



STELLENBOSCH

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNICIPALITY • UMASIPALA • MUNISIPALITEIT

Ref no.3/4/1/5

2026-03-05

NOTICE OF AN URGENT MEETING OF THE COUNCIL OF STELLENBOSCH MUNICIPALITY THURSDAY, 2026-03-05 AT 14:00

TO

The Speaker, Cllr Q Smit [Chairperson]
The Executive Mayor, Ald JS Fasser
The Deputy Executive Mayor, Cllr M Slabbert
The Council Whip, Cllr P Crawley

COUNCILLORS

RA Adams	NE Mcombring
J Andrews	XL Mdemka
Ald JC Anthony	NM Mkhontwana
R Cupido	NR Ndalasi
MM Danana	L Nkamisa
JA Davids	M Nkopane
I De Taillfer	N Ntsunguzi
R Du Toit	N Olayi
A Ferns	Z Olayi
E Groenewald	GA Petersen
AJ Hanekom	WC Petersen
RB Hendrikse	RO Pheiffer
SC Heneke	WF Pietersen
J Joon	MG Rataza
O Jooste	Ald JP Serdyn
TO Kumm	SR Schäfer
JC Macfarlane	A Tomose
N Mananga-Gugushe	RB Van Rooyen
C Manuel	M Van Stade
EP Masimini	J Williams

Notice is hereby given in terms of Section 29, read with Section 18(2) of the *Local Government: Municipal Structures Act, 117 of 1998*, as amended, that an **URGENT MEETING** of the **COUNCIL of STELLENBOSCH MUNICIPALITY** will be held via **MS TEAMS** on **THURSDAY, 5 MARCH 2026 at 14:00.**

**SPEAKER
CLLR Q SMIT**

A G E N D A
URGENT MEETING OF COUNCIL
OF STELLENBOSCH MUNICIPALITY
2024-03-04

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5.1	APPROVAL OF DRAFT ELECTRICITY TARIFFS FOR THE 2026/27 FINANCIAL YEAR FOR PUBLIC PARTICIPATION AND ULTIMATE SUBMISSION TO THE NATIONAL ENERGY REGULATOR OF SOUTH AFRICA (NERSA)	3
6.	MATTERS TO BE CONSIDERED IN-COMMITTEE	
	(SEE PINK DOCUMENTATION)	

5.	REPORTS BY THE MUNICIPAL MANAGER [G METTLER]
5.1	APPROVAL OF DRAFT ELECTRICITY TARIFFS FOR THE 2026/27 FINANCIAL YEAR FOR PUBLIC PARTICIPATION AND ULTIMATE SUBMISSION TO THE NATIONAL ENERGY REGULATOR OF SOUTH AFRICA (NERSA)

Collaborator No:

IDP KPA Ref No: Green & Sustainable Valley

Meeting Date: 05 March 2026

1. SUBJECT: APPROVAL OF DRAFT ELECTRICITY TARIFFS FOR THE 2026/27 FINANCIAL YEAR FOR PUBLIC PARTICIPATION AND ULTIMATE SUBMISSION TO THE NATIONAL ENERGY REGULATOR OF SOUTH AFRICA (NERSA)

2. PURPOSE

For Council to note the draft proposed Electricity Tariffs for the 2026-27 financial year and to approve such tariffs for public participation. The tariffs will then be used to apply to NERSA for approval and to comply with NERSA's requirements for Municipalities to submit tariffs that are public participated and Council approved by 31 March 2026.

3. DELEGATED AUTHORITY

Municipal Council.

4. EXECUTIVE SUMMARY

The Municipality normally public participates its proposed electricity tariffs for the coming financial year together with the budget process. However, the National Energy Regulator of South Africa (NERSA) has requested all Municipalities to submit their public participated draft tariffs to NERSA by 31 March 2026 for review.

Despite several requests to NERSA, the 2026/27 Eskom Average Tariff increase has not been released by them.

In March 2023, Council adopted the Electricity Distribution Ringfencing and Cost of Supply Study (CoS), which is valid for five years, and submitted such to NERSA on 25 June 2024.

In preparation for the 2026/27 financial year's electricity tariff application to NERSA, various workshops were held between the municipal appointed tariff modelling consultant, Financial Services and the Electrical Services Departments, and the revised set of proposed tariffs were interrogated in terms of the actual costs of providing the service, the proposals of the Cost of Supply Study which has been escalated per year, the affordability of the consumers, and the differing conditions of supply areas, etc.

Based on these factors, the simple average tariff increase of **10.71%** is proposed in this submission for public participation, even though there are various different proposed percentage increases in the different tariff categories, as per Annexure A. Kindly note that this does not mean an increase across all categories of the above percentage, but rather the averaged increase for all the different categories of tariffs, which each have their own proposed increase as per the table in Annexure A.

5. RECOMMENDATIONS

- (a) that Council approve in principle the draft electricity consumption tariffs (ANNEXURE A), for public participation, and ultimate application to NERSA for the 2026-27 financial year;
- (b) that Council notes the average tariff increase of **10.71%** for public participation, even though there are various different percentage increases in the different tariff categories;
- (c) that the draft 2026-27 tariffs be published on municipal platforms (website and social media) for public consultation for 21 days;
- (d) that once the tariffs have been published as per NERSA's requirement, the tariff application be submitted to NERSA for approval; and
- (e) that the public participation input and the proposed amendments if any, be submitted to Council as part of the normal budget process for deliberation.

6. DISCUSSION / CONTENTS

The Municipality normally public participates its proposed electricity tariffs for the coming financial year together with the budget process. However, the National Energy Regulator of South Africa (NERSA) has requested all Municipalities to submit their public participated draft tariffs to NERSA by 31 March 2026 for review.

Despite several requests to NERSA, the 2026/27 Eskom Average Tariff increase has not been released by them.

In March 2023, Council adopted the Electricity Distribution Ringfencing and Cost of Supply Study (CoS), which is valid for five years, and submitted such to NERSA on 25 June 2024.

In preparation for the 2026/27 financial year's electricity tariff application to NERSA, various workshops between the municipal appointed tariff modelling consultant, Financial Services and Infrastructure Services were held with the final deliberation on 03 March 2026. The revised set of proposed tariffs were interrogated, using the Eskom Retail tariff and structural adjustment (ERTSA) application of 9.01% for muniflex customers. Taking into account that NERSA has not communicated their approved increase for Eskom, this 9.01% muniflex tariff is based on the Eskom Application to NERSA which has not yet been approved by NERSA.

The actual costs of providing the service, the proposals of the Cost of Supply Study as tariffs which need to be aspired to, the affordability of the consumers, and the differing conditions of service, etc were taken into account.

The aims of a Cost of Supply Study are primarily to:

- (a) To enable the municipality to develop cost reflective electricity tariffs. The CoS report outlines the current cost to supply electricity and the anticipated cost of service for the next financial years in order for the municipality to move towards cost reflective tariffs within the subsidised model so as to be in a better financial position to render the services as required by a municipality.
- (b) To comply with The Electricity Pricing Policy (EPP) policy position 23 which states that: *"Electricity distributors shall undertake CoS studies at least every five years or 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) standards to reflect changing costs and customer behaviour"*.
- (c) To cater for a major change in the municipal electrical network that took place in February 2019, where the municipality inherited customers in the Dwarsrivier area from Drakenstein Municipality.

- (d) To develop tariffs for the Alternative Electricity Generation systems to make provision for the changes in the electricity distribution industry in as far as alternative energy generation solutions are concerned (e.g. SSEG & Wheeling).
- (e) To cater for the Wheeling of electricity from external electricity generators situated outside Stellenbosch Municipality's electricity distribution network.

The Cost of Supply Study Report was approved by Stellenbosch Council in 23 March 2023 and submitted to NERSA on 25 June 2024.

The methodology used to conduct the cost of supply study is based on NERSA's Cost of Supply Framework and NRS-058. The following steps in Figure 1 based on NERSA's Cost of Supply Framework were used to conduct the cost of supply report.

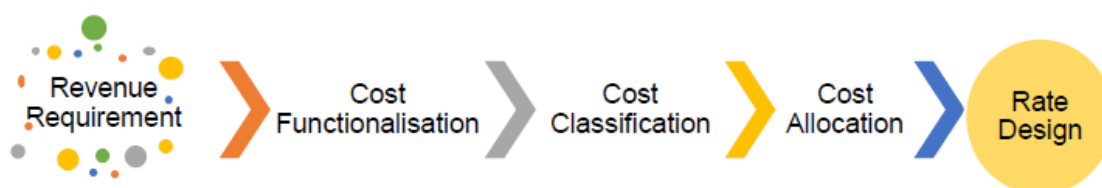


Figure 1: Steps to follow when conducting a Cost of Supply study:

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. More details on the methodology applied to do the ringfencing are found in the actual Cost of Supply report.

It is also to be noted that:

- Different tariff categories have different percentage increases as per the Cost of Supply Study (COSS).
- That a phased-in approach for some of the tariffs is considered, phased in over a 1-5 year period.
- The Eskom tariff increase for municipalities has not been made available by NERSA which would have served as an alternative average tariff increase.

Based on these factors, the simple average tariff increase of **10.71%** is proposed in this submission for public participation, even though there are various different percentage increases in the different tariff categories, as per Annexure A.

Following this submission, it is proposed that the public participation process commences from 5th March 2026 to 26th March 2026, via the documentation being published on the municipal website, the local newspaper and social media. All residents and consumers will be able to comment on the tariffs.

These comments will then need to be considered by Council at a Special Council Meeting on or about the 27th March 2026, and the final draft tariff application will be submitted to NERSA by 31st March 2026, as the required date of submission currently stands.

7. FINANCIAL IMPLICATIONS

The financial implications of the proposed tariffs will be incorporated into the overall budget process for the 2026-27 MTREF budget. The cost of supplying the electricity services are covered in the tariff submission and in the accompanying Cost of Supply Study (Annexure B).

8. LEGAL IMPLICATIONS

The submission complies with all legal requirements.

9. STAFF IMPLICATIONS

The tariff modelling and simulation exercise takes into account the staff requirements for the sustainable provision of the service.

10. RISK IMPLICATIONS

Risk of not submitting the application to NERSA by the deadline of 31st March could result in non-approval by NERSA of the 2026-27 proposed tariffs.

Risk of delays if further challenges by *Afriforum* to the NERSA approval process and current Court order.

11. PREVIOUS / RELEVANT COUNCIL RESOLUTIONS**12TH COUNCIL MEETING: 2023-03-29: ITEM 11.6.5**

RESOLVED (majority vote with 2 abstentions)

- (a) that Council accepts the report on “ELECTRICITY RINGFENCING AND COST OF SUPPLY STUDY”;
- (b) that Council notes the recommendations made in the report regarding the pricing and setting of future electricity tariffs;
- (c) that Council adopts the final cost of supply study report, as the report to be used in future to develop new electricity tariffs and derive percentage increases on the existing electricity tariffs.

The following Councillors requested that their votes of dissent be minuted:

Cllrs J Andrews; R Hendrikse; C Noble and M Van Stade

12. COMMENTS BY SENIOR MANAGEMENT**12.1 Director: Infrastructure Services**

Proponent of the Item.

12.2 Director: Community and Protection Services

No comment.

12.3 Director: Planning and Economic Development

No comment.

12.4 Acting Director: Corporate Services

No comment.

12.5 Chief Financial Officer

Comments have been included in the Item.

12.6 Municipal Manager

Comments have been included in the Item.

ANNEXURES:

Annexure A: Stellenbosch Municipality Proposed 2026/27 Draft Tariffs

Annexure B: COST OF SUPPLY STUDY

FOR FURTHER DETAILS CONTACT:

NAME	<i>Nombulelo Zwane</i>
POSITION	<i>Senior Manager: Electrical Services</i>
DIRECTORATE	<i>Infrastructure Services</i>
CONTACT NUMBERS	<i>021 808 8335/ 021 808 8334</i>
E-MAIL ADDRESS	<i>nombulelo.zwane@ Stellenbosch.gov.za</i>
REPORT DATE	<i>02 March 2026</i>

ANNEXURE A

ANNEXURE A:**LIST OF PROPOSED TARIFFS:**

The approved tariffs for 2024/2025, 2025/2026 and the proposed tariffs for 2026/2027 as well as the percentage increase are shown in the tables below. Please note that for export tariffs, Avoided Cost results were used for SSEG tariffs:

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
1. Domestic							
Domestic: Life Line PP - 0 to 60amp single phase only (For qualifying indigent customers and receiving the first 100 units free per month) (DOM1)							
Fixed Charge per month	R0.00	R0.00	R0.00	R0.00	0.00%	0.00	0.00%
Domestic PP Lifeline DOM1 (c/kWh) (<= 50 kWh)	173.46	191.00	210.10	339.85	77.93%	5.00	10.00%
Domestic PP Lifeline DOM1 (c/kWh) (51 – 300 kWh)	217.06	239.00	262.90	425.28	77.94%	5.00	10.00%
Domestic PP Lifeline DOM1 (c/kWh) (301 – 600 kWh)	323.51	358.00	393.80	633.85	77.05%	5.00	10.00%
Domestic PP Lifeline DOM1 (c/kWh) (> 600 kWh)	372.17	409.00	449.90	729.18	78.28%	5.00	10.00%
Domestic PP Lifeline DOM1 BSST (Free Basic Units)	100 units						
Domestic: Regular PP meters- (0 to 60amp single and three phase AND Less than 600kWh per month average consumption during the previous financial year and for generation for own use) (DOM2)							
Fixed Charge per month	R0.00	R0.00	R0.00	R0.00	0.00%	0.00	0.00%
Energy Rate (c/kWh) (<= 50kWh)	173.75	191.00	210.10	336.09	75.97%	5.00	10.00%
Energy Rate (c/kWh) (51 - 300kWh)	223.50	245.00	269.50	432.32	76.46%	5.00	10.00%
Energy Rate (c/kWh) (301 - 600kWh)	314.31	345.00	379.50	608.01	76.23%	5.00	10.00%
Energy Rate (c/kWh) (> 600kWh)	369.61	406.00	449.90	714.96	76.10%	5.00	10.00%
Domestic: Regular PP meters- (0 to 60 Amp single and three phase using more than 600 kWh per month average consumption during the previous financial year and for generation for own use) (DOM3)							
Fixed Charge per month	R237.87	R261.54	R287.69	R1 796.43	586.86%	5.00	10.00%
Energy Rate (c/kWh) (<= 50kWh)	173.46	191.00	206.64	206.64	8.19%	1.00	8.19%
Energy Rate (c/kWh) (51 - 300kWh)	222.50	245.00	265.07	265.07	8.19%	1.00	8.19%
Energy Rate (c/kWh) (301 - 600kWh)	313.89	345.00	373.94	373.94	8.39%	1.00	8.39%
Energy Rate (c/kWh) (> 600kWh)	369.63	406.00	440.35	440.35	8.46%	1.00	8.46%
Domestic: Regular (Using Credit Meters 60 Ampere single and three phase maximum and for generation for own use) (DOM4)							
Fixed Charge per month	R293.42	R322.62	R354.88	R1 342.75	316.20%	5.00	10.00%
Energy Rate (c/kWh) (<= 50kWh)	173.46	191.00	206.64	206.64	8.19%	1.00	8.19%
Energy Rate (c/kWh) (51 - 300kWh)	222.50	245.00	265.07	265.07	8.19%	1.00	8.19%

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
Energy Rate (c/kWh) (301 - 600kWh)	313.89	345.00	373.94	373.94	8.39%	1.00	8.39%
Energy Rate (c/kWh) (> 600kWh)	369.63	406.00	440.35	440.35	8.46%	1.00	8.46%
Domestic: Renewable Energy (DOM5) Generation for own use and export							
Reading cost R/pm	R132.80	R0.00	R158.20	R158.20	New Rate	1.00	0.00%
Basic Charge	R293.42	R322.62	R354.88	R593.33	83.91%	5.00	10.00%
Import							
Energy Rate (c/kWh) (<= 50kWh)	173.46	191.00	206.64	206.64	8.19%	1.00	8.19%
Energy Rate (c/kWh) (51 - 300kWh)	222.50	245.00	265.07	265.07	8.19%	1.00	8.19%
Energy Rate (c/kWh) (301 - 600kWh)	313.89	345.00	373.94	373.94	8.39%	1.00	8.39%
Energy Rate (c/kWh) (> 600kWh)	369.63	406.00	440.35	440.35	8.46%	1.00	8.46%
Reactive Energy Rate (c/kVArh)	0.00	0.00	0.00	0.00	0.00%	1.00	0.00%
Export							
Low Season							
Peak c/kWh	182.81	201.00	269.63	269.63	34.14%	3.00	10.00%
Standard c/kWh	125.80	138.00	162.00	162.00	17.39%	2.00	8.69%
Off-Peak c/kWh	79.81	88.00	122.51	122.51	39.21%	3.00	10.00%
High Season							
Peak c/kWh	560.43	616.00	616.24	616.24	0.04%	1.00	0.04%
Standard c/kWh	169.80	187.00	171.86	171.86	-8.09%	1.00	-8.09%
Off-Peak c/kWh	92.20	101.00	122.51	122.51	21.29%	2.00	10.00%
2. Commercial							
Commercial: Life Line (<20Ampere maximum, Single & three phase Pre Paid Only for micro entrepreneurial businesses) (COM1)							
Fixed Charge per month	R0.00	R0.00	R0.00	R0.00	0.00%	0.00	0.00%
Energy Rate (c/kWh)	375.63	413.00	454.30	564.06	36.58%	3.00	10.00%
Commercial: Low (40Ampere maximum, Pre Paid single & three phase only and for generation for own use) (COM2)							
Fixed Charge per month	R294.05	R323.30	R355.63	R2 972.15	819.32%	5.00	10.00%
Energy Rate (c/kWh)	301.63	332.00	359.32	359.32	8.23%	1.00	8.23%
Commercial: Regular PP only (80Ampere, single and three phase and for generation for own use) (COM3)							
Fixed Charge per month	R503.52	R553.62	R608.98	R3 622.77	554.38%	5.00	10.00%
Energy Rate (c/kWh)	357.88	393.00	426.34	426.34	8.48%	1.00	8.48%
Commercial: Credit meters (80Ampere, single and three phase and for generation for own use) (COM4)							
Fixed Charge per month	R544.03	R598.16	R657.98	R4 363.29	629.45%	5.00	10.00%
Energy Rate (c/kWh)	332.17	365.00	397.31	397.31	8.85%	1.00	8.85%
Commercial: Renewable Energy (COM 5) Generation for own use and export							
Reading cost R/pm	R132.80	R146.01	R158.20	R158.20	8.35%	1.00	8.35%
Basic Charge	R544.03	R598.16	R645.73	R693.29	15.90%	2.00	7.95%
Import							

