRAND ELECTRICITY TARIFF SCHEDULE			2020/2021	2021/2022	2022/2023	2022/2023	2023/2024	
Tariff Code	Details		Exclude VAT	Exclude VAT	After increase	Restructured	Restructured with phase in and increase	2022/2023 to 2023/2024 Increase
E5	<b>TIME OF USE TARIFF SMALL CUSTOMER &lt;100 kVA</b>							
E5A1	Basic charge	R/POS/m				358.27	358.27	New
E5A3	Network Capacity Charge R/Amp/phase/month	R/kVA/m				9.98	9.98	New
E5A6	Hi-Demand: Peak kWh Unit Charge	c/kWh				521.49	521.49	New
E5A5	Hi-Demand: Standard kWh Unit Charge	c/kWh				185.89	185.89	New
E5A4	Hi-Demand: Off Peak kWh Unit Charge	c/kWh				119.27	119.27	New
E5A9	Low Demand: Peak kWh Unit Charge	c/kWh				197.08	197.08	New
E5A8	Low Demand: Standard kWh Unit Charge	c/kWh				148.13	148.13	New
E5A7	Low Demand: Off Peak kWh Unit Charge	c/kWh				108.60	108.60	New
	Reactive Energy charge	c/kVArh				19.51	19.51	New
E18	<b>SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)</b>							
E18A2	Feed-in Tariff c/kWh	c/kWh	-73.22	-83.9				
E18A3	Hi-Demand: Peak kWh Unit Charge	c/kWh		-83.9		(398.94)	(398.94)	375.50%
E18A4	Hi-Demand: Standard kWh Unit Charge	c/kWh		-83.9		(120.84)	(120.84)	44.03%
E18A5	Hi-Demand: Off Peak kWh Unit Charge	c/kWh		-83.9		(65.64)	(65.64)	-21.77%
E18A6	Low Demand: Peak kWh Unit Charge	c/kWh		-83.9		(130.12)	(130.12)	55.09%
E18A7	Low Demand: Standard kWh Unit Charge	c/kWh		-83.9		(89.56)	(89.56)	6.74%
E18A8	Low Demand: Off Peak kWh Unit Charge	c/kWh		-83.9		(56.80)	(56.80)	-32.30%
	<b>Sundry Charges</b>							
E5A10	Exceed NOTIFIED MAXIMUM DEMAND (NMD) per kVA	R/kVA/m	1099.84	1191.55	1 280.56	1 280.56	1 280.56	0.00%
E6	<b>SUBSIDIZED TARIFFS: Grant to be shown separately</b>							
E6A	Residential Indigent as per paragraph A of the Indigent Policy	R/POS/m	356.2	408.17	438.66	408.17	NA	
E6B	Residential Indigent as per paragraph B, C & D of the Indigent Policy	R/POS/m	291.6	291.6	313.38	291.6	NA	
E7	<b>PUBLIC LIGHTING &amp; CCTV</b>							
E7A1	Streetlights & CCTV (metered) per kWh (no basic charge)	c/kWh	88.87	101.84	109.45	253.03	145.34	32.60%
E7A2	Streetlights & CCTV (consumption) (per 100 Watt / month)	R/light/m	31.18	35.73	38.40	88.51	50.84	32.40%
E7A5	Illuminated street sign boards (consumption) (per 100 Watt / month)	R/light/m	31.18	35.73	38.40	88.51	50.84	32.40%
	Maintenance charge	R/light/m				109.39	27.35	New
E8	<b>CASUAL SUPPLIES</b>							
E8A1	Per connection includes disconnection excluding hire of lock	R/POS/m	1227.61	1406.72	1 511.80	1 511.80	1 511.80	0.00%
E8A2	Consumption per day if not metered	R/day	79.76	91.4	98.23	98.23	98.23	0.00%
E8A3	Hire of temporary distribution kiosk, per kiosk, per occasion	R/kiosk/event	481.05	551.24	582.42	582.42	582.42	0.00%
E8A4	Deposit (Usage will be subtracted)	R/and	val	1656	1 779.70	1 779.70	1 779.70	0.00%
E8A5	One part tariff : Prepaid or Credit Casual Supply	c/kWh	241.94	277.24	297.95	297.95	297.95	0.00%
E9	<b>Availability: NETWORK CHARGES: SERVICED LAND</b>							
E9A1	Network charge per serviced plot per month	R/POS/m	356.2	408.17	438.66	485.29	463.74	5.72%
E9A2	Infrastructure per vacant plot per month	R/POS/m	16.65	16.65	16.65	16.65	16.65	0.00%

## 25. CONCLUSIONS

This detailed Ringfencing, Cost of supply and Pricing study presented many different challenges. All these have been addressed and the results obtained are considered 90% accurate. The current tariffs were found needing major changes. These will send a clear signal about the value of capacity which in time will assist the municipality in controlling its costs which are largely dictated by capacity.

The COS study must now be workshopped internally and be approved by Council and then be submitted to NERSA. Once the budget process starts the proposed tariffs need to be submitted to proper public participation. Only once NERSA approval and public participation process is completed can implementation begin.

## 26. ANNEXURE

### 26.1 Allocation of network costs to tariff categories.

Before proceeding to calculation of unit costs the issues of how to allocate network costs to different tariff categories need to be explored. NRS058 explores various methods. It is the consultant's expert view that the method that best allocates costs to the category of customers who cause the high demand and thus high costs should be based on each category of customer's contribution to the system peak. Various approaches could be followed in this respect such as not just using one single peak demand but maybe the average of the highest week or average of the 12 highest demands etc. The problem is that this requires very accurate data. The work in previous sections have already illustrated the problems with the data obtained reflected mainly in the fact the peak in the Eskom profile data and that from the simulated profile differ such that one is in the morning and the next in the evening. This caused the requirement to analyse the impact using the different methods. The results for the allocation of network costs at the highest voltage level network are reflected in Table 80.