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
Energy Rate (c/kWh)	332.17	365.00	397.31	397.31	8.85%	1.00	8.85%
Reactive Energy Rate (c/kVArh)	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%
Export							
Low Season							
Peak c/kWh	182.81	201.00	269.63	269.63	34.14%	3.00	10.00%
Standard c/kWh	125.80	138.00	162.00	162.00	17.39%	2.00	8.69%
Off-Peak c/kWh	79.81	87.00	122.51	122.51	40.81%	3.00	10.00%
High Season							
Peak c/kWh	560.43	616.00	616.24	616.24	0.04%	1.00	0.04%
Standard c/kWh	169.80	186.00	171.86	171.86	-7.60%	1.00	-7.60%
Off-Peak c/kWh	92.20	101.00	122.51	122.51	21.29%	2.00	10.00%
3. Agricultural							
Agricultural: Regular (Prepaid and Credit meters maximum 80Amp 3 phase and for generation for own use) (AGR1)							
Fixed Charge per month	R596.63	R655.98	R721.58	R5 793.58	783.19%	5.00	10.00%
Energy Rate (c/kWh)	363.09	399.00	399.00	397.31	0.00%	1.00	0.00%
Agricultural: Renewable Energy (AGRI 1.1) Generation for own use and export							
Tariff similar as AGRI 1							
Reading cost R/pm	R132.80	R0.00	R158.20	R158.20	New Rate	1.00	0.00%
Fixed Charge per month R/pm	R596.63	R655.98	R710.77	R710.77	8.35%	1.00	8.35%
Notified Maximum Demand Charge R/kVA	R0.00	R0.00	R533.62	R533.62	New Rate	1.00	0.00%
Import							
Energy Rate (c/kWh)	363.09	399.00	399.00	397.31	0.00%	1.00	0.00%
Reactive Energy Rate (c/kVArh)	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%
Export							
Low Season							
Peak c/kWh	182.81	201.00	269.63	269.63	34.14%	3.00	10.00%
Standard c/kWh	125.80	138.00	162.00	162.00	17.39%	2.00	8.69%
Off-Peak c/kWh	79.81	88.00	122.51	122.51	39.21%	3.00	10.00%
High Season							
Peak c/kWh	560.43	616.00	616.24	616.24	0.04%	1.00	0.04%
Standard c/kWh	169.80	187.00	171.86	171.86	-8.09%	1.00	-8.09%
Off-Peak c/kWh	92.20	101.00	122.51	122.51	21.29%	2.00	10.00%
4. Industrial							
Large Power: Low Voltage > 80 Amp and for generation for own use (IND1)							
Fixed Charge per month	R3 075.52	R3 381.53	R3 381.53	R561.60	0.00%	1.00	0.00%
Energy Rate (c/kWh)	164.02	180.00	198.00	241.88	34.38%	3.00	10.00%
Notified Maximum Demand Charge R/kVA	R75.05	R82.52	R90.77	R117.61	42.52%	3.00	10.00%
Maximum Demand Charge R/kVA	R416.81	R458.29	R458.29	R250.23	0.00%	1.00	0.00%

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
Large Power (IND 1.1): Low Voltage>80 Amp: Renewable Energy- Generation for own use and export							
Fixed Charge per month	R3 075.52	R3 381.53	R3 381.53	R561.60	0.00%	1.00	0.00%
Reading cost R/pm	R132.80	R146.01	R158.20	R158.20	8.35%	1.00	8.35%
Import							
Energy Rate (c/kWh)	164.02	180.00	198.00	241.06	33.92%	3.00	10.00%
Notified Maximum Demand Charge R/kVA	R75.05	R82.52	R90.77	R117.61	42.52%	3.00	10.00%
Maximum Demand Charge R/kVA	R416.81	R458.29	R458.29	R250.23	0.00%	1.00	0.00%
Reactive Energy Rate (c/kVArh)	0.00	0.00	0.00	0.00	0.00%	1.00	0.00%
Export							
Low Season							
Peak c/kWh	182.81	201.00	269.63	269.63	34.14%	3.00	10.00%
Standard c/kWh	125.80	138.00	162.00	162.00	17.39%	2.00	8.69%
Off-Peak c/kWh	79.81	88.00	122.51	122.51	39.21%	3.00	10.00%
High Season							
Peak c/kWh	560.43	616.00	616.24	616.24	0.04%	1.00	0.04%
Standard c/kWh	169.80	187.00	171.86	171.86	-8.09%	1.00	-8.09%
Off-Peak c/kWh	92.20	101.00	122.51	122.51	21.29%	2.00	10.65%
Industrial: Medium Voltage and for generation for own use (IND2)							
Fixed Charge per month	R5 831.37	R6 411.59	R6 411.59	R2 330.39	0.00%	1.00	0.00%
Energy Rate (c/kWh)	161.81	178.00	195.80	234.33	31.64%	3.00	10.00%
Notified Maximum Demand Charge (R/kVA)	R73.86	R81.22	R81.22	R80.44	0.00%	1.00	0.00%
Maximum Demand Charge (R/kVA)	R413.73	R454.90	R454.90	R163.98	0.00%	1.00	0.00%
Industrial Medium Voltage (IND 2.1): Renewable Energy - Generation for own use and export							
Tariff similar as IND2							
Fixed Charge per month	R5 831.37	R6 411.59	R6 411.59	R2 330.39	0.00%	1.00	0.00%
Reading Cost R/pm	132.80	146.01	158.20	158.20	8.35%	1.00	8.35%
Import							
Energy Rate (c/kWh)	161.81	178.00	195.80	250.42	40.69%	3.00	10.00%
Notified Maximum Demand Charge R/kVA	R73.86	R81.22	R81.22	R88.00	0.00%	1.00	8.35%
Maximum Demand Charge R/kVA	R413.73	R454.90	R454.90	R163.98	0.00%	1.00	0.00%
Reactive Energy Rate (c/kVArh)	0.00	0.00	0.00	163.41	0.00%	1.00	0.00%
Export							
Low Season							
Peak c/kWh	182.81	201.00	269.63	269.63	34.14%	3.00	10.00%
Standard c/kWh	125.80	138.00	162.00	162.00	17.39%	2.00	8.69%
Off-Peak c/kWh	79.81	88.00	122.51	122.51	39.21%	3.00	10.00%
High Season							
Peak c/kWh	560.43	616.00	616.24	616.24	0.04%	1.00	0.04%
Standard c/kWh	169.80	187.00	171.86	171.86	-8.09%	1.00	-8.09%

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
Off-Peak c/kWh	92.20	101.00	122.51	122.51	21.29%	2.00	10.00%
PLEASE NOTE, FOR ALL TARIFFS WHERE THERE IS A MAXIMUM DEMAND CHARGE AS PART OF THE TARIFF: In the event that the access demand or Notified Maximum Demand is exceeded more than once in a municipal financial year, the following additional charges will apply							
1. A 10% of the total Access Demand Charge/Notified Maximum Demand will be added to your municipal account on the 2nd occasion.							
2. A 20% of the total Access Demand Charge/ Notified Maximum Demand will be added to your municipal account on the 3rd occasion.							
3. A 30% of the total Access Demand Charge/ Notified Maximum Demand will be added to your municipal account on the 4th occasion							
4. On the 5th occasion the municipality reserves the rights to disconnect your electricity supply and only when the electricity supply has been upgraded and bulk levy contribution paid will the supply be restored.							
* Occasion refers to the number of times/events the Access Demand/ Notified Maximum Demand has been exceeded							
5. Municipal							
Municipal: Street and Traffic lights (MUN1)							
Fixed Charge per month	R0.00	R0.00	R61.97	R61.97	New Rate	1.00	0.00%
Energy Rate (c/kWh)	374.61	412.00	446.27	446.27	8.32%	1.00	8.32%
Municipal: Low Voltage <80 Amp (MUN2)							
Fixed Charge per month	R0.00	R0.00	R170.32	R170.32	New Rate	1.00	0.00%
Access Charge (R/kVA)	R0.00	R0.00	R164.09	R164.09	New Rate	1.00	0.00%
Energy Rate (c/kWh)	340.52	374.00	405.65	405.65	8.46%	1.00	8.46%
Municipal: Low Voltage >80 Amp (MUN3)							
Fixed Charge per month	R0.00	R0.00	R561.60	R561.60	New Rate	1.00	0.00%
Access Charge (R/kVA)	R0.00	R0.00	R117.61	R117.61	New Rate	1.00	0.00%
Energy Rate (c/kWh)	156.09	172.00	189.20	233.67	35.86%	3.00	10.00%
Maximum Demand Charge (R/kVA)	R462.04	R508.02	R550.43	R550.43	8.35%	1.00	8.35%
6. Non-Profit Organisations							
Non-Profit Organisations: Single Phase 20 Amp Prepaid (NP01)							
Fixed Charge per month	R0.00	R0.00	R0.00	R0.00	0.00%	0.00	0.00%
Energy Rate (c/kWh)	375.63	413.00	454.30	722.20	74.87%	5.00	10.00%
Non-Profit Organisations: Low Voltage Max 60 Amp Prepaid SARS Approved (NPO2)							
Fixed Charge per month	R0.00	R0.00	R287.91	R287.91	New Rate	1.00	0.00%
Access Charge (R/kVA)	R0.00	R0.00	R572.75	R572.75	New Rate	1.00	0.00%
Energy Rate (c/kWh)	360.37	396.00	429.31	429.31	8.41%	1.00	8.41%
7. Sport							
Sport: Low All Consumers (<80A) and Prepaid (SP01)							
Fixed Charge per month	R0.00	R0.00	R165.57	R165.57	New Rate	1.00	0.00%
Access Charge (R/kVA)	R0.00	R0.00	R114.55	R572.75	New Rate	5.00	0.00%
Energy Rate (c/kWh)	319.27	351.00	380.34	380.34	8.36%	1.00	8.36%
Sport: High Consumers (>80A) Maximum Demand (SP02)							

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
Fixed Charge per month	R0.00	R0.00	R112.32	R561.60	New Rate	5.00	0.00%
Access Charge (R/kVA)	R0.00	R0.00	R117.61	R117.61	New Rate	1.00	0.00%
Energy Rate (c/kWh)	146.11	161.00	177.10	242.37	50.54%	4.00	10.00%
Notified Maximum Demand Charge R/kVA	R0.00	R0.00	R0.00	R0.00	0.00%	0.00	0.00%
Maximum Demand Charge R/kVA	R460.50	R506.32	R548.59	R548.59	8.35%	1.00	8.35%
8. Time of Use							
Time of Use (Low Voltage>80Amp and for generation for own use) TOU1							
Fixed Charge per month	R5 877.09	R6 461.86	R6 461.86	R836.92	0.00%	1.00	0.00%
SUMMER:							
Maximum Demand Charge (R/kVA)	R79.68	R87.61	R123.66	R267.86	205.74%	5.00	41.15%
Access Charge (R/kVA)	R79.68	R87.61	R100.37	R125.89	43.70%	3.00	14.57%
Peak Energy (c/kWh)	260.66	287.00	290.49	290.49	1.22%	1.00	1.22%
Standard Energy (c/kWh)	171.76	189.00	200.01	200.01	5.82%	1.00	5.82%
Off-Peak Energy (c/kWh)	128.81	142.00	142.00	126.77	0.00%	1.00	0.00%
Reactive Energy (c/kVArh)	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%
WINTER:							
Maximum Demand Charge (R/kVA)	R79.68	R87.61	R123.66	R267.86	205.74%	5.00	41.15%
Access Charge (R/kVA)	R79.68	R87.61	R100.37	R125.89	43.70%	3.00	14.57%
Peak Energy (c/kWh)	817.37	287.00	890.84	890.84	210.40%	1.00	210.40%
Standard Energy (c/kWh)	245.32	189.00	269.80	269.80	42.75%	1.00	42.75%
Off-Peak Energy (c/kWh)	144.13	142.00	146.64	146.64	3.27%	1.00	3.27%
Reactive Energy (c/kVArh)	34.09	37.48	37.48	34.78	0.00%	1.00	0.00%
Time of Use Low Voltage (TOU 1.1): Renewable Energy - Generation for own use and export							
Reading Cost R/pm	132.80	146.01	158.20	0.00	-100.00%	1.00	-100.00%
Fixed Charge per month	R5 877.09	R6 461.86	R6 461.86	R836.92	0.00%	1.00	0.00%
Import							
SUMMER:							
Maximum Demand Charge (R/kVA)	R79.68	R87.61	R123.66	R267.86	205.74%	5.00	41.15%
Access Demand Charge (R/kVA)	R79.68	R87.61	R100.37	R125.89	43.70%	3.00	14.57%
Peak Energy (c/kWh)	260.66	287.00	290.49	290.49	1.22%	1.00	1.22%
Standard Energy (c/kWh)	171.76	189.00	200.01	200.01	5.82%	1.00	5.82%
Off-Peak Energy (c/kWh)	128.81	142.00	142.00	126.77	0.00%	1.00	0.00%
Reactive Energy Rate (c/kVArh)	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%
WINTER:							
Maximum Demand Charge (R/kVA)	R79.68	R87.61	R123.66	R267.86	205.74%	5.00	41.15%
Access Demand Charge (R/kVA)	R79.68	R87.61	R100.37	R125.89	43.70%	3.00	14.57%
Peak Energy (c/kWh)	817.37	287.00	890.84	890.84	210.40%	1.00	210.40%
Standard Energy (c/kWh)	245.32	189.00	269.80	269.80	42.75%	1.00	42.75%

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
Off-Peak Energy (c/kWh)	144.13	142.00	146.64	146.64	3.27%	1.00	3.27%
Reactive Energy Rate (c/kVArh)	34.09	37.48	37.48	0.00	0.00%	1.00	0.00%
Export							
Low Season							
Peak c/kWh	182.81	201.00	269.63	269.63	34.14%	3.00	11.38%
Standard c/kWh	125.80	138.00	162.00	162.00	17.39%	2.00	8.69%
Off-Peak c/kWh	79.81	88.00	122.51	122.51	39.21%	3.00	13.07%
High Season							
Peak c/kWh	560.43	616.00	616.24	616.24	0.04%	1.00	0.04%
Standard c/kWh	169.80	187.00	171.86	171.86	-8.09%	1.00	-8.09%
Off-Peak c/kWh	92.20	101.00	122.51	122.51	21.29%	2.00	10.65%
Time of Use (Medium Voltage and for generation for own use) TOU2							
Fixed Charge per month	R11 124.55	R12 231.43	R12 231.43	R2 494.59	0.00%	1.00	0.00%
SUMMER:							
Maximum Demand Charge (R/kVA)	R80.98	R89.04	R106.34	R175.53	97.14%	5.00	19.43%
Access Demand Charge (R/kVA)	R77.00	R84.66	R86.11	R86.11	1.71%	1.00	1.71%
Peak Energy (c/kWh)	252.72	278.00	284.90	284.90	2.48%	1.00	2.48%
Standard Energy (c/kWh)	165.31	182.00	182.00	179.76	0.00%	1.00	0.00%
Off-Peak Energy (c/kWh)	123.91	136.00	136.00	121.94	0.00%	1.00	0.00%
Reactive Energy (c/kVArh)	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%
WINTER:							
Maximum Demand Charge (R/kVA)	R80.98	R89.04	R106.34	R175.53	97.14%	5.00	19.43%
Access Demand Charge (R/kVA)	R77.00	R84.66	R86.11	R86.11	1.71%	1.00	1.71%
Peak Energy (c/kWh)	834.86	278.00	873.60	873.60	214.24%	1.00	214.24%
Standard Energy (c/kWh)	237.15	182.00	264.54	264.54	45.35%	1.00	45.35%
Off-Peak Energy (c/kWh)	139.40	136.00	143.44	143.44	5.47%	1.00	5.47%
Reactive Energy (c/kVArh)	35.81	39.37	39.37	34.78	0.00%	1.00	0.00%
Time of Use Medium Voltage (TOU 2.1): Renewable Energy - Generation for own use and export							
Fixed Charge per month	R11 124.55	R12 231.43	R12 231.43	R2 497.10	0.00%	1.00	0.00%
Reading Cost R/pm	R132.80	R146.01	R158.20	R158.20	8.35%	1.00	8.35%
Import							
SUMMER:							
Maximum Demand Charge (R/kVA)	R80.98	R89.04	R106.34	R175.53	97.14%	5.00	19.43%
Access Charge (R/kVA)	R77.00	R84.66	R86.11	R86.11	1.71%	1.00	1.71%
Peak Energy (c/kWh)	252.72	278.00	284.90	284.90	2.48%	1.00	2.48%
Standard Energy (c/kWh)	165.31	182.00	192.50	192.50	5.77%	1.00	5.77%
Off-Peak Energy (c/kWh)	123.91	136.00	136.00	121.94	0.00%	1.00	0.00%
Reactive Energy (c/kVArh)	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
WINTER:							
Maximum Demand Charge (R/kVA)	R80.98	R89.04	R106.34	R175.53	97.14%	5.00	19.43%
Access Demand Charge (R/kVA)	R77.00	R84.66	R86.11	R86.11	1.71%	1.00	1.71%
Peak Energy (c/kWh)	834.86	278.00	873.60	873.60	214.24%	1.00	214.24%
Standard Energy (c/kWh)	237.15	182.00	264.54	264.54	45.35%	1.00	45.35%
Off-Peak Energy (c/kWh)	139.40	136.00	143.68	143.68	5.65%	1.00	5.65%
Reactive Energy (c/kVarh)	35.81	39.37	39.37	0.00	0.00%	1.00	0.00%
Export							
Low Season							
Peak c/kWh	182.81	201.00	269.63	269.63	34.14%	3.00	11.38%
Standard c/kWh	125.80	138.00	162.00	162.00	17.39%	2.00	8.69%
Off-Peak c/kWh	79.81	88.00	122.51	122.51	39.21%	3.00	13.07%
High Season							
Peak c/kWh	560.43	616.00	616.24	616.24	0.04%	1.00	0.04%
Standard c/kWh	169.80	187.00	171.86	171.86	-8.09%	1.00	-8.09%
Off-Peak c/kWh	92.20	101.00	122.51	122.51	21.29%	2.00	10.65%
PLEASE NOTE, FOR ALL TARIFFS WHERE THERE IS A MAXIMUM DEMAND CHARGE AS PART OF THE TARIFF: In the event that the access demand or Notified Maximum Demand is exceeded more than once in a municipal financial year, the following additional charges will apply							
1. A 10% of the total Access Demand Charge/Notified Maximum Demand will be added to your municipal account on the 2nd occasion.							
2. A 20% of the total Access Demand Charge/ Notified Maximum Demand will be added to your municipal account on the 3rd occasion.							
3. A 30% of the total Access Demand Charge/ Notified Maximum Demand will be added to your municipal account on the 4th occasion							
4. On the 5th occasion the municipality reserves the rights to disconnect your electricity supply and only when the electricity supply has been upgraded and bulk levy contribution paid will the supply be restored.							
* Occasion refers to the number of times/events the Access Demand/ Notified Maximum Demand has been exceeded							
9. External Wheeling							
Customer received power at low voltage (<400V) in c/kWh	35.77	0.00	45.98	45.98	0.00%	1.00	0.00%
Customer received power at medium voltage (>400V) in c/kWh	30.99	0.00	39.84	39.84	0.00%	1.00	0.00%
10. Generation for Own Use							
Customers that want to connect an Own Generation for Own Use only system to the municipal electrical grid without being compensated for reverse power flow can remain on their current tariff and continue to use their current meter.							
11. Generation for Own Use and Export							
Customers that want to connect an Own Generation for Own Use and Export system to the municipal electrical grid and who want to be reimbursed will have to do the following:							
1 The Municipality shall provide and install the requisite meters at the customer's cost.							
2 The customer will stay on the existing purchase tariff.							
3 For reimbursement the basic charge will be increased to include the automated meter reading cost.							
4 The reimbursement will only be for the export energy.							
5 Customer not allowed to generate more than his total consumption per financial year.							