Table 80

DEMAND ALLOCATER METHODS COMPARED									
AVERAGE AND ACCESS METHOD									
Customer group demand responsibility ratio									
N2	D	L	A	B	C	E	ENERGY RATIO		
	An LF	P kWh/y	Tot kWh/y	P Ex MD	Σ Ex MD	Ex MD%			
1MV at HV sub	0.0%	66.45%	0	257 084 081	0.000	18 566.586	25.2%	0.0%	
2Bulk 11 kV	25.5%	66.45%	75 397 511	257 084 081	3 314.759	18 566.586	34.7%	29.3%	
3Bulk LV	17.6%	66.45%	42 123 605	257 084 081	3 698.647	18 566.586	69.2%	16.4%	
4Comm	8.7%	66.45%	21 146 469	257 084 081	1 813.771	18 566.586	67.6%	8.2%	
5Res	35.3%	66.45%	92 005 788	257 084 081	6 401.862	18 566.586	57.9%	35.8%	
6Res Poor	11.3%	66.45%	23 498 848	257 084 081	2 884.493	18 566.586	105.4%	9.1%	
7Lights	1.6%	66.45%	2 911 860	257 084 081	453.054	18 566.586	122.7%	1.1%	
<b>TOTAL</b>			<b>257 084 081</b>						
Customer group excess demand									
N2	C - excess demand	Ave MD	Group energy	Hours in year	PF	Non-co-incident MD	Group energy	Annual LF	
	kVA	kVA	kWh/y	8760	%	kVA	kWh/y	%	
1MV at HV sub	0.00	0.00	0	8 760.0	90%	0.0	0	71.29%	
2Bulk 11 kV	3 314.76	9 563.36	75 397 511	8 760.0	90%	12 878.1	75 397 511	66.83%	
3Bulk LV	3 698.65	5 342.92	42 123 605	8 760.0	90%	9 041.6	42 123 605	53.18%	
4Comm	1 813.77	2 682.20	21 146 469	8 760.0	90%	4 496.0	21 146 469	53.69%	
5Res	6 401.86	11 055.73	92 005 788	8 760.0	95%	17 457.6	92 005 788	60.16%	
6Res Poor	2 884.49	2 737.26	23 498 848	8 760.0	98%	5 821.8	23 498 848	47.72%	
7Lights	453.05	369.34	2 911 860	8 760.0	90%	822.4	2 911 860	40.42%	
<b>Total</b>	<b>18 566.59</b>	<b>31 750.81</b>	<b>256 572 640</b>	<b>61 320.0</b>		<b>50 317.4</b>	<b>257 084 081</b>		

NON CO-INCIDENTAL MD  
DEMAND ALLOCATER METHODS COMPARED

N2	NON CO-INCIDENTAL MD	AVERAGE AND ACCESS METHOD	ENERGY RATIO	CO-INCIDENTAL PEAK DEMAND METHOD	LF	Ave & Access Adjustment factor
1MV at HV sub	0.0%	0.0%	0.0%	0.0%	71.3%	81.9%
2Bulk 11 kV	25.6%	25.5%	29.3%	22.1%	66.8%	86.9%
3Bulk LV	18.0%	17.6%	16.4%	13.5%	53.2%	107.2%
4Comm	8.9%	8.7%	8.2%	6.1%	53.7%	106.3%
5Res	34.7%	35.3%	35.8%	22.9%	60.2%	98.8%
6Res Poor	11.2%	11.3%	9.1%	11.6%	47.7%	123.5%
7Lights	1.6%	1.6%	1.1%	1.2%	40.4%	138.7%
	0	0.0%	0.0%	0.0%	0.0%	
	100%	100%	100%	77%		

This shows the following:

The following in this respect:

- All methods yield similar results.
- The energy ratio method seems out of line with the other methods, as is to be expected.
- The average and access method and Non-co-incident methods are almost identical.
- From the profiles it is clear that the annual peak demands are mainly caused by residential customers.
- The co-incident peak demand methods best reflect this reality which will show domestic costs even higher.

For simplicity's sake and close results with the Average and access method the non-co-incident peak demand method was used as basis to allocate all network costs.

## 26.2 Definitions.

**Ampere (A):** The unit in which electric current is measured being the rate of flow of electric current through a conductor and which is comparable to the rate of volume of water flow through a pipe.

**Capacity utilisation.** – This refers to the extent to which the capacity that has been installed for a customer has been utilised by the customer.

**Charges.** – This refers to different charges that a customer has to pay such as a charge for energy or charge for installed capacity.

**Clients.** – This refers to other contacts of the utility such as contractors, consultants, etc.

**Connection fee:** The minimum, once-off, up-front payment for new or additional capacity

**Consumers.** – This refers to any user of electricity whether it be an illegal connected supply, unpaid supply or third-party person.

**Cross subsidy.** – This refers to cases where one set of customers are subsidised by another set of customers because their tariff does not cover their cost of supply.

**Customer.** – This refers to a consumer that is legally connected to the electricity network, is contracted with the supply utility and is paying their dues.

**Demand charge:** A R/kVA or R/kW charge which is time and/or seasonally differentiated and is applied to the chargeable demand registered during the month.

**Demand tariffs.** – This refers to tariffs that charge for the maximum demand taken by the customer every month.

**Diversity Factor:** This is defined as the ratio of the sum of individual consumers' non-coincident maximum demands to the total maximum demand of a group, which is an indication of the extent to which the same capacity can be used for different consumers

**Electrical Energy** – This refers to the amounts of units of electricity consumed. This is normally measured for a month.

**Gigawatt (GW):** Equal to one thousand MW or one million kW.

**Inter tariff cross subsidies.** – This is where one category of customers is cross-subsidising another category of customers.

**Intra tariff cross subsidies.** – This is where there is cross subsidisation between the different customers within a particular customer category such as high usage customers cross-subsidising low usage customers.

**kWh (kilo Watt hour)** – This is the unit of measure for energy. It means 1000 of Watt hours. In other words, if a 100 Watt globe was burning for 10 hours.

**Kilovolt-Ampere (kVA):** The product of volts and amperes times 1 000, i.e.  $V \times A \times 1\,000$ . This is a measure of "apparent" electrical power.

**Kilowatt (kW):** The product of kVA and power factor which is a measure of "true" electrical power. The expression for kW is  $V \times A \times \text{power factor} \times 1\,000$ .

**Kilowatt-hour (kWh):** The total amount of energy used in one hour by a device that requires one kilowatt of power for continuous operation, i.e. the product of kilowatts and hours.

**kVA (kilo Volt Ampere)** – This is the unit of measure for maximum demand. It includes the real and reactive components of power.

**kW (kilo Watt)** – This is also a unit of measure for maximum demand but only the real component. Here the calculation is done over a 1-hour period. The maximum demand taken by ten 100-Watt globes equals to 1 kW.

**Load factor.** – This refers to the amount of electricity consumed by a customer in a billing period relative to the amount of energy that could have been consumed had the appliances been kept on all the time. This indicates how effective the capacity had been used.

**Load factor (LF) annual:** Total kWh/y divided by the highest maximum demand in the year times 12 times the total hours in the year.  $(\text{Total kWh for year}) \div (\text{Highest maximum demand in year} \times 12 \times \text{hours in year})$ .

**Load factor (LF) average monthly:** Total kWh/y divided by the sum of the maximum demands of all months in the year times 12 times the total hours in the year.  $(\text{Total kWh for year}) \div (\text{Sum of 12 maximum demands in year} \times \text{hours in year})$ .

**Life line.** – This refers to a tariff that provides support, subsidy, discount to customers. This is usually not available to all customers and provide more support at low consumption levels and become more expensive at high consumption levels.

**Maximum demand.** – This refers to the maximum demand that the customer places on the network normally averaged over a half hour period.

**Megawatt (MW):** Equal to one million Watts or 1 000 kW.

**Network voltage.** – This refers to the voltage at which the network operates. This voltage is usually higher to transfer large amounts of power.

**Network capacity.** – This refers to the maximum rating of the network equipment that has been installed to supply a customer. This is expressed as kVA or A (Amperes).

**Point of delivery (POD):** A physical point on the electrical network, where electricity is delivered to a customer, usually the metering point.

**Point of supply:** It could be a single point of delivery to a customer or a specific group of points of delivery on the System from where electricity is supplied to the customer.

**Power Factor (PF):** The ratio kW / kVA indicates the ratio of "true" electrical power to "apparent" electrical power, i.e. the ratio of useful work to the total quantity of volts and amperes supplied.

**Reactive energy charge:** In case of Megaflex, it is levied on every kvarh which is registered in excess of 30% of the kWh supplied during the specified periods of the month.

**Supply voltage.** – This refers to the voltage at which customers are supplied. The supply voltage for households is usually 240 V (volt).

**Single energy rate tariff.** – This refers to a tariff that only has one charge and that is a simple energy charge eg. 25 c/kWh.

**Seasonal tariffs.** - This refers to tariffs where the price for electricity consumed during different seasons of the year is different. This is because there is a much higher demand for electricity typically in Winter making it more expensive to provide.

**Tariff.** – A tariff is the combination of various charges as mentioned above to make up a tariff applicable for a specific customer category.

**Tariff structure.** – This refers to the type of charges in the tariff as well as the relative sizes of the different charges.

**Tariff restructuring.** – This refers to the process of changing the charges in a tariff but also the relationship with other tariffs.

**Two part tariff.** - This refers to a tariff that has a single energy rate plus a fixed charge, sometimes called a basic charge. For example, the tariff has a basic charge of R100/month and an energy rate of 105 c/kWh.

**TOU (Time of Use) tariffs.** - This refers to tariffs where the electricity consumed at different times of the day is measured separately and are charged for differently.

**Time-of-use (TOU) tariff:** A tariff that has different energy rates for different time periods and seasons in order to reflect different cost of supply at different times more accurately.

**Voltage discount.** – This refers to a discount applied to customers supplied at higher voltages because it is cheaper to supply, and the customer incurs more costs to transfer the energy for their own applications.

**Voltage (V):** Measure of electric pressure that drives electric current through a conductor.

**Watt (W):** The unit of electrical power or energy transfer equivalent to one ampere flowing due to an electrical pressure of one volt at unity power factor,  $W = V \times A$

### 26.3 Abbreviations

<	less than	CRC	Current replacement cost.
≤	less than or equal to	ROA	Return on Assets
>	greater than	HV	High Voltage ≥ 40 kV
≥	greater than or equal to	MV	Medium Voltage ≥ 1000 V < 40 kV
A	ampere	LV	Low Voltage < 1000 V
c	cents	COS	Cost Of Supply
c/kvarh	cents / reactive kilovolt-ampere-hour	POD	Point of delivery
c/kWh	cents per kilowatt-hour	FBE.	Free Basic Electricity
CPI	consumer price index	EPP	South African Electricity Pricing Policy
GWh	gigawatt-hour	MFMA.	Municipal Finance Management Act
km	kilometre	MSA	Municipal Systems Act
kVA	kilovolt-ampere	IBT	Inclining Block Rate Tariff
kvarh	reactive kilovolt-ampere-hour	CRC	Current replacement cost.
kV	kilovolt	LF	Load factor
kW	kilowatt	COS	Cost Of Supply
kWh	kilowatt-hour	POD	Point of delivery
MVA	megavolt-ampere	POS	Point of Supply
N/A	Not applicable	FBE.	Free Basic Electricity
NERSA	National Electricity Regulator of South Africa	EPP	South African Electricity Pricing Policy
NMD	Notified Maximum Demand	MFMA.	Municipal Finance Management Act
PF	Power factor	MSA	Municipal Systems Act
R	Rand	IBT	Inclining Block Rate Tariff
R/kVA	Rand per kilovolt-ampere		
R/kW	Rand per kilowatt		
TOU	Time-of-Use		
V	volt		
VAT	value added tax		
W	watt		

# OVERSTRAND MUNICIPALITY



## OVERSTRAND ELECTRICITY: RINGENCING, COST OF SUPPLY AND TARIFF STUDY – 2021/2022: EXECUTIVE OVERVIEW

(Project Ref. No 22014E)

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#### ANNEXURES

## 1. INTRODUCTION.

Overstrand Municipality (Overstrand) sanctioned a comprehensive electricity pricing study which contains 3 main components :

- Ringfencing electricity. The key objective of this part of the study is to establish the true cost and revenue of electricity supply in the municipality.
- The Cost of Supply study. The objective of the cost of supply study is to know the cost of supplying customers on each tariff and to compare this with the revenue from current tariffs and thus the cross-subsidies.
- Tariff study. The final step is to analyse the structure of the tariffs and how it differs from the cost structures and identify the cross subsidies within the tariffs and then to propose new tariffs.

This paper describes the details relating to all three components of the study undertaken for Overstrand Municipality. It contains the detailed results for the whole area.

## 2. INITIAL TARIFF ASSESMENT

This section summarises the findings in terms of the existing tariffs and related issues. This was determined through analysis of the existing tariffs and discussions with electricity staff:

### Seperate charges.

- The current Infrastructure Charge per Meter per month is not included in any of the tariff rates and as a separate rate.
- The Exceeding notified maximum demand charge is not approved by NERSA.

### Non-Cost reflectiveness.

- The TOU tariffs do not contain the seasonal difference and is thus very un-cost reflective as electricity is sold in High Demand periods at a loss and during Low demand periods with a very high margin.
- The domestic tariffs with inclining block rates, no capacity charges, are very un-cost reflective and causing massive price distortions and inflated incentives for consumers to install renewable energy thus causing big revenue losses.

### Assistance to poor consumers

The assistance to poor consumers is not clearly described in the Indigent Policy or the Tariff Policy or tariff schedule: Apparently it has been changed substantially since the initial assessment.

## 3. LOAD PATTERN ASSESMENT

The following conclusions can be made from the analysis of the consumption load profiles:

- There is a very clear holiday / seasonal pattern with high increases during December / January.
- This pattern is very dominant in Kleinmond and Gansbaai but also Hermanus.
- The average peaks are more dominant during weekday evenings but a new peak is arising during Sunday mornings.
- The highest peaks for various of the Eskom points took place soon after the return of supply after extended Eskom outages.
- It is clear that there is very little maximum demand or capacity control by customers or through a geyser control system.