	Approved 2024/2025	Approved 2025/2026	Application 2026/2027	Cost of Supply /Avoided Cost (SSEG) Results	Cost of Supply % Increase	Phase-In (Years)	Phased-In % Increase (Application)
11. Availability Fees (Per Annum)							
Availability	R4 673.82	R5 138.87	R5 563.13	-	-	1,00	8.26%
13. Time of use periods							
1.Low Demand -Summer			2.High Demand- Winter				
September to May			June to August				
Monday to Friday			Monday to Friday				
22:00 – 06:00 Off Peak			22:00 – 06:00 Off Peak				
06:00 – 07:00 Standard			06:00 – 08:00 Peak				
07:00 – 09:00 Peak			08:00 – 17:00 Standard				
09:00 – 18:00 Standard			17:00 – 20:00 Peak				
18:00 – 21:00 Peak			20:00 – 22:00 Standard				
21:00 – 22:00 Standard							
Saturday			Saturday				
20:00 – 07:00 Off Peak			19:00 – 07:00 Off Peak				
07:00 – 12:00 Standard			07:00 – 12:00 Standard				
12:00 – 18:00 Off Peak			12:00 – 17:00 Off Peak				
18:00 – 20:00 Standard			17:00 – 19:00 Standard				
Sunday			Sunday				
20:00 – 18:00 Off Peak			19:00 – 17:00 Off Peak				
18:00 – 20:00 Standard			17:00 – 19:00 Standard				
All Tariffs Exclusive of VAT							

ANNEXURE B



STELLENBOSCH
STELLENBOSCH • PNIEL • FRANSCHHOEK
MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

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

(Project Ref. No 22182E)

MARCH 2023

Compiled for :

Stellenbosch Municipality
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REPORT DETAILS :

Lyners Reference No: 22182E

Client: Stellenbosch Municipality

Report prepared by: Theo Potgieter / Hendrik Barnard

Client representative: Victor Dyusha

Keywords: Cost of Supply

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Date	Revision	Status	Format	Issued to:
March 2023	Final	Final	Pdf	V Dyusha

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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 Stellenbosch Municipality in September 2022 to do the above Cost of Supply Study for implementation in the 2023/24 financial year.

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

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1. INTRODUCTION.

Stellenbosch Municipality (Stellenbosch) sanctioned a comprehensive electricity Cost Of Supply (COS) study which contains 2 main components, more than that required by NERSA:

- 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.
- Normally the Tariff study would be done as an integrated project together with the first two steps but Stellenbosch has appointed a different consultant to undertake this part.

This paper describes the details relating to all two components of the study undertaken for Stellenbosch 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:

Domestic consumers.

- The domestic tariffs are all Inclining Block (IBT). This means that at low usage consumers are subsidised and at high consumption levels consumer are overcharged.
- The highest Block rate is massively overstated and will cause massive energy losses when consumers reduce consumption.
- Furthermore, pre-payment consumers using less than 600 kWh/m do not pay any fixed or capacity charges. This also means subsidising low usage consumers.
- The differential between those consumers using less or more than 600 kWh/m has no relation to cost.
- There are no capacity charges to encourage demand management by small consumers.
- These two factors cause the municipality to lose much more revenue than that saved when consumers use less electricity either because of behaviour, more efficient appliances, solar geysers or installation of renewable power at their premises.
- The first block price does not even cover the marginal cost of Eskom energy purchases, making no contribution to Eskom demand and access charges or local network costs.
- Conventional consumers are charged higher basic charges than pre-payment consumers. There is no basis for such price differences.
- There is no differentiation between 1 and 3 phase whereas costs differ.

Commercial consumers:

- The prepaid 20 Amp tariff has no fixed charges thus subsidising low usage consumers.
- Conventional consumers are charged higher basic charges than pre-payment consumers. There is no basis for such price differences.
- There are no capacity charges and tariff capacity differences are inadequate to facilitate any capacity savings.
- The energy rates are exceeding energy cost by close to 100%.
- The municipality is thus also exposed to net revenue loss when consumers reduce energy consumption.
- Municipal tariffs have no basic charges.

Rural consumers.

- The energy rates are too high and the fixed charges too low and no capacity differentiation.
- This exposes the municipality against net revenue losses when consumers reduce consumption.

Bulk consumers.

Non-TOU

- More than 50% Bulk consumers still on non-TOU tariffs.
- These consumers should all be on TOU.
- The maximum demand charges are exorbitant and energy charges too low.

TOU.

- It is obvious that access and demand charges for LV are not cost based as they are the same.
- Cost differentiation between LV and MV capacity and demand charges is understated.
- Levels will be assessed as part of cost of supply study.

Sport tariff.

- This is obviously a subsidy tariff for irregular usage consumers. Need to investigate.

Streetlight tariff.

- There should be a maintenance charge to cover the operating and maintenance cost.
- The energy charges is too high.

Wheeling charges.

- To be investigated.

Availability charge.

- To be evaluated.

3. METHODOLOGY SUMMARY

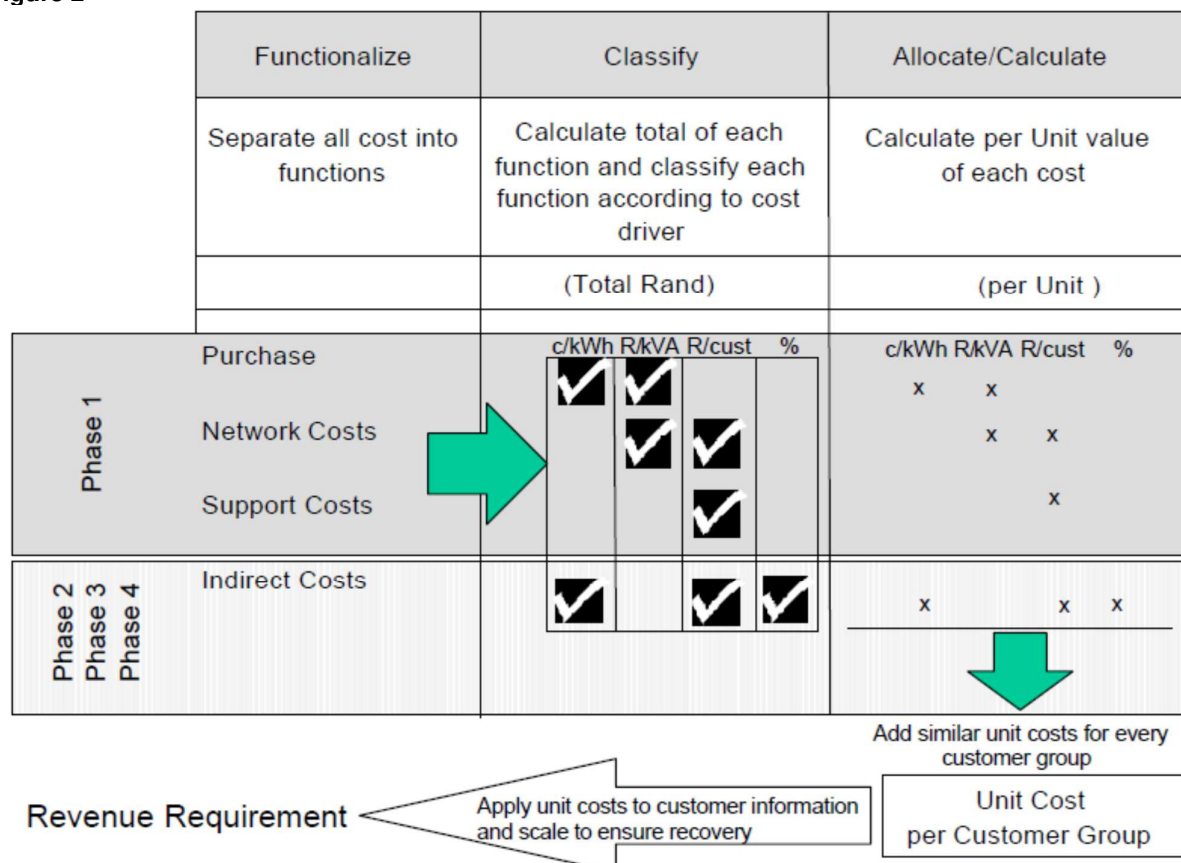
The NERSA cost of supply Framework describes the steps as shown in **Figure 1**. It is considered to be an oversimplification and does not cover all aspects.

Figure 1



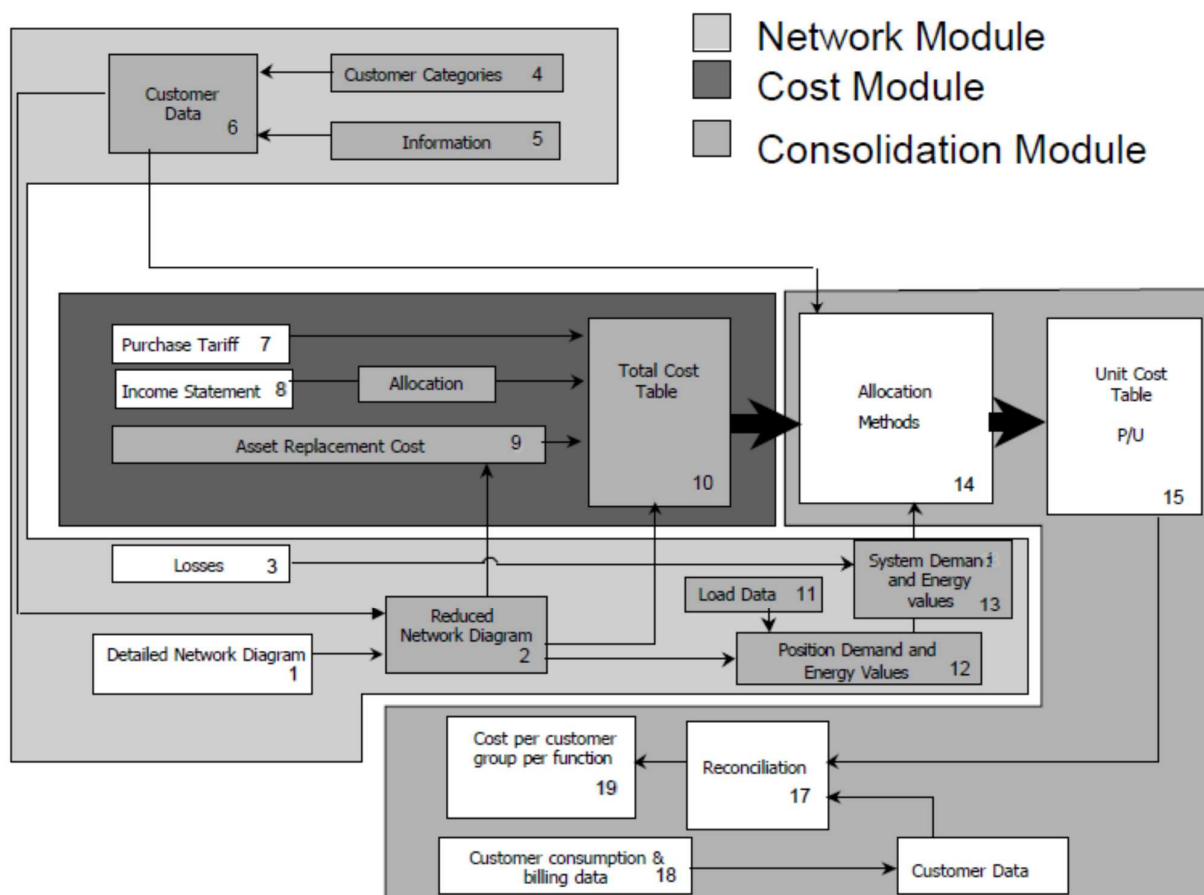
NRS058, the National Standard Specification “Cost of Supply Methodology for application in the Electrical Distribution Industry”, which was developed many years ago but never received final approval due to a legal dispute, shows the framework as in the **Figure 2**.

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 Stellenbosch network. Most rural supplies in the area are provided by Eskom.



REDUCED NETWORK DIAGRAM

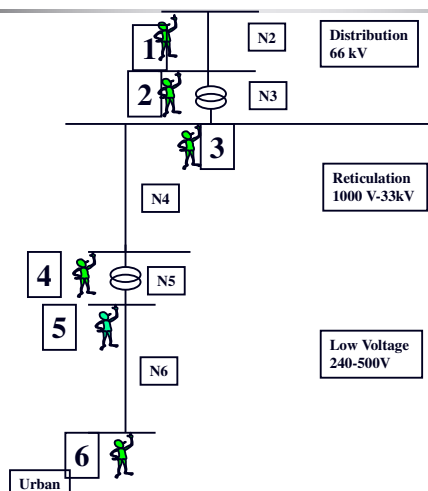


Table 1 shows the RND in table form. All costs and customers will be linked to these networks in the cost of supply study.

Table 1

STELLENBOSCH			
			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:

The following should be noted in terms of the asset registers:

- There is no technical network asset register:
- There is a financial asset for the whole municipality:
 - This asset register is perfect for use in the financial statements but not structured to reflect the costs for the cost of supply study:
 - Assets are grouped per project and not per type of equipment.
 - Assets are not provided with details such as capacity, lengths, quantities.
 - Many assets do not have any historical values.
 - No replacement values are provided.
 - Allocation of asset categories badly done: network assets categorised as furniture, etc.

The following was then done:

- The asset register was analysed and data re-sorted as best as possible.
- The results were then compared.
 - It was found that the HV and HV/MV values were very incomplete and HV/MV very much understated.
 - Details were then obtained from the municipality and the assets were then detailed for the HV and HV/MV assets.

The summary results of the electricity asset register are shown in Table 2.

Table 2

Row Labels	Count of Asset ID	Sum of Escalated to 2022	Classification	Unit cost
Capital Spares	77	22 585 392	NA	293 316.78
Meters electrical	77	22 585 392	NA	293 316.78
Energy Efficiency and Demand Side Management	2	1 059 284	DSM	529 641.93
System Control Centre & Upgrade Telemetry	3	1 993 468	DSM	664 489.31
System Control Centre & Upgrade Telemetry	1	146 512	DSM	146 511.57
Kiosk	12	475 583	LV	39 631.94
AMR	28	394 133	CS	14 076.17
Meters	23	7 514 574	CS	326 720.61
PROTECTION	6	1 224 063	MV/LV	204 010.49
CONSUMER CONNECTION	1	117 785	CS	117 784.54
DSM	1	9 659 991	DSM	9 659 990.91
HV Substations	487	200 151 764	NA	410 989.25
Transformer kiosks	487	200 151 764	NA	410 989.25
Kiosk	2	669 436	LV	334 718.02
Transformer kiosks	474	188 307 211	MV/LV	397 272.60
substation	3	605 217	MV/LV	201 739.04
M/S	6	1 015 434	MV/LV	169 238.99
66 kv 20MVA transformers	1	9 349 708	HV/MV	9 349 707.87
Kiosks	1	204 758	LV	204 758.00
LV Networks	1 323	1 415 643 058	NA	1 070 024.99
Floodlighting	17	9 182 804	NA	540 164.96
Light	16	8 991 613	SL	561 975.79
MV Underground Cable	1	191 192	MV	191 191.68
FLOODLIGHTS	17	424 512	NA	24 971.30
Light	17	424 512	SL	24 971.30
Street lighting	1 289	1 406 035 741	NA	1 090 795.77
Light	1 244	95 019 272	SL	76 382.05
Kiosk	1	73 091	LV	73 090.62
lv Line	6	563 678 168	LV	93 946 361.40
LV Pillar Box	6	91 065 103	LV	15 177 517.12
LOW VOLTAGE LINE	4	1 586 190	LV	396 547.47
Signalized Intersection	5	24 099 628	DSM	4 819 925.70
M/S	2	6 664 038	MV/LV	3 332 019.21
CONSUMER CONNECTION	21	623 850 251	CS	29 707 154.82
LV Networks	176	19 513 118	NA	110 869.99
Meters electrical	139	241 884	NA	1 740.17
Meters	139	241 884	CS	1 740.17
Supply/reticulation elec	37	19 271 234	NA	520 844.17
1000kVA Transformer	1	321 243	MV/LV	321 242.89
RMU	1	296 546	LV	296 546.37
Building	4	3 227 621	MV/LV	806 905.26
substation	9	3 721 825	MV/LV	413 536.12
Switch	1	658 915	MV	658 915.18
M/S	10	1 907 027	MV/LV	190 702.74
PROTECTION	4	7 155 047	HV/MV	1 788 761.82
CONSUMER CONNECTION	3	395 020	CS	131 673.22
DB	4	1 587 989	LV	396 997.30
MV Networks	11	12 954 484	NA	1 177 680.33
Supply/reticulation elec	11	12 954 484	NA	1 177 680.33
RMU	3	3 922 474	MV	1 307 491.17
Battery	2	804 130	HV/MV	402 065.09
Switch	5	6 564 605	HV	1 312 920.92
M/S	1	1 663 275	MV/LV	1 663 275.40
MV Switching Station	867	370 401 583	NA	427 222.13
Switchgear equipment	867	370 401 583	NA	427 222.13
Cloetessville Local Transformer	1	6 489	MV/LV	6 488.70
FIELD INSPECTOR SOLUTION	1	7 025	CS	7 025.29
Light	2	1 765	SL	882.59
RMU	246	13 266 853	MV	53 930.29
MV FEEDER	4	1 867 726	MV	466 931.56
Building	81	46 317 576	MV	571 821.93
Battery	15	67 773	MV/LV	4 518.21
O/H Line	1	205 383	LV	205 382.62
66KV CABLE	1	18 826 850	HV	18 826 849.95
Circuit Breaker	34	24 286 326	MV	714 303.72
Batteries	23	23 191	MV/LV	1 008.31
CT	22	2 901 422	MV/LV	131 882.82
Electrification	2	8 000 127	LV	4 000 063.64
Neutral Earthing Resistor	4	384 593	HV/MV	96 148.32
Isolator	41	11 399 860	MV	278 045.35
MV Transformer	2	25 856 125	HV/MV	12 928 062.30
CT/VT	3	327 729	CS	109 243.05
Meters	9	2 233 241	CS	248 137.87
substation	214	77 418 892	MV/LV	361 770.53
Switch	66	88 778 283	HV	1 345 125.50
M/S	30	7 092 246	MV/LV	236 408.21
PROTECTION	46	8 625 184	HV/MV	187 504.00
66KV SURGE ARRESTORS	1	79 009	HV	79 008.71
Auxilliary Transformer	4	348 100	HV/MV	87 024.92
Power Transformer	8	29 340 283	HV/MV	3 667 535.40
Auxiliary Transformer	2	155 729	HV/MV	77 864.40
Transformer	2	82 826	MV/LV	41 413.17
DSM	1	629 391	DSM	629 390.98
Control	1	1 871 586	HV	1 871 585.87

Row Labels	Count of Asset ID	Sum of Escalated to 2022	Classification	Unit cost
Power Plants	4 993	1 015 218 588	NA	203 328.38
Mains electrical	2 464	290 663 190	NA	117 963.96
121 Water Telemetry Upgrade	1	77 638	NA	77 637.81
Energy Efficiency and Demand Side Management	3	10 930 764	DSM	3 643 587.94
General System Improvements	3	6 717 298	MV	2 239 099.32
Infrastructure Improvement	2	3 643 711	LV	1 821 855.44
Langrug ABS	1	158 908	LV	158 907.79
Power line move from landfill site	1	15 650 709	MV	15 650 708.55
Upgrade Refuse disposal site (Existing Cell)- R	1	364 016	LV	364 015.97
Zone S 70mm ABC	1	119 455	LV	119 454.82
Light	62	15 690 983	SL	253 080.37
MV Underground Cable	1 194	45 900 402	MV	38 442.55
RMU	23	3 801 118	MV	165 266.00
MV FEEDER	10	20 259 009	MV	2 025 900.91
Kiosk	7	2 797 920	LV	399 702.88
AMR	4	361 576	CS	90 393.98
Building	3	2 157 216	HV/MV	719 072.12
Battery	1	87 454	HV/MV	87 453.96
PMT	63	3 695 114	MV/LV	58 652.61
MV OVERHEAD LINE	98	3 977 414	MV	40 585.86
Geyser Control	799	1 762 119	DSM	2 205.41
CT	1	38 597	CS	38 596.90
Electrification	11	44 213 507	LV	4 019 409.74
66kV substation	1	2 270 111	HV/MV	2 270 111.30
Isolator	1	201 187	HV	201 187.43
Meters	17	1 841 247	CS	108 308.63
lv Line	1	11 464	LV	11 463.82
LV Pillar Box	1	35 021	LV	35 021.34
LOW VOLTAGE LINE	1	258 877	LV	258 876.86
substation	18	15 399 683	MV/LV	855 537.97
Switch	3	3 274 100	MV	1 091 366.74
GROUND MOUNTED	6	590 296	MV/LV	98 382.68
M/S	56	44 352 343	MV/LV	792 006.12
consumer cables	5	976 197	CS	195 239.33
LV NETWORK	5	215 054	LV	43 010.81
MV cable	4	4 550 979	MV	1 137 744.65
PROTECTION	2	2 404 824	HV/MV	1 202 411.83
66KV SURGE ARRESTORS	1	148 560	HV	148 560.21
LV cable	3	1 561 345	LV	520 448.29
CAPACITOR BANK	1	181 103	HV/MV	181 103.15
LV OHL	15	1 933 173	LV	128 878.19
LV Feeder	13	2 622 837	LV	201 756.67
Busbars 66 Kv	2	599 679	HV/MV	299 839.46
CONSUMER CONNECTION	4	2 800 922	CS	700 230.46
Transformers	1	938 363	MV/LV	938 362.99
LV UNDERGROUND CABLE	3	152 889	LV	50 963.11
Transformer	1	361 112	MV/LV	361 111.83
System Improvements	3	2 982 445	MV	994 148.50
Consumer supply	1	780 214	CS	780 214.48
PROTECTIVE	1	448 072	HV/MV	448 072.17
MV UG cable	2	7 479 192	MV	3 739 595.84
LV	3	8 886 972	LV	2 962 324.11
Power stations	9	1 417 163	NA	157 462.58
Meters	1	134 430	CS	134 429.59
substation	7	1 245 417	MV/LV	177 916.70
CONSUMER CONNECTION	1	37 317	CS	37 316.75
Supply/reticulation elec	2 520	723 138 235	NA	286 959.62
3000W POWER INVERTER SYSTEM - TELEMETRY	1	25 217	HV	25 216.57
Beltana Depot	1	99 227	NA	99 227.37
EnermaxACD - Appliance Control Device	1	17 511 600	DSM	17 511 600.44
General System Improvements	1	1 917 810	MV	1 917 810.46
Infrastructure Improvement	2	1 399 418	LV	699 709.01
INSTALLATION OF RELAYS (5) - ELECT.	1	47 302	HV/MV	47 301.86
Student Village Driehoek	1	65 017	LV	65 017.08
Light	17	27 990 354	SL	1 646 491.39
MV Underground Cable	1 781	169 107 381	MV	94 950.80
RMU	10	7 592 014	MV	759 201.43
MV FEEDER	605	175 905 463	MV	290 752.83
Kiosk	5	44 723 583	LV	8 944 716.59
Building	5	2 350 704	MV/LV	470 140.90
Geyser Control	1	20 821	DSM	20 820.87
MV Line	1	151 383	MV	151 383.05
SS Retrofit	9	2 138 223	HV/MV	237 580.31
66KV CABLE	4	30 146 277	HV	7 536 569.16
Electrification	4	30 452 410	LV	7 613 102.41
Meters	3	1 650 816	CS	550 271.98
lv Line	1	162 638 434	LV	162 638 433.88
LOW VOLTAGE LINE	1	677 387	LV	677 386.80
substation	1	38 822	MV/LV	38 821.68
Switch	11	9 080 110	MV	825 464.58
M/S	10	10 691 194	MV/LV	1 069 119.44
PROTECTION	4	1 499 846	HV/MV	374 961.61
LV OHL	2	2 367 084	LV	1 183 541.93
CONSUMER CONNECTION	2	664 477	CS	332 238.53
MV Network	2	3 685 715	MV	1 842 857.58
Consumer supply	2	16 051 260	CS	8 025 629.81
Aircon	2	277 675	HV/MV	138 837.66
LV	1	541 593	LV	541 592.81
LV O/H Line	28	1 629 617	LV	58 200.61
Grand Total	7 934	3 056 467 987	NA	

The current values (equivalent for replacement values) were determined by escalating the historic cost up to present day using the inflation rates as shown in the Table 3:

Table 3

SOUTH AFRICAN CPI						
Year-	Inflation %	5-year Avg.%	10-year Avg.%	%	Years from 2021	Cumm from 2021
2000	6.99	6.66	8.94	6.99%	22	226.18%
2001	4.59	6.33	8	4.59%	21	204.87%
2002	13.51	6.51	7.58	13.51%	20	191.49%
2003	-1.63	6.27	7.17	-1.63%	19	156.80%
2004	2.2	5.05	6.19	2.20%	18	161.06%
2005	2.02	4.39	5.52	2.02%	17	155.44%
2006	4.82	3.9	5.11	4.82%	16	150.38%
2007	7.57	3.26	4.87	7.57%	15	138.86%
2008	9.34	4.11	5.18	9.34%	14	122.06%
2009	6.11	5.72	5.38	6.11%	13	103.09%
2010	3.42	6.13	5.26	3.42%	12	91.39%
2011	6.26	6.49	5.19	6.26%	11	85.06%
2012	5.73	6.4	4.82	5.73%	10	74.16%
2013	5.26	5.56	4.83	5.26%	9	64.72%
2014	5.44	5.34	5.53	5.44%	8	56.49%
2015	5.16	5.43	5.78	5.16%	7	48.42%
2016	7.03	5.75	6.12	7.03%	6	41.13%
2017	4.46	5.64	6.02	4.46%	5	31.86%
2018	4.51	5.39	5.47	4.51%	4	26.23%
2019	3.97	4.98	5.16	3.97%	3	20.79%
2020	3.06	4.71	5.07	3.06%	2	16.17%
2021	5.93	4.33	5.03	5.93%	1	12.73%
2022	6.9			6.90%	0	6.42%

The summary results of the network assets from the financial asset register are shown in Table 4 below.

Table 4

ASSET SUMMARY	Count of Asset ID	Sum of Escalated to 2022	Unit cost
HV	77	116 495 296	19 255 606.30
HV/MV	100	94 130 405	48 141 306.70
MV	3 915	569 826 505	670 766 728.76
MV/LV	991	375 912 844	401 087 708.39
LV	153	979 312 066	882 007 246.08
CS	269	660 418 693	752 984 301.82
SL	1 358	148 118 498	148 118 498.11
DSM	817	67 813 578	89 843 354.57
NA			9 169 403 960.32

The calculation of the replacement values for the HV and HV/MV assets are shown in Table 5 below.

Table 5

HV ASSETS								
Location	Equipment name	Technical	Voltages	Volt Category	Rating	Number / length / sq	Unit Replacement value	Tot Replacement
Franshoek substation	Transformer	10.43%ZDyn11	66/11 kV	HV/MV	20 MVA	2	11 900 000	23 800 000
	NER		11kV	HV/MV		2	150 000	300 000
	Building and yard		66/11 kV	HV/MV		150	15 000	2 250 000
	Isolator		66 kV	HV/MV		3	342 800	1 028 400
	Breaker	SF6	66 kV	HV/MV		2	959 840	1 919 680
	Earthing connector		66 kV	HV/MV		2	100 000	200 000
	CT,s		66 kV	HV/MV		2	120 000	240 000
	Breaker	Alstom SBV4	11 kV	HV/MV		2	415 300	830 600
	Aux transformer		11/.4	HV/MV	315 kVA	1	205 000	205 000
	Transformer		66/11 kV	HV/MV	7.5 MVA	3	5 950 000	17 850 000
Markotter substation	NER		11kV	HV/MV		3	150 000	450 000
	Building and yard		66/11 kV	HV/MV		150	15 000	2 250 000
	Isolator		66 kV	HV/MV		6	342 800	2 056 800
	Breaker	SF6	66 kV	HV/MV		3	959 840	2 879 520
	Earthing connector		66 kV	HV/MV		3	100 000	300 000
	CT,s		66 kV	HV/MV		3	120 000	360 000
	Breaker		11 kV	HV/MV		4	415 300	1 661 200
	Aux transformer		11/.4	HV/MV	100 kVA	1	61 000	61 000
	Transformer		66/11 kV	HV/MV	7.5 MVA	3	5 950 000	17 850 000
	NER		11kV	HV/MV		3	150 000	450 000
University substation	Building and yard		66/11 kV	HV/MV		150	15 000	2 250 000
	Isolator		66 kV	HV/MV		7	342 800	2 399 600
	Breaker		66 kV	HV/MV		8	959 840	7 678 720
	Earthing connector		66 kV	HV/MV		3	100 000	300 000
	CT,s		66 kV	HV/MV		3	120 000	360 000
	Breaker		11 kV	HV/MV		4	415 300	1 661 200
	Aux transformer		11/.4	HV/MV	315 kVA	1	205 000	205 000
	Transformer		66/11 kV	HV/MV	15 MVA	3	9 520 000	28 560 000
	NER		11kV	HV/MV		3	150 000	450 000
	Building and yard		66/11 kV	HV/MV		150	15 000	2 250 000
Jan Marais substation	Isolator		66 kV	HV/MV		6	342 800	2 056 800
	Breaker	SF6	66 kV	HV/MV		5	959 840	4 799 200
	CT,s		66 kV	HV/MV		3	100 000	300 000
	Earthing connector		66 kV	HV/MV		3	120 000	360 000
	Breaker		11 kV	HV/MV		4	415 300	1 661 200
	Aux transformer		11/.4	HV/MV	315 kVA	1	550 000	550 000
	Transformer		66/11 kV	HV/MV	10 MVA	2	7 140 000	14 280 000
	NER		11kV	HV/MV		2	150 000	300 000
	Building and yard		66/11 kV	HV/MV		150	15 000	2 250 000
	Isolator		66 kV	HV/MV		4	342 800	1 371 200
Cloetesville substation	Breaker		66 kV	HV/MV		4	959 840	3 839 360
	CT,s		66 kV	HV/MV		2	100 000	200 000
	Earthing connector		66 kV	HV/MV		2	120 000	240 000
	Breaker		11 kV	HV/MV		3	415 300	1 245 900
	Aux transformer		11/.4	HV/MV	250 kVA	1	115 000	115 000
	Transformer		66/11 kV	HV/MV	20 MVA	2	11 900 000	23 800 000
	NER		11kV	HV/MV		2	150 000	300 000
	Building and yard		66/11 kV	HV/MV		150	15 000	2 250 000
	Isolator		66 kV	HV/MV		2	342 800	685 600
	Breaker		66 kV	HV/MV		2	959 840	1 919 680
Golf Club substation	CT,s		66 kV	HV/MV		2	100 000	200 000
	Earthing connector		66 kV	HV/MV		2	120 000	240 000
	Breaker		11 kV	HV/MV		3	415 300	1 245 900
	Aux transformer		11/.4	HV/MV	315 kVA	1	205 000	205 000
	Transformer		66/11 kV	HV/MV	20 MVA	2	11 900 000	23 800 000
	NER		11kV	HV/MV		2	150 000	300 000
	Building and yard		66/11 kV	HV/MV		150	15 000	2 250 000
	Isolator		66 kV	HV/MV		4	342 800	1 371 200
	Breaker		66 kV	HV/MV		3	959 840	2 879 520
	CT,s		66 kV	HV/MV		2	100 000	200 000
Main to Markotter	Earthing connector		66 kV	HV/MV		2	120 000	240 000
	Breaker		11 kV	HV/MV		3	415 300	1 245 900
	Aux transformer		11/.4	HV/MV	315 kVA	1	205 000	205 000
	Cable	350 mm Al Oil 437 ar	66 kV	HV		3548	1 728	6 130 944
	Isolator		66 kV	HV		2	342 800	685 600
	Breaker		66 kV	HV		2	959 840	1 919 680
	Cable	Max 800 Al	66 kV	HV		4860	3 456	16 796 160
	Isolator		66 kV	HV		2	342 800	685 600
	Breaker		66 kV	HV		2	959 840	1 919 680
	Cable	350 Al Oil 437 Amp	66 kV	HV		4475	1 728	7 732 800
University to Jan Marias	Isolator		66 kV	HV		2	342 800	685 600
	Breaker		66 kV	HV		2	959 840	1 919 680
	Cable	150 AL Oil 235 Amp	66 kV	HV		1710	1 080	1 846 800
	Isolator		66 kV	HV		2	342 800	685 600
	Breaker		66 kV	HV		2	959 840	1 919 680
	Cable	400 Al	66 kV	HV		2720	2 160	5 875 200
	Isolator		66 kV	HV		2	342 800	685 600
	Breaker		66 kV	HV		2	959 840	1 919 680
	Cable	150 AL Oil 235 Amp	66 kV	HV		7570	1 080	8 175 600
	Isolator		66 kV	HV		2	342 800	685 600
Markotter to Jan Marias	Breaker		66 kV	HV		2	959 840	1 919 680
	Cable	Pax 400 Al	66 kV	HV		2570	2 160	5 551 200
	Isolator		66 kV	HV		2	342 800	685 600
	Breaker		66 kV	HV		2	959 840	1 919 680
	Cable		66 kV	HV		2	959 840	1 919 680
	Isolator		66 kV	HV		2	342 800	685 600
	Breaker		66 kV	HV		2	959 840	1 919 680
	Cable		66 kV	HV		2	959 840	1 919 680
	Isolator		66 kV	HV		2	342 800	685 600
	Breaker		66 kV	HV		2	959 840	1 919 680

A summary of these values is shown in Table 6 below.

Table 6

SUMMARY	Number / length	Replacement	MVA	Tot
HV/MV Transformer 66/11 kV 20 MVA	6	71 400 000	20	120
HV/MV Transformer 66/11 kV 15 MVA	3	28 560 000	15	45
HV/MV Transformer 66/11 kV 10 MVA	2	14 280 000	10	20
HV/MV Transformer 66/11 kV 7.5 MVA	6	35 700 000	7.5	45
HV/MV Building and yard 66/11 kV	1050	15 750 000	17	230
HV/MV Isolator 66 kV	32	10 969 600		
HV/MV Breaker 66 kV	27	25 915 680		
HV/MV Earthing connector 66 kV	17	1 880 000		
HV/MV CT,s 66 kV	17	1 860 000		
HV/MV Breaker 11 kV	23	9 551 900		
HV/MV Aux transformer 11/.4 315 kVA	5	1 370 000		
HV/MV Aux transformer 11/.4 100 kVA	1	61 000		
HV Cable 66 kV	27453	52 108 704		
HV Isolator 66 kV	14	4 799 200		
HV Breaker 66 kV	14	13 437 760		
TOTALS	28 670	287 643 844		
HV	27481	70 345 664		
HV/MV	1189	217 298 180		

An extract of NERSA technical D-form is shown in Table 7. The quantities for the HV and HV/MV assets can be compared. The number of transformers and MVA are the same but the length of cables differ significantly 15 km compared with 27 km.

Table 7

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	25.00	km	3536.40	km	462.00	137.87	MVA
		Commercial/small to medium industrial	11.00	km	1079.21	km	153.00	69.47	MVA
	≥ 1kV and ≤ 22kV	Rural overhead up to 22kV	30.00	km	8.81	km	82.00	120.00	MVA
MV Supply	Supply voltage > 22 kV to ≤ 44 kV		N/A	km	N/A	km	N/A	N/A	MVA
	> 44 kV to ≤ 132kV		N/A	km	15.00	km	17.00	230.00	MVA
HV Supply	> 132 kV		N/A	km	N/A	km	N/A	N/A	MVA
Total			66.00	km	4639.42	km	714.00	557.34	MVA

The depreciation and ROA making up the total Capital revenue requirement is shown in Table 8.

Table 8

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	Provision ratio
Energy	817			67 813 578	15	4 520 905	2 373 475	6 894 380	1 571 975	126 730	1 698 706	3%
HV	27 481			70 345 664	50	1 406 913	2 462 098	3 869 012	489 201	131 462	620 664	1.9%
HV/MV	1 189			217 298 180	50	4 345 964	7 605 436	11 951 400	1 511 146	406 088	1 917 234	6.0%
MV	3 915			569 826 505	45	12 662 811	19 943 928	32 606 739	4 403 018	1 064 896	5 467 914	16.3%
MV to LV	991			375 912 844	40	9 397 821	13 156 950	22 554 771	3 267 740	702 509	3 970 249	11.3%
LV	153			979 312 066	35	27 980 345	34 275 922	62 256 267	9 729 117	1 830 145	11 559 262	31.2%
1 PH kWh Pre-paid	27 634	8 000	2 000	276 341 667	10	27 634 167	9 671 958	37 306 125	9 608 746	516 429	10 125 176	18.7%
3 PH kWh Pre-paid	879	10 000	3 000	11 421 583	10	1 142 158	399 755	1 541 914	397 143	21 345	418 488	0.8%
1 PH kWh	2 943	8 000	1 500	27 962 142	30	932 071	978 675	1 910 746	324 093	52 256	376 349	1.0%
3 Ph kWh	1 261	10 000	2 500	15 768 125	30	525 604	551 884	1 077 489	182 759	29 468	212 227	0.5%
3 TOU	349	14 000	8 000	7 668 833	30	255 628	268 409	524 037	88 885	14 332	103 217	0.3%
3 PH TOU & ct's	1	20 000	10 000	30 000	30	1 000	1 050	2 050	348	56	404	0.0%
TOU RMU & CT/VT's	55	500 000	12 000	28 160 000	30	938 667	985 600	1 924 267	326 386	52 626	379 012	1.0%
TOU at HV sub With CB	1	960 000	12 000	972 000	30	32 400	34 020	66 420	11 266	1 816	13 082	0.0%
Streetlight	1 358			148 118 498	15	9 874 567	5 184 147	15 058 714	3 433 511	276 805	3 710 316	7.5%
TOTALS	48 222			2 796 951 685		101 651 021	97 893 309	199 544 330	35 345 335	5 226 963	40 572 298	100.0%

The following in this respect:

The consumer connection costs are calculated as follows:

- The number of consumers per connection type is obtained from the saes analysis.
- The estimated cost of the connection (cable / line and DB) and meter is determined.
- These combined make up the capital costs assisted with each consumer.