## 4. RINGFENCING.

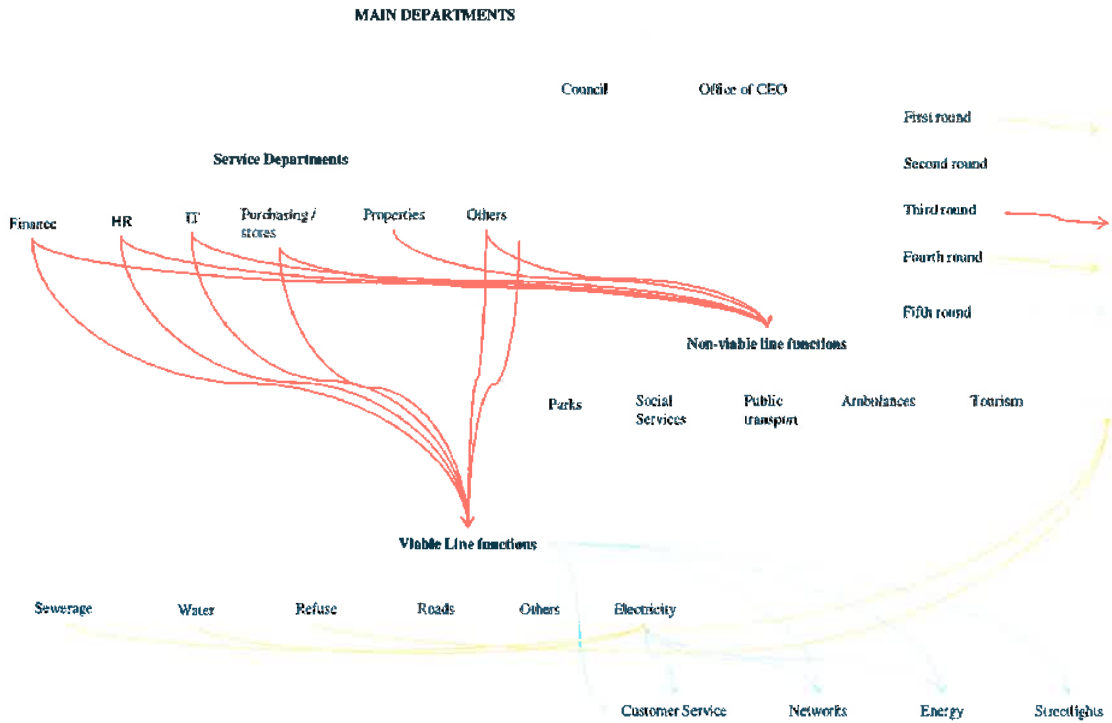
A process was followed to determine the full cost of electricity supply including a fair contribution to the municipal overhead costs. This process is illustrated graphically in **Figure 21** below.

This shows the contribution to overheads should be about R32 mill per year.

BS/13

Figure 21

### OVERSTRAND RINGFENCING PROCESS



#### 5. REVENUE REQUIREMENT.

This section calculates the revenue requirement for Overstrand using the NERSA method. The calculation of the revenue requirement is shown in Table 38. It also shows the costs per generic function of electricity supply.

Table 38

NERSARR	Energy	Service and connection Total	Distribution Total	Streetlight Total	Electricity Total
Bulk	300 553 535	-	-	-	298 272 081
Operating cost		2 530 670	7 879 223	420 644	13 581 943
Shared cost		20 746 367	10 983 307	4 804 158	32 017 694
Depreciation		4 408 383	21 962 208	1 000	26 411 519
Interest		-	15 541 481	-	16 749 850
Repairs & Maintenance		6 021 184	11 716 715	2 014 142	23 549 748
Impairment loss		323	437 506	-	1 270 989
<b>Sub-total cost</b>	<b>300 553 535</b>	<b>33 706 928</b>	<b>68 520 439</b>	<b>7 239 944</b>	<b>410 853 824</b>
Current revenue					(474 343 003)
Surplus: Actual				-15%	(63 489 178)
<b>Total Allowed revenue</b>					<b>(474 343 003)</b>

The following very important facts need to be noted:

- The calculated Head Office / Service department allocation (admin charge) to electricity is equal to 40% own costs excluding Eskom. NERSA is unlikely to accept this high value. Various options were considered but this issue needs to be further discussed.
- If this overhead is adjusted to 25% of own costs the surplus increases to 20% which is equal to the max NERSA benchmark.
- The 40% will thus be used for COS calculations.

Based on this and all the adjustments it is clear that the current Overstrand tariffs do recover the NERSA formula revenue requirement. It is thus proposed that the next part of the study which relate to tariff structures, not total revenue requirement, be based on the current tariff levels.

## 6. COST OF SUPPLY.

A detailed process of cost calculation and revenue reconciliation was followed to calculate the current and revenue compared with the cost of supply in respect of each of the tariffs.

The summary results is shown in Table 54.

Table 54

OVERSTRAND				
TOTAL COSTS	TOTAL	REFERENCE	OVERCHARGE	% Overcharge
TARIFF CODE	COST	TARIFF REVENUE	RAND	+% of Tariff
Residential Indigent as per paragraph A of the Indigent Policy per meter	31 836 691	11 755 877	-20 080 814	-170.8%
Residential Indigent minder as R100 000 No 50 FBE	20 408 999	13 514 871	-6 894 128	-51.0%
Residential Indigent as per paragraph B, C & D of the Indigent Policy per meter	2 516 464	2 104 956	-413 478	-19.6%
E1D1 SINGLE PHASE LIFE LINE	203 650	68 496	-135 152	-197.3%
E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCTURE	15 680 990	6 594 594	-9 086 396	-137.8%
E1E1 LED PROJECTS	336 690	70 314	-266 376	-378.9%
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	69 147 464	79 818 360	10 670 896	13.4%
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Uitenhage	1 394 446	2 005 352	610 907	30.5%
4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	1 224 352	1 431 470	207 118	14.5%
4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)	133 297 499	135 656 005	2 358 567	1.7%
4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	11 160 917	14 455 333	3 294 416	22.8%
4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	2 050 072	2 678 493	628 421	23.5%
4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	3 984 693	4 774 626	789 934	16.5%
2-part, Commercial, Credit, 1 ph:	7 368 698	6 448 119	-1 079 511	-12.8%
2-part, Commercial, PP, 1 ph	6 162 722	7 208 157	1 065 435	14.8%
1 Part, Commercial, Pre-paid, 1 ph (Economic Development Projects)	351 074	353 269	2 195	0.6%
1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches (≥ 800kWh/m 12 months)	1 114 113	1 210 718	96 605	8.0%
2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	29 748 308	26 326 181	-2 577 873	-9.8%
2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	8 433 184	9 546 593	1 113 408	11.7%
TIME OF USE TARIFF: MV	118 733 862	108 220 306	-10 513 556	-9.7%
TIME OF USE TARIFF: LV	87 142 891	74 522 104	-12 620 787	-16.9%
Streetlights & CCTV (metered) per kWh (no basic charge)	7 927 960	795 606	-7 132 353	-896.5%
Streetlights & CCTV (consumption) (per 100 Watt / month) (non-metered)	6 391 297	830 079	-5 561 217	-87.0%
CASUAL SUPPLIES	-	-	-	0.0%
Availability: NETWORK CHARGES: SERVICED LAND	13 089 647	12 314 682	-774 965	-6.3%
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	-61 480	-	61 480	
Other	-	-	-	0.0%
<b>Total</b>	<b>573 637 053</b>	<b>524 704 594</b>	<b>-48 932 459</b>	
	573 637 053	0.00%		

The % shows the difference between Cost and revenue as % of cost. Negative shows shortfall and positive shows overcharge.

## 7. KEY FINDINGS

The following key findings can be made in terms of the tariff levels and structures:

- Poor customers are seriously subsidised. This is based on the subsidisation of the basic charges, the lack of fixed charges, the low first block energy rates and FBE.
- Most domestic consumers are overcharged but some are undercharged.
- Commercial customers are generally overcharged. This is due to high energy charges.
- TOU MV and LV customers are slightly under-charged.
- Streetlight tariffs are too low and do not cover the fixed maintenance costs.
- Availability charges are slightly low.