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 actual 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 9 shows streetlight details. There are a few lights that have not yet been converted to LED's. The quantities shown below assume all lights have been changed to LED's. The cost of supply study will use the historic figures but in future that newly calculated or actually measured quantities should be used for internal billing purposes.

Table 9

FRANSHOEK STREETLIGHTS				
Watt	Number	Total Wat	h/day	kWh/y
36	1075	38700	11.5	162 443
55	38	2090	11.5	8 773
57	40	2280	11.5	9 570
75	224	16800	11.5	70 518
108	113	12204	11.5	51 226
275	203	55825	11.5	234 325
279	150	41850	11.5	175 665
Total	1843	169749		712 521
STELLENBOSCH STREETLIGHTS				
Watt	Number	Total Wat	h/day	kWh/y
36	6304	226944	11.5	952 597
75	227	17025	11.5	71 462
108	121	13068	11.5	54 853
144	893	128592	11.5	539 765
279	190	53010	11.5	222 509
216	81	17496	11.5	73 439
Total	7816	456135		1 914 627
Grand total	9 659	625 884		2 627 148

The calculated kWh/y is much less than the quantity used in the sales reports. This could be because many of the lights have been changed to LED's during this period.

The summary of prepaid sales per tariff is shown in Table 10 below.

Table 10

Row Labels	Sum of Transaction s	Sum of Unique meters	Meters	Sum of Total Units	Sum of Total Amount	Sum of Resource Transaction	Sum of Debt Transaction	Sum of Tax Transaction	Sum of Fixed Cost Transaction	Sum of Vote Transaction	Sum of BSST Transaction (Units)	Sum of Block 1 kWh	Sum of Block 2 kWh	Sum of Block 3 kWh	Sum of Block 4 kWh
Agricultural Regular	362	72	6	192 261	623 965	506 386	-	81 386	36 193	-	-	-	-	-	-
Commercial Lifeline	2 147	361	30	102 816	322 624	279 964	-	42 076	584	20 594 626	-	5 912 200	8 801 388	4 642 426	1 238 612
Commercial Low	845	96	8	106 210	302 979	232 322	-	39 519	31 138	11 460 993	-	6 620 300	4 235 129	461 732	143 833
Commercial Regular 03	44 608	8 609	717	11 732 617	39 741 101	30 456 717	459	5 183 276	4 100 648	1 303 839	-	283 900	497 122	389 900	132 917
Domestic Lifeline 01 Formal	646 185	59 278	4 940	20 594 626	30 381 025	26 419 528	2 524	3 960 817	556	26 506 826	5 912 200	2 962 952	11 750 636	4 642 426	1 238 612
Domestic Lifeline 01 Informa	289 500	66 287	5 524	11 460 993	8 725 013	7 587 758	828	1 137 215	-	18 081 293	6 620 300	3 313 397	7 542 032	461 732	143 833
Domestic Lifeline 02 Formal	15 593	2 845	237	1 303 839	2 233 324	1 942 037	27	291 264	-	1 587 739	283 900	142 244	638 778	389 900	132 917
Domestic Low 01 (Dom 2)	619 974	127 595	10 633	38 759 937	77 880 756	67 701 305	5 691	10 156 679	22 268	38 759 937	-	6 280 543	22 707 057	8 057 693	1 714 643
Domestic Low 02	23 690	5 858	488	1 708 657	3 354 699	2 916 806	-	437 508	384	1 708 657	-	290 549	1 067 333	298 493	52 281
Domestic Regular 01 (Dom 3)	208 221	23 281	1 940	23 165 678	64 385 230	51 924 740	215	8 397 678	4 062 602	23 165 678	-	1 163 318	5 720 923	6 195 799	10 085 638
Domestic Regular 02	4 151	560	47	487 903	1 331 266	1 060 974	1	173 636	96 656	487 903	-	28 000	138 697	149 625	171 582
NPO1 Single Phase 20 Amp 01	74	19	2	2 154	6 740	5 861	-	879	-	-	-	-	-	-	-
NPO2 Three Phase 60 Amp 01	392	46	4	23 779	71 424	62 109	-	9 315	-	-	-	-	-	-	-
Sport Low Consumers 01	1 069	162	14	56 437	150 179	130 593	-	19 586	-	-	-	-	-	-	-
Tariff	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grand Total	1 856 811	295 069	24 589	109 697 906	229 510 323	191 227 099	9 746	29 930 833	8 351 030	-	-	20 578 810	43 167 649	20 195 668	13 539 506

Sum of Total Units	Column Labels												Grand Total	
Row Labels	1	2	3	4	5	6	7	8	9	10	11	12	Grand Total	
Agricultural Regular	23 746	20 724	17 338	14 315	14 602	14 564	7 911	14 694	12 409	14 974	17 262	19 722	192 261	
Commercial Lifeline	6 892	8 303	9 998	13 666	13 905	13 460	7 571	6 504	5 255	7 327	5 253	4 683	102 816	
Commercial Low	6 929	9 130	9 659	8 633	15 238	15 909	4 750	7 063	5 085	7 394	7 876	8 544	106 210	
Commercial Regular 03	1 008 168	1 042 864	1 120 154	952 005	971 901	1 170 596	814 788	939 144	888 575	938 458	895 881	990 082	11 732 617	
Domestic Lifeline 01 Formal	1 681 913	1 557 395	1 688 768	1 664 167	1 694 295	1 673 767	1 945 292	1 872 810	1 763 898	1 700 324	1 638 411	1 713 588	20 594 626	
Domestic Lifeline 01 Informa	929 876	913 922	987 206	988 560	1 041 536	1 049 330	971 295	949 928	925 733	930 982	885 240	887 386	11 460 993	
Domestic Lifeline 02 Formal	106 732	100 231	101 015	101 575	106 495	107 599	129 860	121 040	114 438	105 462	100 518	108 874	1 303 839	
Domestic Low 01 (Dom 2)	2 729 196	2 945 061	3 184 314	3 176 456	3 605 399	3 557 134	3 565 454	3 706 097	3 441 444	3 204 647	2 951 387	2 693 350	38 759 937	
Domestic Low 02	102 818	128 419	142 289	145 755	165 390	162 159	153 966	170 651	153 325	143 717	131 894	108 275	1 708 657	
Domestic Regular 01 (Dom 3)	1 740 418	1 758 155	1 872 711	1 752 269	1 929 776	2 050 538	2 218 458	2 325 385	2 072 690	1 869 157	1 778 168	1 797 954	23 165 678	
Domestic Regular 02	34 305	34 921	39 145	36 039	38 818	48 299	49 027	48 579	43 965	41 516	37 757	35 533	487 903	
NPO1 Single Phase 20 Amp 01	160	176	160	208	150	150	211	198	176	185	205	176	2 154	
NPO2 Three Phase 60 Amp 01	1 355	2 024	2 014	1 516	2 735	1 165	932	2 922	2 833	2 077	2 139	2 067	23 779	
Sport Low Consumers 01	3 919	4 359	6 234	6 505	7 570	6 678	2 338	3 541	4 174	3 909	4 042	3 170	56 437	
Tariff	-	-	-	-	-	-	-	-	-	-	-	-	-	
Grand Total	8 376 426	8 525 684	9 181 005	8 861 668	9 607 809	9 871 348	9 871 852	10 168 557	9 434 000	8 970 126	8 456 033	8 373 401	109 697 906	

YEAR TOTALS	Customers on tariff	Consumers	Fixed charge (R)	Basic charge (R)	Reading charge (R)	Peak Energy import (kWh)	Peak Energy import (R)	Standard Energy import (kWh)	Standard Energy import (R)	Off-peak Energy import (kWh)	Off-peak Energy import (R)	Total Energy import (kWh)	Total Energy import (R)	Peak Energy export (kWh)	Peak Energy export (R)	Standard Energy export (kWh)	Standard Energy export (R)	Off-peak Energy export (kWh)	Off-peak Energy export (R)	Total Energy export (kWh)	Total Energy export (R)	Reactive Energy (kVARh)	Reactive Energy (R)
AGR1	433	36	283 077	-	-	-	-	-	-	-	-	1 582 616	4 154 264	-	-	-	-	-	-	-	-	-	-
AGR3	36	3	15 582	-	3 468	-	-	-	-	-	-	136 151	358 635	2 558	3 265	28 191	26 073	10 076	5 732	40 825	35 071	17 693	-
COM4	6 426	536	3 404 689	-	-	-	-	-	-	-	-	10 740 564	25 845 740	-	-	-	-	-	-	-	-	-	-
COM6	83	7	-	42 400	10 308	-	-	-	-	-	-	203 296	491 874	3 080	4 105	25 648	23 575	17 522	10 006	46 250	37 685	35 152	-
DOM4	43 283	3 607	9 473 114	-	-	-	-	-	-	-	-	32 110 919	67 404 716	-	-	-	-	-	-	-	-	-	-
DOM6	161	13	5 147 379	36 827	16 860	-	-	-	-	-	-	195 877	482 309	3 476	4 516	24 961	22 523	8 996	5 052	37 433	32 091	12 670	-
IND1	2 220	186	-	-	-	-	-	-	-	-	-	23 892 434	28 416 908	-	-	-	-	-	-	-	-	-	-
IND1_2	32	3	71 398	-	3 019	-	-	-	-	-	-	139 300	165 753	4 938	9 976	24 771	22 919	16 795	9 563	46 504	42 915	7 953	-
IND2	216	18	1 015 315	-	-	-	-	-	-	-	-	16 141 289	16 948 258	-	-	-	-	-	-	-	-	-	-
MUN1	179	15	-	-	-	-	-	-	-	-	-	3 197 371	8 689 435	-	-	-	-	-	-	-	-	-	-
MUN2	600	50	-	-	-	-	-	-	-	-	-	681 511	1 669 749	-	-	-	-	-	-	-	-	-	-
MUN3	249	21	-	-	-	-	-	-	-	-	-	12 160 593	13 769 424	-	-	-	-	-	-	-	-	-	-
SPO2	48	4	-	-	-	-	-	-	-	-	-	365 035	385 024	-	-	-	-	-	-	-	-	-	-
TOU1	1 613	134	7 397 433	-	-	7 411 902	20 922 586	19 543 954	26 902 604	16 363 347	15 738 621	43 319 203	63 583 811	-	-	-	-	-	-	-	-	1 939 463	108 298
TOU1_2	89	6	294 192	-	-	305 314	981 592	515 946	734 724	681 923	659 243	1 503 183	2 375 559	9 031	11 651	137 715	124 307	116 835	66 040	263 581	201 999	48 365	-
TOU2	420	35	3 486 469	-	-	18 466 424	53 273 682	47 148 449	62 742 831	47 283 260	43 850 030	112 898 133	159 866 543	-	-	-	-	-	-	-	-	1 514 395	57 331
TOU2_2	24	2	290 539	-	-	446 362	1 243 814	742 576	976 160	1 366 094	1 257 162	2 555 032	3 477 136	32 633	51 183	360 122	337 325	156 842	90 143	549 597	478 651	187 707	-
Tariff	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	56 092	4 674	30 879 187	79 226	33 655	26 630 002	76 421 674	67 950 925	91 356 319	65 694 624	61 505 056	261 822 307	400 045 040	55 716	84 696	601 408	556 722	327 066	186 536	984 190	828 412	3 763 396	165 629
Err	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			4 674	Fixed Avail	627 516	30 992 069	30 992 069	-	-	-	-	PP	191 227 089	-	-	-	-	-	-	-	-	-	-
												991 272 136	-	-	-	-	-	-	-	-	-	-	-

YEAR TOTALS	Notified Demand Charge (kVA)	Notified Demand Charge (R)	Max Demand Charge (kVA)	Max Demand Charge (R)	Demand Charge (kVA)	Demand Charge (R)	Access Charge (kVA)	Access Charge (R)	Total Cost ex VAT (R)	Block 1 kWh	Block 2 kWh	Block 3 kWh	Block 4 kWh
AGR1	-	-	-	-	-	-	-	-	4 437 341	-	-	-	-
AGR3	-	-	-	-	-	-	-	-	342 615	-	-	-	-
COM4	-	-	-	-	-	-	-	-	29 250 429	-	-	-	-
COM6	-	-	-	-	-	-	-	-	506 897	-	-	-	-
DOM4	-	-	-	-	-	-	-	-	76 877 830	1 849 426	9 847 021	8 702 370	11 712 102
DOM6	-	-	-	-	-	-	-	-	483 804	7 863	34 168	35 594	118 052
IND1	320 097	17 429 282	89 020	26 975 622	-	-	-	-	77 969 191	-	-	-	-
IND1_2	3 328	181 210	741	224 064	-	-	-	-	602 986	-	-	-	-
IND2	161 745	8 667 915	47 128	14 145 469	-	-	-	-	42 776 957	-	-	-	-
MUN1	-	-	-	-	-	-	-	-	8 689 435	-	-	-	-
MUN2	-	-	-	-	-	-	-	-	1 669 749	-	-	-	-
MUN3	-	-	30 248	10 139 130	-	-	-	-	23 908 554	-	-	-	-
SPO2	-	-	489	147 668	-	-	-	-	532 692	-	-	-	-
TOU1	-	-	-	-	153 469	8 870 682	385 270	22 268 606	102 236 730	-	-	-	-
TOU1_2	-	-	-	-	7 202	416 276	29 018	1 677 240	4 561 268	-	-	-	-
TOU2	-	-	-	-	325 355	19 114 606	492 402	27 510 500	210 035 419	-	-	-	-
TOU2_2	-	-	-	-	9 515	559 006	45 684	2 552 365	6 400 396	-	-	-	-
Tariff	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	485 170	26 278 406	167 626	51 631 952	495 541	28 960 570	952 374	54 008 711	591 282 292	1 857 289	9 881 189	8 737 964	11 830 154
Err	-	-	-	-	-	-	-	-	828 412	-	-	-	-
		80 287 117				80 592 522		Export	199 578 129	591 282 292			
								Availability	627 516.00				
								Total R	792 316 349				

Table 11 below shows the quantities from the income statement.

Table 11

REVENUE	
ITEM	RAND
Electricity	- 742 643 362
Availability Charges	- 24 269 495
Connection/Reconnection	- 3 731 395
Temporary Connection Fee	- 352
Electricity Sales	- 717 762 495
Agricultural Low	- 1 017 978
Commercial Conventional (Single Phase)	- 27 043 099
Domestic High	- 252 711 291
Conventional	- 67 899 890
Prepaid	- 184 811 401
Industrial (400 Volts) (Low Voltage)	- 73 433 090
Industrial more than 400 less than 11 000 Volts (Medium Voltage)	- 43 906 278
Sports Grounds/Churches/Holiday/Old-age homes/Schools	- 89 710
Street Lighting	-
Time of Use Tariffs	- 319 561 049
Meter Compliance Testing	- 1 287
Meter Reading Fees	3 134 040
Notice Revenues	- 12 730
Transfers and Subsidies	- 46 317 175
Monetary Allocations	- 14 467 664
Integrated National Electrification Programme Grant	- 13 757 664
Infrastructure	- 710 000
Equitable Share	- 31 849 510
Grand Total	- 2 562 862 876

Table 12 shows the revenue quantities from the NERSA D-forms.

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	Extra municipal surcharge
Domestic	DOM1	0	1	5.1	11 100	33 359 458 kWh		35 949 322	-	556	35 949 878	Type here %
Domestic	DOM2	0	1	5.1	11 642	40 468 594 kWh		70 618 111	-	22 653	70 640 764	Type here %
Domestic	DOM3	0	1	5.2	1 979	23 653 580 kWh		52 985 714	-	4 159 258	57 144 972	Type here %
Domestic	DOM4	0	1	5.2	3 570	31 623 381 kWh		66 137 896	-	9 523 351	75 661 247	Type here %
Domestic	DOM6	0	1	5.2	14	202 122 kWh		477 681	-	54 557	532 238	Type here %
Commercial	COM1	6	5	5.1	30	102 816 kWh		279 964	-	584	280 548	Type here %
Commercial	COM2	6	5	5.2	9	106 210 kWh		232 322	-	31 138	263 460	Type here %
Commercial	COM3	6	5	5.2	717	11 732 617 kWh		30 456 717	-	4 100 648	34 557 365	Type here %
Commercial	COM4	6	5	5.2	543	10 733 794 kWh		25 832 972	-	3 427 497	29 260 469	Type here %
Commercial	COM6	6	5	5.2	10	215 009 kWh		520 214	-	54 541	574 755	Type here %
Agriculture	AGR1	1	8	5.2	40	1 804 693 kWh		4 730 435	-	319 750	5 050 185	Type here %
Agriculture	AGR3	1	8	5.2	3	137 754 kWh		362 858	-	19 153	382 011	Type here %
Industrial L	IND1	3	6	5.4	179	23 606 067 kWh		28 082 088	44 162 027	5 143 230	77 387 345	Type here %
Industrial L	IND1.2	3	6	5.4	2	138 040 kWh		164 254	408 902	74 770	647 926	Type here %
Industrial N	IND2	3	6	5.4	18	15 996 266 kWh		18 778 016	22 728 703	1 021 999	42 528 718	Type here %
Municipal	MUN1	10	11	5.1	14	3 309 631 kWh		8 994 524	-	-	8 994 524	Type here %
Municipal	MUN2	10	11	5.1	50	679 921 kWh		1 671 702	-	-	1 671 702	Type here %
Municipal	MUN3	10	11	5.4	21	12 086 724 kWh		13 685 783	10 272 874	-	23 958 657	Type here %
Non Profit	NPO1	0	11	5.1	1	2 154 kWh		5 861	-	-	5 861	Type here %
Non Profit	NPO2	6	11	5.1	3	23 779 kWh		62 109	-	-	62 109	Type here %
Sport Low	SPO1	10	11	5.1	18	56 437 kWh		130 593	-	-	130 593	Type here %
Sport High	SPO2	10	11	5.4	4	363 767 kWh		383 680	145 917	-	529 597	Type here %
Time of us	TOU1	3	6	5.5	143	43 203 385 kWh		63 552 187	31 205 006	7 483 077	102 240 270	Type here %
Time of us	TOU1.2	3	6	5.5	7	1 474 430 kWh		2 319 577	2 104 903	305 077	4 729 557	Type here %
Time of us	TOU2	3	6	5.5	35	112 126 670 kWh		158 417 981	46 662 125	3 509 442	208 589 548	Type here %
Time of us	TOU2.2	3	6	5.5	2	2 558 937 kWh		3 503 277	3 114 191	292 452	6 909 920	Type here %
Total					30 154	369 766 236 kWh		588 335 838	160 804 648	39 543 733	788 684 219	

Table 13 shows the revenue from the NERSA d-form tariff sheet.