**8. PRICING POLICY.**

In view of the findings to date, the summarised pricing policy is provided below:

- It should be in line with the National Electricity Pricing Policy.
- All tariffs should be set as close as possible to the cost of supply.
- Indigent customers as registered in terms of indigent policy.
  - These customers limited to 30 Amps will be charged the full cost reflective fixed charges.
  - The full fixed charges, except for the infrastructure charge, be off-set by the equitable share.
  - Free Basic Electricity (FBE) of 50 kWh/m off-set by equitable share.
  - Remove the IBT structure and replace with single energy rate.
- Cross subsidisation of low usage domestic customers (poor but not indigent) customers should be done as follows:
  - Criteria to include limited consumption.
  - Customers limited to 30 Amps will be charged the full cost reflective fixed charges.
  - The full fixed charges, except for the infrastructure charge, off-set by the equitable share.
  - Remove the IBT structure and replace with single energy rate.
  - No FBE is granted.
- All small customers (domestic / business) > 30 Amp should have a fully cost reflective tariff:
  - A basic charge to reflect the fixed metering, billing, revenue collection and customer services costs.
  - A capacity charge based on the installed / limited capacity of the customer. In other words, the total network costs as calculated for that tariff before (using the relevant demand allocation method), is now divided by the customers' actual capacity.
  - An energy charge that covers the full energy cost, losses and surplus mark-up.
- All large customers should be charged on a TOU tariff with structure and TOU slots as per the Eskom Megaflex tariff applicable to Overstrand including changes over time:

**9. CROSS SUBSIDIES TO THE POOR.**

The proposed Indigent policy is as follows:

- Indigent consumers apply and if they qualify in terms of the criteria:
  - One of the criteria should be that capacity be limited to 30 Amps.
  - Get charged the full Basic and capacity charge off-set by equitable share.
  - Receive 50 kWh/m of FBE off-set by equitable share.
  - They pay the infrastructure levy.
  - Standard energy charge.
- Poor but not indigent consumers including economic development projects, sports entities, churches etc:
  - These entities all have to apply for relief.
  - Capacity be limited to 30 Amps.
  - Get charged the full Basic and capacity charge off-set by equitable share.
  - They pay the infrastructure levy.
  - They receive no FBE.

The calculations show the following:

- The new calculated equitable share amount will increase to more than R45 mill.

In this way almost the full subsidies to the poor will be covered by the equitable share and not by other consumers.

**10. TARIFF IMPACT**

The two tables below show the overall impact on customers on each tariff on average. This is for the tariffs before phase in (in other words the whole impact). The impact of each would be about a quarter of this if phased in over 4 years. Table 64 shows the impact if all tariffs were cost reflective in other words the full impact.

Table 64

OVERSTRAND						
CALCULATED REVENUE		2022/2023 Proposed	2022/2023 Reference	Difference	Structure change	Initial cost reflectiveness
Nr	TARIFF NAME	R/year	7.47% Rand		%	
E6A	Residential Indigent as per paragraph A of the Indigent Policy p	34 794 057	12 634 041	22 160 016	175.40%	-170.8%
E6B	Residential Indigent minder as R100 000 No 50 FBE	24 130 469	14 524 431	9 606 039	66.14%	-51.0%
E1D	Residential Indigent as per paragraph B, C & D of the Indigent P	2 334 839	2 262 229	72 610	3.21%	-19.6%
E1D	E1D1 SINGLE PHASE LIFE LINE	302 211	73 615	228 596	310.53%	-197.3%
E1D	E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCT	18 953 649	7 087 210	11 866 439	167.43%	-137.8%
E1D	E1E1 LED PROJECTS	612 632	75 666	537 066	710.72%	-378.8%
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including	74 241 008	85 780 791	-11 539 783	-13.45%	13.4%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Ulenst	1 906 997	2 155 152	-248 155	-11.51%	30.5%
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	1 229 834	1 538 400	-308 566	-20.06%	14.5%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Includ	139 003 939	145 789 509	-6 785 570	-4.65%	1.7%
E3E	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)	11 526 951	15 535 146	-4 008 196	-25.80%	22.8%
E3E	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA) Dept	2 191 645	2 878 576	-686 932	-23.86%	23.5%
E3E	4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	3 973 481	5 131 291	-1 157 810	-22.56%	16.5%
E1C	2-part, Commercial, Credit, 1 ph:	8 083 278	9 079 193	-995 915	-10.97%	12.8%
E1C	2-part, Commercial, PP, 1 ph	6 531 338	7 746 606	-1 215 269	-15.89%	14.6%
E1E	1 Part, Commercial, Pre-paid, 1 ph (Economic Development Proj	356 506	379 658	-23 152	-6.10%	0.6%
E3G	1-Part, Pre-paid, 20 Amp Businesses, Flats, Sport, Churches.(	1 160 935	1 301 159	-140 224	-10.78%	8.0%
E3E	2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	25 501 568	28 292 747	-2 791 179	-9.87%	9.8%
E3E	2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	8 995 365	10 259 723	-1 264 358	-12.32%	11.66%
E5A1	TIME OF USE TARIFF: MV	127 624 651	116 304 363	11 320 288	9.73%	-9.7%
E5	TIME OF USE TARIFF: LV	93 363 517	80 088 906	13 274 611	16.57%	-16.9%
E7A1	Streetlights & CCTV (metered) per kWh (no basic charge)	8 609 727	855 038	7 754 689	906.94%	0.0%
E7A2	Streetlights & CCTV (consumption) (per 100 Watt / month) (nor	7 074 065	892 086	6 181 978	692.98%	0.0%
E6	CASUAL SUPPLIES	-	-	-	#DIV/0!	0.0%
E9	Availability: NETWORK CHARGES: SERVICED LAND	14 067 444	13 234 589	832 855	6.29%	-6.3%
E18	SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	-84 762	-	-84 762	#DIV/0!	0.0%
0	Other	-	-	-	-	0.0%
0	z	2 398	-	2 398	#DIV/0!	0.0%
1	Total.	616 487 741	563 900 028	-	-	0.0%
1		616 487 741	0.00%	-	-	-

Table 65 shows the impact of the phased structure change for year one before the average price increase.

Table 65

OVERSTRAND						
CALCULATED REVENUE		2023/2024 Proposed	2022/2023 Reference	Difference	Structure change	Initial cost reflectiveness
Nr	TARIFF NAME	R/year	Reference	Rand	%	
E6A	Residential Indigent as per paragraph A of the Indigent Policy p	36 097 386	12 634 041	23 463 345	185.72%	-170.8%
E6B	Residential Indigent minder as R100 000 No 50 FBE	25 477 523	14 524 431	10 953 092	75.41%	-51.0%
E1D	Residential Indigent as per paragraph B, C & D of the Indigent P	2 259 433	2 262 229	-2 796	-0.12%	-19.6%
E1D	E1D1 SINGLE PHASE LIFE LINE	125 888	73 615	52 054	70.71%	-197.3%
E1D	E1D1 SINGLE PHASE LIFE LINE INDIGENT TEMPORARY STRUCT	9 783 046	7 087 210	2 695 836	38.04%	-137.8%
E1D	E1E1 LED PROJECTS	195 784	75 566	120 218	159.09%	-378.6%
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including	98 263 484	85 780 791	12 482 693	14.55%	13.4%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) Utlensk	2 115 866	2 155 152	-39 286	-1.82%	30.5%
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) Dept	1 643 245	1 538 400	104 844	6.82%	14.5%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Includf	142 628 727	145 789 509	-3 160 782	-2.17%	1.7%
E3E	4 Part, Domestic, Credit, 3 PH ≤ 100A (70 kVA)	14 408 268	15 535 146	-1 126 889	-7.25%	22.6%
E3E	4 Part, Domestic, Credit, 3 PH ≤ 100A (70 kVA) Dept	2 681 366	2 878 576	-197 210	-6.85%	23.5%
E3E	4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)	4 798 845	5 131 291	-332 446	-6.48%	16.5%
E1C	2-part, Commercial, Credit, 1 ph:	8 731 599	9 079 193	-347 594	-3.83%	12.8%
E1C	2-part, Commercial, PP, 1 ph	7 368 909	7 746 606	-377 697	-4.88%	14.6%
E1E	1 Part, Commercial, Pre-paid, 1 ph (Economic Development Proj	369 964	379 658	-9 693	-2.55%	0.6%
E3G	1-Part, Pre-paid, 20 Amp Businesses, Halls, Sport, Churches.(	1 251 457	1 301 159	-49 702	-3.82%	8.0%
E3E	2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)	27 274 696	28 292 747	-1 018 051	-3.60%	9.8%
E3E	2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)	9 828 419	10 259 723	-431 304	-4.20%	11.7%
E5A1	TIME OF USE TARIFF: MV	119 145 939	116 304 363	2 841 576	2.44%	-9.7%
E5	TIME OF USE TARIFF: LV	83 446 398	80 088 906	3 357 490	4.19%	-16.9%
E7A1	Streetlights & CCTV (metered) per kWh (no basic charge)	2 793 710	855 038	1 938 672	226.74%	0.0%
E7A2	Streetlights & CCTV (consumption) (per 100 Watt / month) (nor	2 437 581	892 086	1 545 495	173.24%	0.0%
E8	CASUAL SUPPLIES	-	-	-	#DIV/0!	0.0%
E9	Availability: NETWORK CHARGES: SERVICED LAND	13 442 803	13 234 589	208 214	1.57%	-6.3%
E18	SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	-84 762	-	-84 762	#DIV/0!	0.0%
0	Other	-	-	-	-	0.0%
0z		2 398	-	2 398	#DIV/0!	0.0%
1	Total.	616 487 741	563 900 028	52 587 714	9.33%	0.0%
1		616 487 741	0.00%	0.00		

The following very important points are to be noted in this respect:

- The total revenue will remain the same in respect of customers who are to receive relief from the equitable share. Thus, the revenue will either come from the consumer or from the equitable share if they qualify.
- It thus shows a big increase in respect of the Indigents and semi-indigents as the new revenue will include the amounts coming from the equitable share.
- The capacities that have been assumed for consumers is what is considered realistic. Some consumers may however reduce their capacity below what has been assumed which could lead to some revenue loss. A 15% reduction by consumers have been assumed to cater for any possible revenue losses.
- In all other cases the impact is close to ¼ of the impact of the final implementation.
- This is per tariff category and thus for some of the sub tariffs the impact will be different as the various domestic tariffs are grouped together.

The impact for each customer will however be different. It will depend on the utilisation of the capacity provided to customers and the extent to which electricity is used in the peak times:

- The following customers will generally see increased bills:
  - Those that are not utilising their capacity and are not willing to reduce / manage their capacity, due to the Capacity/Access charges.
  - Customers who need large capacity only for a few months in the year.
  - TOU customers who use a lot of electricity during the expensive Winter Peak times and are not willing / able to shift load out of these periods.

If these tariffs are phased in over 4 years, customers will have time to adapt to the new rates and thus manage their bills. The impacts shown in the table above will thus be 1/4 for each of the 4 years.

Extensive analysis has also been done on individual consumers.

**11. BULK TOU TARIFFS**

TOU tariffs must continue to be applied to Bulk consumers and even be applied to small customers.

The year 1 phase in impact for MV and LV consumers are shown in the **Table 76** below.

**Table 76**

Voltage	Sum of Old TOU	Sum of New TOU	Diff	Diff %
LV	33374409.06	34290621.37	916212.3053	2.7%
MV	125731688.7	128783002.1	3051313.365	2.4%
Grand Total	159106097.8	163073623.4	3967525.671	2.5%

The biggest problems with the current TOU tariffs are as follows:

- The general tariff levels are understated.
- The TOU differentiation does not match the Eskom TOU tariffs and are not seasonally differentiated.
- This causes overcharges during some periods and undercharges during other periods.
- It also creates inconsistent load shifting impact for the municipality.
- The Demand and Capacity charges are not differentiated by Voltage.

The following is thus proposed in this respect:

- The tariffs thus be developed based on the cost of supply results.
- The differentiation will be changed as per cost differences.
- The markup on energy will be in R/kWh and not in %.
- A TOU tariff also needs to be created for small consumers.

**12. SMALL SCALE EMBEDDED GENERATION (SSEG)**

The important issue in respect of SSEG customers is that they must be on a cost reflective tariff with fixed and capacity / demand charges close to cost. A new TOU tariff for small consumers, <100 kVA, has been developed. Any consumer can select this tariff, but all SSEG consumers must be on this tariff. It is subject to an application and payment for the supply and installation of a 4 wire, 4 quadrant TOU meter. The tariff has been designed as follows:

- The basic charge equal to the small consumer 3 phase basic charge plus the difference in cost between a 3 phase non-TOU meter and a TOU meter supply.
- The capacity charge is set at the average of the Domestic and Commercial tariff capacity charge.
- The energy rates are set equal to the Bulk LV plus the additional losses on the LV network.
- The reactive energy charge set equal to the Eskom reactive energy charge.

The SSEG Feed-in tariff, which caters for consumers who want to feed-in to the network, is as follows:

- An additional basic charge to cater for the additional metering & administration costs to administer the feed-in.
- The energy credit rates are set at 90% of Eskom Megaflex TOU energy rates (excluding the non-TOU energy rates) applicable to Overstrand.
- This tariff applies to any customer wanting to feed-in irrespective of whether they have a LV or MV connection.
- Various other conditions apply.

**13. PHASE IN**

It is accepted that the proposed tariff structure changes will have a marked impact on customers. Some customers will pay much less and others much more. For this reason, the possibility to phase the changes in evenly over 4 years could be considered. This can be done as follows:

- Calculate the difference between the current charge and the proposed charge. (basic, Amp, R/kVA, energy).

- Divide the difference by 4 and add to the current charge.
- Then add annual price increase %.
- In year two add 1/4 of the difference and year three the full difference.
- Continue this trend to the end of the 4 year phase in.
- The TOU for small customers and TOU tariff at LV and Embedded tariffs are not phased in because it is either a new tariff or there are very few customers on the tariff.
- In some cases combine different tariffs to reduce the total number.