Table 13

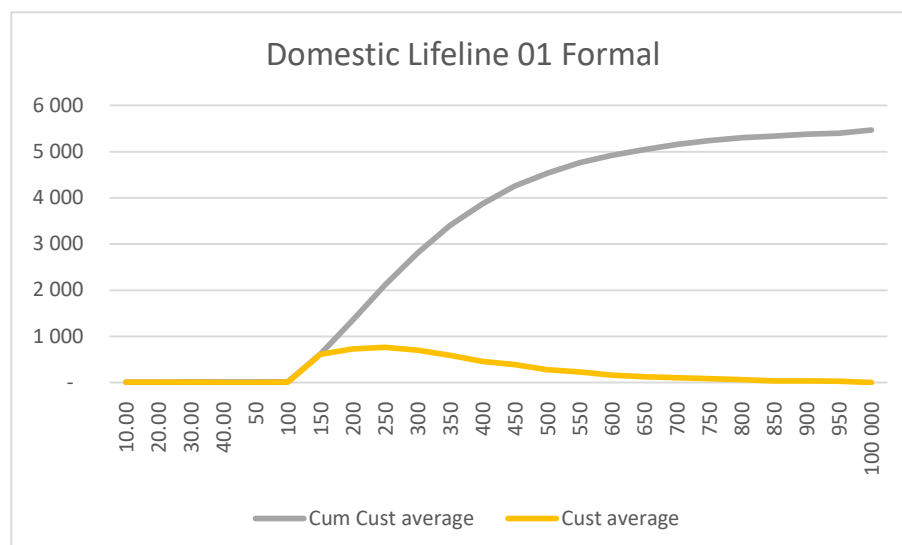
REVENUE:		
	Actual	Budget
	2021/22	2022/23
Revenue from sale of electricity to the following consumers:		
Domestic (pre-paid)	163 735 614	176 677 496
Domestic (conventional)	76 193 485	111 062 525
Agriculture	5 432 196	5 861 564
Mining & quarrying	0	0
Manufacturing / Industrial	443 033 264	478 051 206
Commercial (pre-paid)	35 101 373	37 875 833
Commercial (conventional)	29 835 224	32 193 440
Transport	0	0
Redistributors/Resellers	0	0
Other consumers (please specify below)	728 160	785 715
1. Non-profit organisations	67 970	73 343
2. Sport Fields	660 190	712 372
3.	Type here	Type here
4.	Type here	Type here
Total	754 059 316	842 507 779
	Actual	Budget
	2021/22	2022/23
Revenue from street lighting & sold to other municipal departments		
Street lighting	8 994 524	9 371 350
Sold to other municipal departments	25 630 360	30 000 000
Total	34 624 884	39 371 350
	Actual	Budget
	2021/22	2022/23
Other Income		
Reconnection fees	3 731 395	3 433 923
New connections	0	0
Free Basic Electricity(Equitable share)	13 694 439	36 409 574
Other revenue (Please specify below)	20 724 919	31 584 535
1. Intergrated National Electricity Programme - Relief grant	13 757 664	28 350 000
2. Other transfers WC	710 000	0
3. Development Charges	3 261 746	0
4.Availability charge	627 516	765 659
5. Interest earned from receivables	1 484 988	1 568 876
6. other Income	883 005	900 000
Other Income	38 150 753	71 428 032
Summary Stats (for office use)		
	Actual	Budget
	2021/22	2022/23
Total Income	826 834 953	953 307 161

It is clear that there are some discrepancies between these various documents. For the cost of supply study NERSA requires that the source documents for all data used must be provided. Because of that the sales report data will be used.

6. CUSTOMER CONSUMPTION PATTERNS.

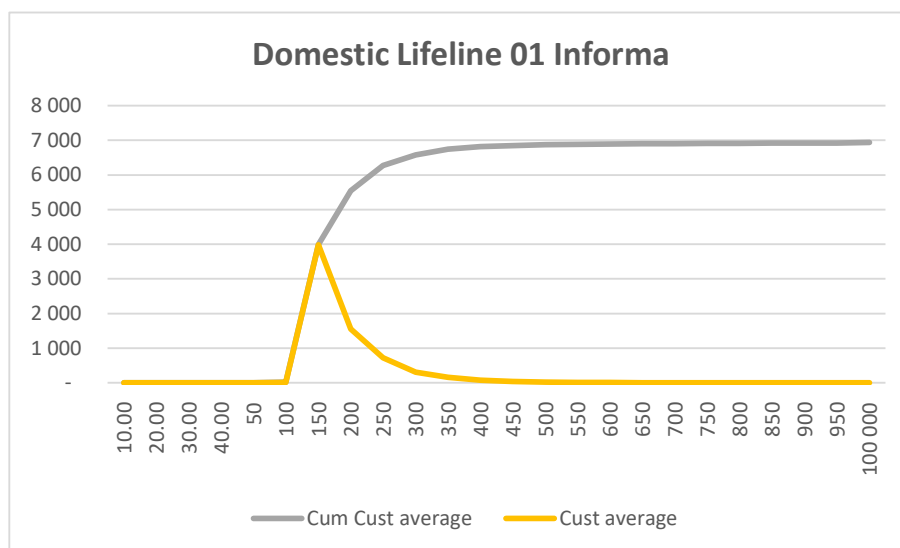
The sales are then analysed even further to determine the number of consumers per consumption block. This is important when deliberating about categorising consumers and developing appropriate tariff structures and consumer impact. The few tables and graphs below show a section of the analysis for each of the residential tariffs. In each case it shows the number of consumers on the vertical axis and the consumption block on the horizontal axis. Each show the number of consumers in each block and the communicative consumers up to that level of consumption.

Domestic Lifeline 01 Formal						
	10.00	20.00	30.00	40.00	50	100
Cum kWh average	-	28	164	164	164	264
kWh average	-	28	137	-	-	99
Cum Cust average	1	3	8	8	8	9
Cust average	1	2	5	-	-	1
Block	50	350	600	> 600	Total	Check
kWh/y	1 970	9 100 330	9 142 339	4 160 654	22 405 293	22 405 293
Customers	8	3 387	1 653	420	5 468	5 468



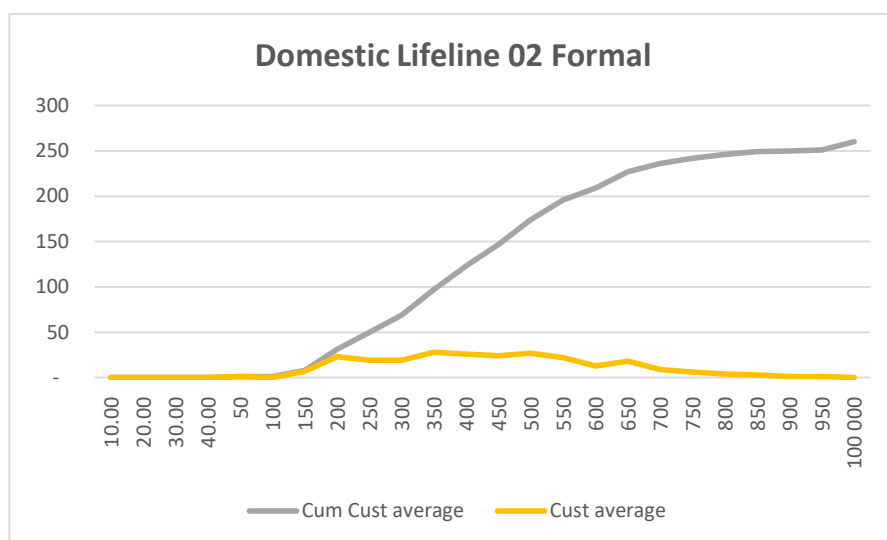
This clearly shows more than 400 consumers using on average more than 600 kWh/m and should not be treated as lifeline (subsidised).

Domestic Lifeline 01 Informa						
	10.00	20.00	30.00	40.00	50	100
Cum kWh average	-	42	70	70	161	1 308
kWh average	-	42	28	-	92	1 147
Cum Cust average	-	3	4	4	6	19
Cust average	-	3	1	-	2	13
Block	50	350	600	> 600	Total	Check
kWh/y	1 932	12 485 560	830 493	371 566	13 689 552	13 689 552
Customers	6	6 728	166	31	6 931	6 931



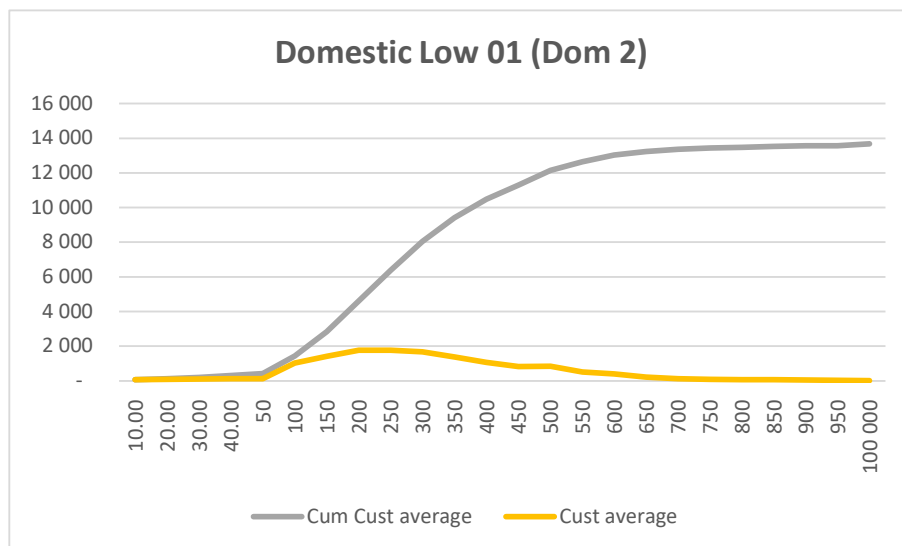
This is clearly poor consumers with most using close to 150 kWh/m. 31 consumers still use more than 600 kWh/m.

Domestic Lifeline 02 Formal						
	10.00	20.00	30.00	40.00	50	100
Cum kWh average	-	-	-	-	44	44
kWh average	-	-	-	-	44	-
Cum Cust average	-	-	-	-	1	1
Cust average	-	-	-	-	1	-
Block	50	350	600	> 600	Total	Check
kWh/y	532	283 079	754 775	348 356	1 386 742	1 386 742
Customers	1	95	131	33	260	260



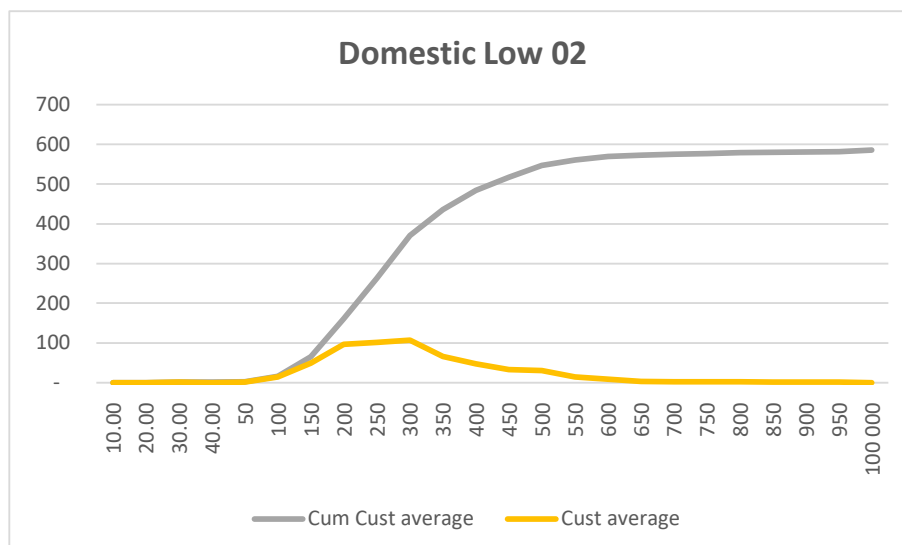
This clearly shows consumption levels of typical domestic consumers.

Domestic Low 01 (Dom 2)						
	10.00	20.00	30.00	40.00	50	100
Cum kWh average	340	1 327	3 384	7 023	11 647	92 685
kWh average	340	987	2 057	3 639	4 624	81 038
Cum Cust average	48	116	199	302	404	1 437
Cust average	48	68	83	103	102	1 033
Block	50	350	600	> 600	Total	Check
kWh/y	139 762	22 426 043	21 074 932	4 651 067	48 291 803	48 291 803
Customers	404	8 603	4 223	441	13 671	13 671



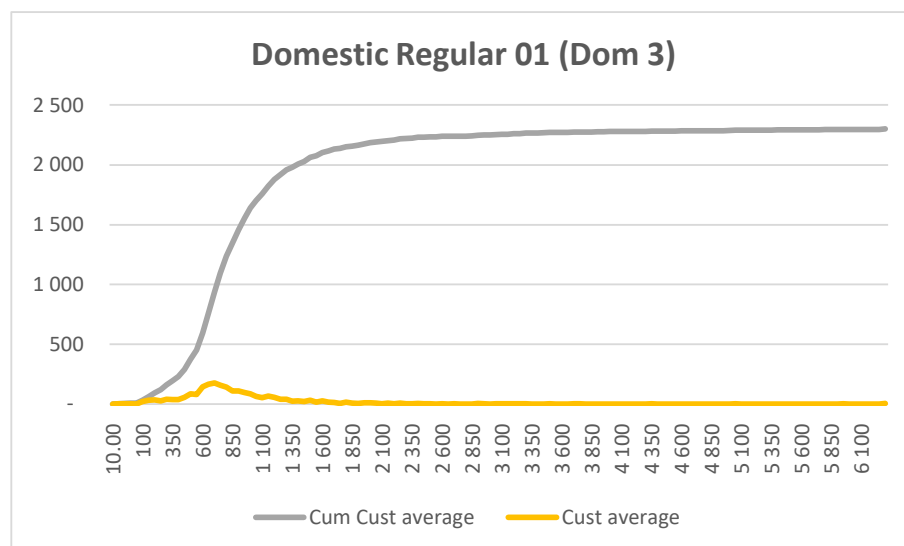
Although this tariff is called domestic low, there are 441, >30%, consumers using more than 600 kWh/m.

Domestic Low 02						
	10.00	20.00	30.00	40.00	50	100
Cum kWh average	-	-	21	21	69	1 215
kWh average	-	-	21	-	48	1 146
Cum Cust average	-	-	1	1	2	16
Cust average	-	-	1	-	1	14
Block	50	350	600	> 600	Total	Check
kWh/y	828	1 178 768	727 258	132 998	2 039 852	2 039 852
Customers	2	432	139	13	586	586



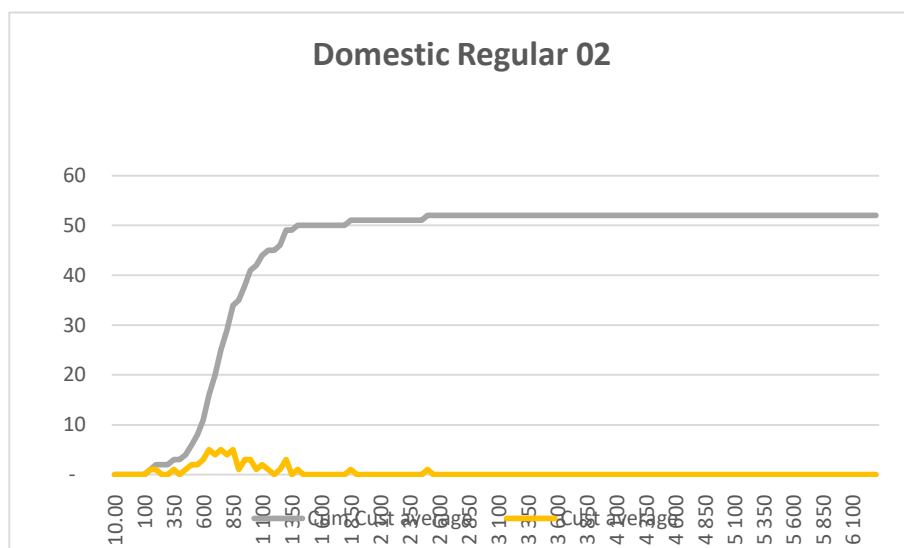
Once again there are a few consumers using more than 60 kWh/m.

Domestic Regular 01 (Dom 3)						
	10.00	20.00	30.00	40.00	50	100
Cum kWh average	3	37	86	157	204	1 973
kWh average	3	34	50	70	48	1 769
Cum Cust average	1	3	5	7	8	30
Cust average	1	2	2	2	1	22
Block	50	350	600	> 600	Total	Check
kWh/y	2 452	466 282	3 663 380	21 624 673	25 756 787	25 756 787
Customers	8	178	574	1 541	2 301	2 301



This is a very typical domestic consumption much with more than 60% consumers using more than 600 kWh/m. More than 90% of the energy is consumed in excess of 600 kWh/m. This is where there is big risk for the municipality when these consumers reduce consumption and / or install renewable energy systems thus causing revenue loss at the highest block price.

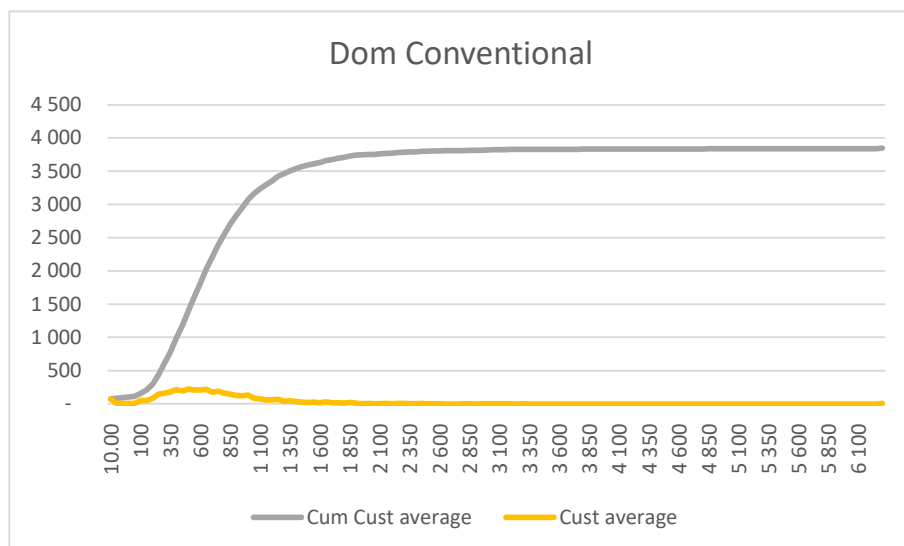
Domestic Regular 02						
	10.00	20.00	30.00	40.00	50	100
Cum kWh average	-	-	-	-	-	-
kWh average	-	-	-	-	-	-
Cum Cust average	-	-	-	-	-	-
Cust average	-	-	-	-	-	-
Block	50	350	600	> 600	Total	Check
kWh/y	-	7 453	88 644	422 897	518 994	518 994
Customers	-	3	13	36	52	52



The same revenue risk exists for these consumers.