#### 14. TARIFF SCHEDULE

The proposed tariff schedule is shown in Table 79. It shows the proposed rates excluding annual price increase but including the phase in only restructuring. Once the average increase has been approved it will be applied to all the proposed rates.

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Table 79

OVERSTRAND ELECTRICITY TARIFF SCHEDULE			2020/2021	2021/2022	2022/2023	2022/2023	2023/2024	2022/2023 to 2023/2024 Increase
Tariff Code	Details	Exclude VAT	Exclude VAT	Alter increase	Restructured	Restructured with phase in and increase		
EF	<b>FIXED CHARGES</b>			7.47%			0.00%	
EF1	Infrastructure Charge per Meter per month	R/POS/m	16.65	16.65	16.65	16.65	16.65	0.00%
E1	<b>SINGLE PHASE - Domestic</b>							
E1A	4-Part, Domestic, Credit, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)							
E1A1	Basic Monthly charge per meter	R/POS/m	356.2	408.17	438.66	156.04	368.01	-16.11%
	Capacity charge	R/Amp/Phase/m				7.88	1.97	New
E1A2	BT BLOCK 1 0 - 350 kWh	c/kWh	138.67	158.81	168.31	166.29	167.00	-0.30%
E1A3	BT BLOCK 2 351 - 600 kWh	c/kWh	200.72	230.01	247.18	166.29	216.28	-12.51%
E1A4	BT BLOCK 3 > 600 kWh	c/kWh	246.62	282.6	303.71	166.29	269.35	-11.31%
E1B	4-Part, Domestic, Pre-paid, 1 PH, ≤ 60 Amp (13.8 kVA) (Including Resorts)							
E1B1	Basic Monthly charge per meter	R/POS/m	356.2	408.17	438.66	156.04	368.01	-16.11%
	Capacity charge	R/Amp/Phase/m				7.88	1.97	New
E1B2	BT BLOCK 1 0 - 350 kWh	c/kWh	126.24	144.66	155.47	166.29	158.17	1.74%
E1B3	BT BLOCK 2 351 - 600 kWh	c/kWh	189.15	216.75	232.94	166.29	216.28	-7.18%
E1B4	BT BLOCK 3 > 600 kWh	c/kWh	237.06	271.89	291.94	166.29	250.55	-10.76%
E1C	2-part, Commercial, Credit, 1 ph:							
E1C1	Basic Monthly charge per meter	R/POS/m	356.2	408.17	438.66	156.04	368.01	-16.11%
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E1C2	kWh Unit cost - Credit Meters	c/kWh	204.55	234.39	251.90	164.26	229.99	-8.70%
E1C3	2-part, Commercial, PP, 1 ph							
E1C1	Basic Monthly charge per meter	R/POS/m	356.2	408.17	438.66	156.04	368.01	-16.11%
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E1C3	kWh Unit cost - Pre-paid meters	c/kWh	192.78	220.88	237.38	164.26	229.99	-9.11%
E1D	Informal dwellings indigents 50 kWh for free.							
E1D1	Basic Monthly charge per meter (Covered by Equitable share)	R/POS/m				156.04	39.01	New
	Capacity charge (Covered by Equitable share)	R/Amp/Phase/m				7.88	1.97	New
E1D1	BT BLOCK 1 0 - 350 kWh	c/kWh	127.62	146.24	157.16	166.29	158.17	0.64%
	BT BLOCK 2 351 - 600 kWh	c/kWh	127.62	146.24	167.16	166.29	216.28	37.61%
	BT BLOCK 3 > 600 kWh	c/kWh	127.62	146.24	157.16	166.29	260.53	65.77%
E1E	1 Part, Commercial, Pre-paid, 20 Amp 1 ph (Economic Development Projects)							
	Basic Monthly charge per meter	R/POS/m				156.04	39.01	New
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E1E1	BT BLOCK 1 0 - 350 kWh	c/kWh	220.5	282.87	271.54	164.26	244.72	-9.86%
E3	<b>THREE PHASE - Commercial &amp; Domestic</b>							
E3E	4 Part, Domestic, Credit, 3 PH, ≤ 100A (70 kVA)							
E3E1	Basic Monthly charge per meter	R/POS/m	712.38	816.33	877.31	189.26	705.30	-19.61%
	Capacity charge	R/Amp/Phase/m				7.88	1.97	New
E3E2	BT BLOCK 1 0 - 350 kWh	c/kWh	137.98	158.09	169.80	166.29	159.28	-6.25%
E3E3	BT BLOCK 2 351 - 600 kWh	c/kWh	201.56	230.95	248.21	166.29	216.99	-12.58%
E3E4	BT BLOCK 3 > 600 kWh	c/kWh	245.08	280.85	301.83	166.29	259.17	-14.13%
E3E	4-Part, Domestic, Pre-paid, 3 PH, ≤ 100A (70 kVA)							
E3E1	Basic Monthly charge per meter	R/POS/m	712.38	816.33	877.31	189.26	705.30	-19.61%
	Capacity charge	R/Amp/Phase/m				7.88	1.97	New
E3E6	BT BLOCK 1 0 - 350 kWh	c/kWh	127.46	148.04	158.85	166.29	159.28	1.45%
E3E7	BT BLOCK 2 351 - 600 kWh	c/kWh	189.93	217.64	233.80	166.29	216.99	-7.23%
E3E8	BT BLOCK 3 > 600 kWh	c/kWh	235.58	269.96	280.13	166.29	259.17	-10.67%
E3E	2-Part, Commercial, Credit, 3 PH, ≤ 100A (70 kVA)							
E3E9	Basic Monthly charge per meter	R/POS/m	712.38	816.33	877.31	189.26	705.30	-19.61%
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E3E10	kWh Unit charge	c/kWh	204.55	234.39	251.90	164.26	229.99	-8.70%
E3E	2-Part, Commercial, Pre-paid, 3 PH, ≤ 100A (70 kVA)							
E3E11	Basic Monthly charge per meter	R/POS/m	712.38	816.33	877.31	189.26	705.30	-19.61%
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E3E12	kWh Unit charge	c/kWh	192.78	220.88	237.38	164.26	219.10	-7.70%
E3G	1-Part, Pre-paid, 20 Amp Business, Flats, Sport, Churches (≥ 900kWh/m 12 months)							
	Basic Monthly charge per meter	R/POS/m				156.04	39.01	New
	Capacity charge	R/Amp/Phase/m				12.08	3.02	New
E3G1	kWh Unit charge	c/kWh	243.29	278.79	298.62	164.26	265.78	-11.29%
E5	<b>TIME OF USE TARIFF: MV</b>							
E5A1	Basic charge	R/POS/m	3387.47	3881.7	4171.68	2848.79	3840.84	-7.93%
E5A3	Network Capacity Charge kVA: Notified Maximum Demand	R/kVA/m	25.39	30.52	32.80	38.76	34.29	4.54%
E5A2	Network Demand Charge kVA: Utilised capacity	R/kVA/m	31.9	38.29	41.15	74.80	49.59	20.50%
E5A6	Hi-Demand: Peak kWh Unit Charge	c/kWh	328.89	376.88	405.03	516.52	432.90	6.66%
E5A5	Hi-Demand: Standard kWh Unit Charge	c/kWh	101.2	115.97	124.63	190.91	138.70	11.26%
E5A4	Hi-Demand: Off Peak kWh Unit Charge	c/kWh	58.22	64.42	69.23	114.28	80.50	15.27%
E5A9	Low Demand: Peak kWh Unit Charge	c/kWh	328.89	376.88	405.03	192.11	351.80	-13.14%
E5A8	Low Demand: Standard kWh Unit Charge	c/kWh	101.2	115.97	124.63	143.16	129.27	3.72%
E5A7	Low Demand: Off Peak kWh Unit Charge	c/kWh	58.22	64.42	69.23	103.63	77.83	12.42%
	Reactive Energy charge	c/kVArh				19.51	4.88	New
E5	<b>TIME OF USE TARIFF: LV</b>							
E5A1	Basic charge	R/POS/m	3445.29	3433	3688.45	776.48	2981.21	-19.74%
E5A3	Network Capacity Charge kVA: Notified Maximum Demand	R/kVA/m	25.39	30.52	32.80	57.31	38.83	16.68%
E5A2	Network Demand Charge kVA: Utilised capacity	R/kVA/m	31.9	38.29	41.15	117.80	60.31	48.56%
E5A6	Hi-Demand: Peak kWh Unit Charge	c/kWh	333.12	381.72	410.23	520.18	437.72	6.70%
E5A5	Hi-Demand: Standard kWh Unit Charge	c/kWh	105.41	120.79	129.81	184.58	143.51	10.55%
E5A4	Hi-Demand: Off Peak kWh Unit Charge	c/kWh	60.45	69.27	74.44	117.96	85.32	14.61%
E5A9	Low Demand: Peak kWh Unit Charge	c/kWh	333.12	381.72	410.23	195.78	356.62	-13.07%
E5A8	Low Demand: Standard kWh Unit Charge	c/kWh	105.41	120.79	129.81	146.83	134.07	3.28%
E5A7	Low Demand: Off Peak kWh Unit Charge	c/kWh	60.45	69.27	74.44	107.30	82.68	11.03%
	Reactive Energy charge	c/kVArh				19.51	4.88	New