DOM4		Average				
	10.00	20.00	30.00	40.00	50	100
Cum kWh av	- 14 918	- 14 803	- 14 563	- 14 283	- 13 956	- 10 461
kWh average	- 14 918	114	241	280	326	3 496
Cum Cust av	78	85	95	103	110	157
Cust average	78	7	10	8	7	47
Block	50	350	600	> 600	Total	Check
kWh/y	-167 476	1 931 244	7 531 119	24 580 444	33 875 332	33 875 332
Customers	110	558	1 363	1 817	3 848	3 848

The same revenue risk exists for these consumers.



The same revenue risk exists for these consumers.

The following very important conclusions can be made from this data:

- There is merit in providing for a different consumer class for the domestic using less than 350 kWh/m.
- This could be done by implementing a capacity limit of say 20 Amps.

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 14 shows the 2021/2022 and 2022/2023 tariffs. The current tariffs are used to ensure that any restructuring that was done during the last tariff change is incorporated.

Table 14

STELLENBOSCH ELECTRICITY TARIFF SCHEDULE						
		2021/2022	2022/2023			
Tariff Code	Details	Exclude VAT	Exclude VAT	Restructured	Increase	
	1. Domestic					
	Domestic: Life Line PP - 0 to 60amp single phase only (For qualifying indigent customers and receiving the first 100 units free per month) (DOM1)					
	Basic Monthly charge per meter	R/POS/m				
	Capacity charge	R/Amp/Phase/m				
	BLOCK 1 0 - 50 kWh	c/kWh	125.84	135.78		7.90%
	BLOCK 2 51 - 300 kWh	c/kWh	157.47	169.91		7.90%
	BLOCK 3 301 - 600 kWh	c/kWh	234.7	253.24		7.90%
	BLOCK 4 > 600 kWh	c/kWh	270	291.33		7.90%
	Domestic: Regular PP meters (0 to 60amp single and three phase AND Less than 600kWh per month average consumption during the previous financial year and for generation for own use) (DOM2)					
	Basic Monthly charge per meter	R/POS/m				
	Capacity charge	R/Amp/Phase/m				
	BLOCK 1 0 - 50 kWh	c/kWh	126.05	136.01		7.90%
	BLOCK 2 51 - 300 kWh	c/kWh	162.14	174.95		7.90%
	BLOCK 3 301 - 600 kWh	c/kWh	228.03	246.04		7.90%
	BLOCK 4 > 600 kWh	c/kWh	268.14	289.32		7.90%
	Domestic: Regular PP meters- (0 to 60 Amp single and three phase using more than 600 kWh per month average consumption during the previous financial year and for generation for own use) (DOM3)					
	Basic Monthly charge per meter	R/POS/m	172.57	186.2		7.90%
	Capacity charge	R/Amp/Phase/m				
	BLOCK 1 0 - 50 kWh	c/kWh	125.84	135.78		7.90%
	BLOCK 2 51 - 300 kWh	c/kWh	161.42	174.17		7.90%
	BLOCK 3 301 - 600 kWh	c/kWh	227.72	245.71		7.90%
	BLOCK 4 > 600 kWh	c/kWh	268.16	289.34		7.90%
	Domestic: Regular (Using Credit Meters 60 Ampere single and three phase maximum and for generation for own use) (DOM4) average consumption during the previous financial year and for generation for own use) (DOM2)					
	Basic Monthly charge per meter	R/POS/m	212.87	229.69		7.90%
	Capacity charge	R/Amp/Phase/m				
	BLOCK 1 0 - 50 kWh	c/kWh	125.84	135.78		7.90%
	BLOCK 2 51 - 300 kWh	c/kWh	161.42	174.17		7.90%
	BLOCK 3 301 - 600 kWh	c/kWh	227.72	245.71		7.90%
	BLOCK 4 > 600 kWh	c/kWh	268.16	289.34		7.90%
	Domestic: Renewable Energy (DOM5) Generation for own use and export					
	Basic Monthly charge per meter	R/POS/m	212.87	229.69		7.90%
	Capacity charge	R/Amp/Phase/m				
	Import					
	BLOCK 1 0 - 50 kWh	c/kWh	125.84	135.78		7.90%
	BLOCK 2 51 - 300 kWh	c/kWh	161.42	174.17		7.90%
	BLOCK 3 301 - 600 kWh	c/kWh	227.72	245.71		7.90%
	BLOCK 4 > 600 kWh	c/kWh	268.16	289.34		7.90%
	Reactive Energy Rate (c/kVArh)	c/kvarh				
	2. Commercial					
	Commercial: Life Line (<20Ampere maximum, Single & three phase Pre Paid Only for micro entrepreneurial businesses) (COM1)					
	Basic Monthly charge per meter	R/POS/m				
	Capacity charge	R/Amp/Phase/m				
	Energy Rate	c/kWh	272.51	294.04		7.90%
	Commercial: Low (40Ampere maximum. Pre Paid single & three phase only and for generation for own use) (COM2)					
	Basic Monthly charge per meter	R/POS/m	213.32	230.17		7.90%
	Capacity charge	R/Amp/Phase/m				
	Energy Rate	c/kWh	218.82	236.11		7.90%
	Commercial: Regular PP only (80Ampere. single and three phase and for generation for own use) (COM3)					
	Basic Monthly charge per meter	R/POS/m	365.28	394.14		7.90%
	Capacity charge	R/Amp/Phase/m				
	Energy Rate	c/kWh	259.63	280.14		7.90%
	Commercial: Credit meters (80Ampere. single and three phase and for generation for own use) (COM4)					
	Basic Monthly charge per meter (Covered by Equitable share)	R/POS/m	396.26	425.86		7.47%
	Capacity charge	R/Amp/Phase/m				
	Energy Rate	c/kWh	241.95	260.02		7.47%
	Commercial: Renewable Energy (COM 5) Generation for own use and export and export.					
	Basic Charge	R/POS/m	396.26	425.86		7.47%
	Capacity charge	R/Amp/Phase/m				
	Energy Rate (c/kWh)	c/kWh	241.95	260.02		7.47%
	Reactive Energy Rate (c/kVArh)	c/kvarh				
	3. Agricultural					
	Agricultural: Regular (Prepaid and Credit meters maximum 80Amp 3 phase and for generation for own use) (AGR1)					
	Basic Charge	R/POS/m	432.84	467.03		7.90%
	Energy Rate (c/kWh)	c/kWh	241.95	284.22		17.47%
	AGRICULTURAL: Renewable Energy (AGRI 1.1) Generation for own use and export					
	Basic Charge	R/POS/m	432.84	467.03		7.90%
	Energy Rate (c/kWh)	c/kWh	241.95	284.22		17.47%
	4. Industrial					
	Large Power: Low Voltage > 80 Amp and for generation for own use (IND1)					
	Fixed Charge per month	R/POS/m	2 231.20	2 407.46		7.90%
	Notified Maximum Demand Charge (R/kVA)	R/kVA/m	54.45	58.75		7.90%
	Maximum Demand Charge (R/kVA)	R/kVA/m	302.38	326.27		7.90%
	Energy Rate (c/kWh)	c/kWh	118.99	128.39		7.90%
	Large Power (IND 1.1): Low Voltage>80 Amp: Renewable Energy- Generation for own use and export					
	Fixed Charge per month	R/POS/m	2 231.20	2 407.46		7.90%
	Notified Maximum Demand Charge (R/kVA)	R/kVA/m	54.45	58.75		7.90%
	Maximum Demand Charge (R/kVA)	R/kVA/m	302.38	326.27		7.90%
	Energy Rate (c/kWh)	c/kWh	118.99	128.39		7.90%

STELLENBOSCH ELECTRICITY TARIFF SCHEDULE		2021/2022	2022/2023		
Tariff Code	Details	Exclude VAT	Exclude VAT	Restructured	Increase
Industrial: Medium Voltage and for generation for own use (IND2)					
	Fixed Charge per month	R/POS/m	4 230.48	4 564.69	7.90%
	Notified Maximum Demand Charge (R/kVA)	R/kVA/m	53.59	57.82	7.89%
	Maximum Demand Charge (R/kVA)	R/kVA/m	300.15	323.86	7.90%
	Energy Rate (c/kWh)	c/kWh	117.39	126.66	7.90%
Industrial Medium Voltage (IND 2.1): Renewable Energy - Generation for own use and export					
	Fixed Charge per month	R/POS/m	4 230.48	4 564.69	7.90%
	Notified Maximum Demand Charge (R/kVA)	R/kVA/m	53.59	57.82	7.89%
	Maximum Demand Charge (R/kVA)	R/kVA/m	300.15	323.86	7.90%
	Energy Rate (c/kWh)	c/kWh	117.39	126.66	7.90%
5. Municipal					
Municipal: Street and Traffic lights (MUN1)					
	Fixed Charge per month - -	R/POS/m			
	Energy Rate (c/kWh)	c/kWh	271.77	293.24	7.90%
Municipal: Low Voltage <80 Amp (MUN2)					
	Fixed Charge per month - -	R/POS/m			
	Energy Rate (c/kWh)	c/kWh	247.03	266.55	7.90%
Municipal: Low Voltage >80 Amp (MUN3)					
	Fixed Charge per month - -	R/POS/m			
	Maximum Demand Charge (R/kVA)		335.2	361.68	7.90%
	Energy Rate (c/kWh)	c/kWh	113.23	122.18	7.90%
6. Non Profit Organisations					
Non Profit Organisations : Single Phase 20 Amp Prepaid (NPO1)					
	Fixed Charge per month - -				
	Energy Rate (c/kWh)		272.51	294.04	7.90%
Non Profit Organisations : Low Voltage Max 60 Amp Prepaid SARS Approved (NPO2)					
	Fixed Charge per month - -	R/POS/m			
	Energy Rate (c/kWh)	c/kWh	261.44	282.09	7.90%
7. Sport					
Sport: Low All Consumers (<80A) and Prepaid (SPO1)					
	Fixed Charge per month - -	R/POS/m			
	Energy Rate (c/kWh)	c/kWh	231.62	249.92	7.90%
Sport: High Consumers (>80A) Maximum Demand (SPO2)					
	Fixed Charge per month - -	R/POS/m			
	Notified Maximum Demand Charge (R/kVA)	R/kVA/m			
	Maximum Demand Charge (R/kVA)	R/kVA/m	334.08	360.47	7.90%
	Energy Rate (c/kWh)	c/kWh	106	114.37	7.90%
8. Time-of-Use					
Time of Use (Low Voltage>80Amp and for generation for own use) TOU1					
	Fixed Charge per month	R/POS/m	4 263.65	4 600.48	7.90%
	Maximum Demand Charge (R/kVA)	R/kVA/m	57.8	62.37	
	Access Charge (R/kVA)	R/kVA/m	57.8	62.37	7.91%
<i>Low Season</i>					
	Peak Energy (c/kWh)	c/kWh	189.1	204.04	7.90%
	Standard Energy (c/kWh)	c/kWh	124.61	134.45	7.90%
	Off-peak Energy (c/kWh)	c/kWh	93.45	100.83	7.90%
	Reactive Energy (c/kVAh) -	c/kvarh			
<i>Hi-Season</i>					
	Peak Energy (c/kWh)	c/kWh	592.98	639.83	7.90%
	Standard Energy (c/kWh)	c/kWh	177.97	192.03	7.90%
	Off-peak Energy (c/kWh)	c/kWh	104.56	112.82	7.90%
	Reactive Energy (c/kVAh)	c/kvarh	24.73	26.68	7.89%
Time of Use (Medium Voltage and for generation for own use) TOU2					
	Fixed Charge per month	R/POS/m	8 070.53	8 708.10	
	Maximum Demand Charge (R/kVA)	R/kVA/m	58.75	63.39	7.90%
	Access Demand Charge (R/kVA)	R/kVA/m	55.87	60.28	7.89%
<i>Low Season</i>					
	Peak Energy (c/kWh)	c/kWh	183.35	197.83	7.90%
	Standard Energy (c/kWh)	c/kWh	119.93	129.4	7.90%
	Off-peak Energy (c/kWh)	c/kWh	89.89	96.99	7.90%
	Reactive Energy (c/kVAh) -	c/kvarh			
<i>Hi-Season</i>					
	Peak Energy (c/kWh)	c/kWh	605.66	653.51	7.90%
	Standard Energy (c/kWh)	c/kWh	172.05	185.64	7.90%
	Off-peak Energy (c/kWh)	c/kWh	101.13	109.12	7.90%
	Reactive Energy (c/kVAh)	c/kvarh	25.98	28.03	7.89%
9. External Wheeling					
	Customer received power at low voltage (<400V) in c/kWh	c/kWh	25.95	28.00	7.90%
	Customer received power at medium voltage (>400V) in c/kWh	c/kWh	22.48	24.26	7.92%
12.Availability Fees (Per Annum)					
	Availability		3 580.74	3863.62	7.90%
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)					
Export					
	Reading cost R/pm		96.34	103.95	7.90%
<i>Low Season</i>					
	Peak c/kWh	c/kWh	126.02	135.98	7.90%
	Standard c/kWh	c/kWh	86.72	93.57	7.90%
	Off Peak c/kWh	c/kWh	55.02	59.37	7.91%
<i>High Season -</i>					
	Peak c/kWh	c/kWh	386.34	416.86	7.90%
	Standard c/kWh	c/kWh	117.05	126.3	7.90%
	Off Peak c/kWh	c/kWh	63.56	68.58	7.90%

Table 15
purpose of calculations and assessment the 2021/2022 consumptions details.

Table 16 shows the 2022/2023 tariff charges for

Table 15

Table 16

STELLENBOSCH		CHARGES APPLICABLE FOR ALL MONTHS OF THE YEAR										HIGH SEASON CHARGES				LOW SEASON CHARGES		
year	30/06/2021	2021/2022 TARIFF RATES										Months in year.		3,000	Months in year.		9,000	
TARIFF CHARGES		347	Basic	Access	MD (aLL hours)	ALL Energy	Block 1 kWh	Block 2 kWh	Block 3 kWh	Block 4 kWh	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy	Energy Peak	Energy Standard	Energy Off-Peak	
TARIFF NAME	TARIFF CODE	R/cust/m	R/POS/m	R/kVA/m	R/kVA/m	R/kWh	50,000	300,000	600,000	>600	c/kWh	c/kWh	c/kWh	c/kvarh	c/kWh	c/kWh	c/kWh	
Domestic: Life Line PP		R	-					R 1.6991	R 2.5324	R 2.9133								
Domestic: Regular PP 20 Amp		R	-				R 1.3601	R 1.7495	R 2.4604	R 2.8932								
Domestic: Regular PP <600 kWh/m		R	-				R 1.3601	R 1.7495	R 2.4604	R 2.8932								
Domestic: Regular PP <600 kWh/m		R	186.20				R 1.3578	R 1.7417	R 2.4571	R 2.8934								
Domestic: Regular 60 Amp 1 & 3 ph		R	229.69				R 1.3578	R 1.7417	R 2.4571	R 2.8934								
Domestic: Renewable Energy (DOM5) SSEG w ith export		R	229.69				R 1.3578	R 1.7417	R 2.4571	R 2.8934								
Commercial: Life Line20 Amp PP		R	-			R 2.9404												
Commercial: Low 40 Amp 1 & 3 ph PP		R	230.17			R 2.3611												
Commercial: Regular PP 80 Amp 1 & 3 ph		R	394.14			R 2.8014												
Commercial: Credit meters 80 Amps 1 & 3 ph		R	425.86			R 2.6002												
Commercial: Regular PP 80 Amp 1 & 3 ph		R	425.86			R 2.6002												
Commercial: Renew able Energy (COM5) SSEG		R	425.86			R 2.6002												
Agricultural: Regular 80Amp 3 phase		R	467.03			R 2.8422												
AGRICULTURAL: Renew able Energy (AGRI 1.1) own use & export		R	467.03			R 2.8422												
Large Power: Low Voltage > 80 Amp		R	2 407.46	R 58.75	R 326.27	R 1.2639												
Large Power: Low Voltage > 80 Amp SSEG		R	2 407.46	R 58.75	R 326.27	R 1.2639												
Industrial: Medium Voltage (IND2)		R	4 564.69	R 58.75	R 323.86	R 1.2666												
Industrial Medium Voltage (IND 2.1): SSEG		R	4 564.69	R 57.82	R 323.86	R 1.2666												
Municipal: Street and Traffic lights (MUN1)		R	-			R 2.9324												
Municipal: Low Voltage <80 Amp (MUN2)		R	-			R 2.6655												
Municipal: Low Voltage >80 Amp (MUN3)		R	-	R 361.68		R 1.2218												
NPA : Single Phase 20 Amp Prepaid (NPO1)		R	-			R 2.9404												
NPA : LV > 60 Amp PP SARS Approved (NPO2)		R	-			R 2.8209												
Sport: Low All Consumers (<80A) and Prepaid (SPO1)		R	-			R 2.4992												
Sport: High Consumers (>80A) Maximum Demand (SPO2)		R	-	R -	R 360.47	R 1.1437												
Time of Use (Low Voltage>80Amp) T0U1		R	4 600.48	R 62.37	R 62.37						R 6.3983	R 1.9203	R 1.1282	0.2668	R 2.0404	R 1.3445	R 1.0083	
Time of Use (Low Voltage>80Amp) T0U1 SSEG		R	4 600.48	R 62.37	R 62.37						R 6.3983	R 1.9203	R 1.1282	0.2668	R 2.0404	R 1.3445	R 1.0083	
Time of Use (Medium Voltage) T0U2		R	8 708.10	R 63.39	R 60.28						R 6.5351	R 1.8564	R 1.0912	0.2668	R 1.9783	R 1.2940	R 0.9699	
Time of Use (Medium Voltage) T0U2 SSEG		R	8 708.10	R 63.39	R 60.28						R 6.5351	R 1.8564	R 1.0912	0.2668	R 1.9783	R 1.2940	R 0.9699	
Wheeling at low voltage (<400V) in c/kWh						R 0.2800												
Wheeling at medium voltage (>400V) in c/kWh						R 0.2426												
Availability		R	321.97															
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)		R	103.95								R 4.1686	R 1.2630	R 0.6858		R 1.3598	R 0.9357	R 0.5937	