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OVERSTRAND ELECTRICITY TARIFF SCHEDULE			2020/2021	2021/2022	2022/2023	2022/2023	2023/2024	
Tariff Code	Details		Exclude VAT	Exclude VAT	After increase	Restructured	Restructured with phase in and increase	2022/2023 to 2023/2024 increase
E5	<b>TIME OF USE TARIFF SMALL CUSTOMER &lt;100 kVA</b>							
E5A1	Basic charge	R/POS/m				358.27	358.27	New
E5A3	Network Capacity Charge R/Amp/phase/month	R/kVA/m				9.98	9.98	New
E5A6	Hi-Demand: Peak kWh Unit Charge	c/kWh				521.49	521.49	New
E5A5	Hi-Demand: Standard kWh Unit Charge	c/kWh				185.89	185.89	New
E5A4	Hi-Demand: Off Peak kWh Unit Charge	c/kWh				119.27	119.27	New
E5A9	Low Demand: Peak kWh Unit Charge	c/kWh				197.08	197.08	New
E5A8	Low Demand: Standard kWh Unit Charge	c/kWh				148.13	148.13	New
E5A7	Low Demand: Off Peak kWh Unit Charge	c/kWh				108.69	108.69	New
	Reactive Energy charge	c/kvarh				19.51	19.51	New
E18	<b>SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)</b>							
E18A2	Feed-in Tariff c/kWh	c/kWh	-73.22	-83.9				
E18A3	Hi-Demand: Peak kWh Unit Charge	c/kWh		-83.9		(398.94)	(398.94)	375.50%
E18A4	Hi-Demand: Standard kWh Unit Charge	c/kWh		-83.9		(120.84)	(120.84)	-44.03%
E18A5	Hi-Demand: Off Peak kWh Unit Charge	c/kWh		-83.9		(65.64)	(65.64)	-21.77%
E18A6	Low Demand: Peak kWh Unit Charge	c/kWh		-83.9		(130.12)	(130.12)	55.09%
E18A7	Low Demand: Standard kWh Unit Charge	c/kWh		-83.9		(89.56)	(89.56)	6.74%
E18A8	Low Demand: Off Peak kWh Unit Charge	c/kWh		-83.9		(56.80)	(56.80)	-32.30%
	<b>Sundry Charges</b>							
E5A10	Exceed NOTIFIED MAXIMUM DEMAND (NMD) per kVA	R/kVA/m	1099.84	1191.55	1 280.56	1 280.56	1 280.56	0.00%
E6	<b>SUBSIDIZED TARIFFS: Grant to be shown separately</b>							
E6A	Residential Indigent as per paragraph A of the Indigent Policy	R/POS/m	356.2	408.17	438.66	408.17	NA	
E6B	Residential Indigent as per paragraph B, C & D of the Indigent Policy	R/POS/m	291.6	291.6	313.38	291.6	NA	
E7	<b>PUBLIC LIGHTING &amp; CCTV</b>							
E7A1	Streetlights & CCTV (metered) per kWh (no basic charge)	c/kWh	86.87	101.84	109.45	253.03	145.94	32.80%
E7A2	Streetlights & CCTV (consumption) (per 100 Watt / month)	R/light/m	31.18	35.73	38.40	88.51	50.84	32.40%
E7A5	Illuminated street sign boards (consumption) (per 100 Watt / month)	R/light/m	31.18	36.73	38.40	88.51	50.84	32.40%
	Maintenance charge	R/light/m				109.39	27.35	New
E8	<b>CASUAL SUPPLIES</b>							
E8A1	Per connection includes disconnection excluding hire of kiosk	R/POS/m	1227.61	1406.72	1 511.80	1 511.80	1 511.80	0.00%
E8A2	Consumption per day if not metered	R/day	79.76	91.4	98.23	98.23	98.23	0.00%
E8A3	Hire of temporary distribution kiosk, per kiosk, per occasion	R/kiosk/event	481.05	551.24	592.42	592.42	592.42	0.00%
E8A4	Deposit (Usage will be subtracted)	Rand	1656	1656	1 779.70	1 779.70	1 779.70	0.00%
E8A5	One part tariff - Prepaid or Credit Casual Supply	c/kWh	241.94	277.24	297.95	297.95	297.95	0.00%
E9	<b>Availability; NETWORK CHARGES: SERVICED LAND</b>							
E9A1	Network charge per serviced plot per month	R/POS/m	358.2	408.17	438.66	465.29	463.74	5.72%
E9A2	Infrastructure per vacant plot per month	R/POS/m	16.65	16.65	16.65	16.65	16.65	0.00%

15. CONCLUSIONS

This detailed Ringfencing, Cost of supply and Pricing study presented many different challenges. All these have been addressed and the results obtained are considered 90% accurate. The current tariffs were found needing major changes. These will send a clear signal about the value of capacity which in time will assist the municipality in controlling its costs which are largely dictated by capacity.

The COS study must now be workshopped internally and be approved by Council and then be submitted to NERSA. Once the budget process starts the proposed tariffs need to be submitted to proper public participation. Only once NERSA approval and public participation process is completed can implementation begin.