STELLENBOSCH		QUANTITIES CHARGEABLE FOR ALL MONTHS OF THE YEAR										HIGH SEASON QUANTITIES				LOW SEASON QUANTITIES		
CONSUMPTION		Number of customers	Number of POD's	Highest MD in year	Σ MDs all hours / 12	ALL Energy	Block 1 kWh	Block 2 kWh	Block 3 kWh	Block 4 kWh	Energy Peak	Energy Standard	Energy Off-Peak	ReSAdStive energy	Energy Peak	Energy Standard	Energy Off-Peak	
TARIFF NAME	TARIFF CODE			kVA	kVA	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kvarh	kWh	kWh	kWh	
Domestic: Life Line PP	0		10 701			33 359 458	12 816 400	13 533 639	5 494 058	1 515 362								
Domestic: Regular PP 20 Amp	0		11 121			40 468 593	6 571 092	23 774 391	8 356 186	1 766 924								
Domestic: Regular PP <600 kWh/m	0																	
Domestic: Regular PP >600 kWh/m	0		1 987			23 653 580	1 191 318	5 859 619	6 345 424	10 257 220								
Domestic: Regular 60 Amp 1 & 3 ph	0		3 607			32 110 919	2 164 150	10 820 750	11 686 410	7 439 609								
Domestic: Renewable Energy (DOM5) SSEG w ith export	0		13			195 677	8 050	48 300	48 300	91 027								
Commercial: Life Line20 Amp PP	0		30			102 816												
Commercial: Low 40 Amp 1 & 3 ph PP	0		8			106 210												
Commercial: Regular PP 80 Amp 1 & 3 ph	0		717			11 732 617												
Commercial: Credit meters 80 Amps 1 & 3 ph	0		536			10 740 564												
Commercial: Regular PP 80 Amp 1 & 3 ph	-		7			203 296												
Commercial: Renew able Energy (COM5) SSEG	-		7															
Agricultural: Regular 80Amp 3 phase	-		42			1 774 877												
AGRICULTURAL: Renew able Energy (AGRI 1.1) own use & exp	-		3			136 151												
Large Power: Low Voltage > 80 Amp	-		185	26 675	89 020	23 892 434												
Large Power: Low Voltage > 80 Amp SSEG	-		3	277	741	139 300												
Industrial: Medium Voltage (IND2)	-		18	13 479	47 128	16 141 289												
Industrial Medium Voltage (IND 2.1): SSEG	-																	
Municipal: Street and Traffic lights (MUN1)	0		15			3 197 371												
Municipal: Low Voltage <80 Amp (MUN2)	0		50			681 511												
Municipal: Low Voltage >80 Amp (MUN3)	0		21		30 248	12 160 593												
NPA : Single Phase 20 Amp Prepaid (NPO1)	0		2			2 154												
NPA : LV > 60 Amp PP SARS Approved (NPO2)	0		4			23 779												
Sport: Low All Consumers (<80A) and Prepaid (SPO1)	0		14			56 437												
Sport: High Consumers (>80A) Maximum Demand (SPO2)	0		4		489	365 035												
Time of Use (Low Voltage>80Amp) T0U1	0		134	32 106	153 469	43 319 203	45 258 666				1 906 992	4 931 883	4 120 361	1 939 463	5 504 910	14 612 071	12 242 986	
Time of Use (Low Voltage>80Amp) T0U1 SSEG	0		6	2 418	7 202	1 503 183	1 551 548				45 732	73 161	141 927	48 365	259 582	442 785	539 996	
Time of Use (Medium Voltage) T0U2	0		35	41 034	325 355	112 898 133	114 412 528				4 396 072	10 988 721	11 226 573	1 514 395	14 070 352	36 159 728	36 056 687	
Time of Use (Medium Voltage) T0U2 SSEG	0		2	3 807	9 515	2 555 032	2 742 739				97 285	172 548	363 143	187 707	349 077	570 028	1 002 951	
Wheeling at low voltage (<400V) in c/kWh																		
Wheeling at medium voltage (>400V) in c/kWh																		
Availability			162															
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)			31			(964 190)					(27 598)	(230 027)	(99 960)		(28 118)	(371 381)	(227 106)	
	371 520 213	0.26%	29 457	119 795	663 167	370 536 024	186 716 491	54 036 699	31 930 378	21 070 142	-	6 418 483	15 936 286	15 752 044	3 689 930	20 155 803	51 413 231 49 615 514	

STELLENBOSCH		QUANTITIES CHARGEABLE FOR ALL MONTHS OF THE YEAR										HIGH SEASON QUANTITIES				LOW SEASON QUANTITIES		
CONSUMPTION		Number of Customers	Number of POD's	Highest MD in year	Σ MDs all hours /12	ALL Energy	Block 1 kWh	Block 2 kWh	Block 3 kWh	Block 4 kWh	Energy Peak	Energy Standard	Energy Off-Peak	ReSAdStive energy	Energy Peak	Energy Standard	Energy Off-Peak	
TARIFF NAME	TARIFF CODE	Customers	POD's	kVA	kVA	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kvarh	kWh	kWh	kWh	
Domestic: Life Line PP	0		10 701			33 359 458	12 816 400	13 533 639	5 494 058	1 515 362								
Domestic: Regular PP 20 Amp	0		11 121			40 468 593	6 571 092	23 774 391	8 356 186	1 766 924								
Domestic: Regular PP <600 kWh/m	0																	
Domestic: Regular PP >600 kWh/m	0		1 987			23 653 580	1 191 318	5 859 619	6 345 424	10 257 220								
Domestic: Regular 60 Amp 1 & 3 ph	0		3 607			32 110 919	2 164 150	10 820 750	11 686 410	7 439 609								
Domestic: Renewable Energy (DOM5) SSEG w ith export	0		13			195 677	8 050	48 300	48 300	91 027								
Commercial: Life Line 20 Amp PP	0		30			102 816												
Commercial: Low 40 Amp 1 & 3 ph PP	0		8			106 210												
Commercial: Regular PP 80 Amp 1 & 3 ph	0		717			11 732 617												
Commercial: Credit meters 80 Amps 1 & 3 ph	0		536			10 740 564												
Commercial: Regular PP 80 Amp 1 & 3 ph	-																	
Commercial: Renew able Energy (COM5) SSEG	-		7			203 296												
Agricultural: Regular 80Amp 3 phase	-		42			1 774 877												
AGRICULTURAL: Renew able Energy (AGRI 1.1) own use & expo	-		3			136 151												
Large Power: Low Voltage > 80 Amp	-		185	26 675	89 020	23 892 434												
Large Power: Low Voltage > 80 Amp SSEG	-		3	277	741	139 300												
Industrial: Medium Voltage (IND2)	-		18	13 479	47 128	16 141 289												
Industrial Medium Voltage (IND 2.1): SSEG	-																	
Municipal: Street and Traffic lights (MUN1)	0		15			3 197 371												
Municipal: Low Voltage <80 Amp (MUN2)	0		50			681 511												
Municipal: Low Voltage >80 Amp (MUN3)	0		21		30 248	12 160 593												
NPA : Single Phase 20 Amp Prepaid (NPO1)	0		2			2 154												
NPA : LV > 60 Amp PP SARS Approved (NPO2)	0		4			23 779												
Sport: Low All Consumers (<80A) and Prepaid (SPO1)	0		14			56 437												
Sport: High Consumers (>80A) Maximum Demand (SPO2)	0		4		489	365 035												
Time of Use (Low Voltage>80Amp) T0U1	0		134	32 106	153 469	43 319 203	45 258 666				1 906 992	4 931 883	4 120 361	1 939 463	5 504 910	14 612 071	12 242 986	
Time of Use (Low Voltage>80Amp) T0U1 SSEG	0		6	2 418	7 202	1 503 183	1 551 548				45 732	73 161	141 927	48 365	259 582	442 785	539 996	
Time of Use (Medium Voltage) T0U2	0		35	41 034	325 355	112 898 133	114 412 528				4 396 072	10 988 721	11 226 573	1 514 395	14 070 352	36 159 728	36 056 687	
Time of Use (Medium Voltage) T0U2 SSEG	0		2	3 807	9 515	2 555 032	2 742 739				97 285	172 548	363 143	187 707	349 077	570 028	1 002 951	
Wheeling at low voltage (<400V) in c/kWh																		
Wheeling at medium voltage (>400V) in c/kWh																		
Availability			162															
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)			31			(964 190)					(27 598)	(230 027)	(99 960)		(28 118)	(371 381)	(227 106)	
371 520 213	0.26%		29 457	119 795	663 167	370 536 024	186 716 491	54 036 699	31 930 378	21 070 142	-	6 418 483	15 936 286	15 752 044	3 689 930	20 155 803	51 413 231	49 615 514

Table 17 shows the 2021/2022 actual revenue from the sales reports.

Table 17

STELLENBOSCH		REVENUES FROM CHARGES APPLICABLE ALL MONTHS OF THE YEAR				
ACTUAL REVENUE		Custo mer servic e	Basic	Access	Σ MDs all hours	ALL Energy
TARIFF NAME	TARIFF CODE	R/year	R/year	R/year	R/year	R/year
Domestic: Life Line PP	0					35 949 322
Domestic: Regular PP 20 Amp	0					70 618 111
Domestic: Regular PP <600 kWh/m	0					
Domestic: Regular PP >600 kWh/m	0		4 159 258			52 985 714
Domestic: Regular 60 Amp 1 & 3 ph	0		9 473 114			67 404 716
Domestic: Renew able Energy (DOM5) SSEG with export	0		53 686			462 209
Commercial: Life Line20 Amp PP	0		584			279 964
Commercial: Low 40 Amp 1 & 3 ph PP	0		31 138			232 322
Commercial: Regular PP 80 Amp 1 & 3 ph	0		4 100 648			30 456 717
Commercial: Credit meters 80 Amps 1 & 3 ph	0		3 404 689			25 845 740
Commercial: Regular PP 80 Amp 1 & 3 ph	0					
Commercial: Renew able Energy (COM5) SSEG	0		52 708			491 874
Agricultural: Regular 80Amp 3 phase	0		319 271			4 660 650
AGRICULTURAL: Renew able Energy (AGRI 1.1) own use & expo	0		19 050			358 635
Large Power: Low Voltage > 80 Amp	0		5 147 378	17 429 282	26 975 622	28 416 908
Large Power: Low Voltage > 80 Amp SSEG	0		74 417	181 210	224 064	165 753
Industrial: Medium Voltage (IND2)	0		1 015 315	8 667 915	14 145 469	18 948 258
Industrial Medium Voltage (IND 2.1): SSEG	0					
Municipal: Street and Traffic lights (MUN1)	0		-			8 689 435
Municipal: Low Voltage <80 Amp (MUN2)	0		-		-	1 669 749
Municipal: Low Voltage >80 Amp (MUN3)	0		-		10 139 130	13 769 424
NPA : Single Phase 20 Amp Prepaid (NPO1)	0		-			5 861
NPA : LV > 60 Amp PP SARS Approved (NPO2)	0		-			62 109
Sport: Low All Consumers (<80A) and Prepaid (SPO1)	0		-			130 593
Sport: High Consumers (>80A) Maximum Demand (SPO2)	0		-		147 668	385 024
Time of Use (Low Voltage>80Amp) TOUT1	0		7 397 433	22 268 606	8 870 682	63 563 811
Time of Use (Low Voltage>80Amp) TOUT1 SSEG	0		294 192	1 677 240	416 276	2 375 559
Time of Use (Medium Voltage) TOUT2	0		3 486 469	27 510 500	19 114 606	159 866 543
Time of Use (Medium Voltage) TOUT2 SSEG	0		290 539	2 552 365	559 006	3 477 136
Wheeling at low voltage (<400V) in c/kWh	0					
Wheeling at medium voltage (>400V) in c/kWh	0					
Availability	0		627 516			
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	0					
	792 316 349	792 400 888	0.0%	39 947 407	80 287 117	80 592 522
						591 272 138

Table 18 shows the 2021/2022 consumptions statistics.

Table 18

STELLENBOSCH		CONSUMPTION STATISTICS FOR CHARGES APPLICABLE FOR ALL MONTHS OF THE YEAR					
CONSUMPTION STATISTICS		POD's /	MD-kVA/Cust	LF (annual)	LF (ave month)	Ave consump.	% 1 st block energy Vs total energy
TARIFF NAME	TARIFF CODE	Ratio	%	%	%	kWh/cust/m	%
Domestic: Life Line PP	0		-			259.8	38%
Domestic: Regular PP 20 Amp	0		-			303.2	16%
Domestic: Regular PP <600 kWh/m	0		#DIV/0!			#DIV/0!	
Domestic: Regular PP >600 kWh/m	0		-			992.1	5%
Domestic: Regular 60 Amp 1 & 3 ph	0		-			741.9	7%
Domestic: Renewable Energy (DOM5) SSEG w with export	0		-			1 215.4	4%
Commercial: Life Line20 Amp PP	0		-			284.8	0%
Commercial: Low 40 Amp 1 & 3 ph PP	0		-			1 106.4	0%
Commercial: Regular PP 80 Amp 1 & 3 ph	0		-			1 362.8	0%
Commercial: Credit meters 80 Amps 1 & 3 ph	0		-			1 671.4	0%
Commercial: Regular PP 80 Amp 1 & 3 ph	0		#DIV/0!			#DIV/0!	
Commercial: Renewable Energy (COM5) SSEG	0		-			2 449.3	0%
Agricultural: Regular 80Amp 3 phase	0		-			3 514.6	0%
AGRICULTURAL: Renewable Energy (AGRI 1.1) own use & expo	0		-			3 782.0	0%
Large Power: Low Voltage > 80 Amp	0		144.19	10.22%	36.77%	10 762.4	0%
Large Power: Low Voltage > 80 Amp SSEG	0		104.00	5.73%	25.75%	4 353.1	0%
Industrial: Medium Voltage (IND2)	0		748.82	13.67%	46.92%	74 728.2	0%
Industrial Medium Voltage (IND 2.1): SSEG	0		#DIV/0!			#DIV/0!	
Municipal: Street and Traffic lights (MUN1)	0		-			17 862.4	0%
Municipal: Low Voltage <80 Amp (MUN2)	0		-			1 135.9	0%
Municipal: Low Voltage >80 Amp (MUN3)	0		-		55.07%	48 837.7	0%
NPA : Single Phase 20 Amp Prepaid (NPO1)	0		-			113.4	0%
NPA : LV > 60 Amp PP SARS Approved (NPO2)	0		-			516.9	0%
Sport: Low All Consumers (<80A) and Prepaid (SPO1)	0		-			348.4	0%
Sport: High Consumers (>80A) Maximum Demand (SPO2)	0		-		102.26%	7 604.9	0%
Time of Use (Low Voltage>80Amp) T0U1	0		238.85	15.40%	38.67%	26 856.3	104%
Time of Use (Low Voltage>80Amp) T0U1 SSEG	0		420.55	7.10%	28.59%	21 785.3	103%
Time of Use (Medium Voltage) T0U2	0		1 172.39	31.41%	47.53%	268 805.1	101%
Time of Use (Medium Voltage) T0U2 SSEG	0		1 903.50	7.66%	36.78%	106 459.7	107%
Wheeling at low voltage (<400V) in c/kWh			#DIV/0!			#DIV/0!	
Wheeling at medium voltage (>400V) in c/kWh			#DIV/0!			#DIV/0!	
Availability			-			-	
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)			-			(2 667.2)	0%
Total			#DIV/0!	0	0		0.504

These figures all make sense and gives confidence to the sales data. Specifically the average consumption levels per consumer and the annual and monthly load factor of Bulk consumers.

Table 19

Table 19 shows the calculated revenue by multiplying the 2021/2022 consumption by the 2022/2023 tariffs.

STELLENBOSCH		REVENUES FROM CHARGES APPLICABLE FOR ALL MONTHS OF THE YEAR															HIGH SEASON REVENUES				LOW SEASON REVENUES				
30/06/2021		Customer service	Basic	Access	MD (aLL hours)	ALL Energy	Block 1 kWh		Block 3 kWh	Other charges	-	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy	Energy Peak	Energy Standard	Energy Total	Total						
CALCULATED REVENUE																									
TARIFF NAME	TARIFF CODE	R/year	R/year	R/year	R/year	R/year	R/year		R/year	?	R/year	Rand /season	Rand /season	Rand /season	Rand /season	Rand /season	Rand /season	Rand /season	R/year						
Domestic: Life Line PP	0	-	-	-	-	-	-	22 995 006	13 913 152	4 414 704	-	-	-	-	-	-	-	-	41 322 861						
Domestic: Regular PP 20 Amp	0	-	-	-	-	-	-	8 937 343	41 593 297	20 559 561	5 112 065	-	-	-	-	-	-	-	76 202 265						
Domestic: Regular PP <600 kWh/m	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Domestic: Regular PP >600 kWh/m	0	-	4 439 194	-	-	-	-	1 617 571	10 205 699	15 591 341	29 678 239	-	-	-	-	-	-	-	61 532 045						
Domestic: Regular 60 Amp 1 & 3 ph	0	-	9 941 672	-	-	-	-	2 938 483	18 846 500	28 714 678	21 525 765	-	-	-	-	-	-	-	81 967 098						
Domestic: Renewable Energy (COM5) SSEG w ith export	0	-	36 980	-	-	-	-	10 530	84 124	118 678	263 378	-	-	-	-	-	-	-	514 090						
Commercial: Life Line20 Amp PP	0	-	-	-	-	-	302 319	-	-	-	-	-	-	-	-	-	-	-	302 319						
Commercial: Low 40 Amp 1 & 3 ph PP	0	-	22 096	-	-	-	250 773	-	-	-	-	-	-	-	-	-	-	-	272 869						
Commercial: Regular PP 80 Amp 1 & 3 ph	0	-	3 393 151	-	-	-	32 867 752	-	-	-	-	-	-	-	-	-	-	-	36 260 903						
Commercial: Credit meters 80 Amps 1 & 3 ph	0	-	2 736 576	-	-	-	27 927 615	-	-	-	-	-	-	-	-	-	-	-	30 664 191						
Commercial: Regular PP 80 Amp 1 & 3 ph	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Commercial: Renewable Energy (COM5) SSEG	0	-	35 346	-	-	-	528 610	-	-	-	-	-	-	-	-	-	-	-	563 957						
Agricultural: Regular 80Amp 3 phase	0	-	235 850	-	-	-	5 044 557	-	-	-	-	-	-	-	-	-	-	-	5 280 407						
AGRICULTURAL: Renewable Energy (AGRI 1.1) own use & exp	0	-	16 813	-	-	-	386 968	-	-	-	-	-	-	-	-	-	-	-	403 781						
Large Power: Low Voltage > 80 Amp	0	-	5 344 561	18 805 699	29 044 555	30 675 496	-	-	-	-	-	-	-	-	-	-	-	-	83 870 311						
Large Power: Low Voltage > 80 Amp SSEG	0	-	77 039	195 520	241 766	178 847	-	-	-	-	-	-	-	-	-	-	-	-	693 172						
Industrial: Medium Voltage (IND 2.1): SSEG	0	-	985 973	9 502 519	15 262 874	20 444 557	-	-	-	-	-	-	-	-	-	-	-	-	46 195 923						
Industrial Medium Voltage (IND 2.1): SSEG	93 732 205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Municipal: Street and Traffic lights (MUN1)	0	-	-	-	-	9 375 971	-	-	-	-	-	-	-	-	-	-	-	-	9 375 971						
Municipal: Low Voltage <80 Amp (MUN2)	0	-	-	-	-	1 816 568	-	-	-	-	-	-	-	-	-	-	-	-	1 816 568						
Municipal: Low Voltage >80 Amp (MUN3)	0	-	-	-	10 940 097	14 857 813	-	-	-	-	-	-	-	-	-	-	-	-	25 797 909						
NPA : Single Phase 20 Amp Prepaid (NPO1)	0	-	-	-	-	6 335	-	-	-	-	-	-	-	-	-	-	-	-	6 335						
NPA : LV > 60 Amp PP SARS Approved (NPO2)	0	-	-	-	-	67 079	-	-	-	-	-	-	-	-	-	-	-	-	67 079						
Sport: Low All Consumers (<80A) and Prepaid (SPO1)	0	-	-	-	-	141 047	-	-	-	-	-	-	-	-	-	-	-	-	141 047						
Sport: High Consumers (>80A) Maximum Demand (SPO2)	0	-	-	-	176 270	417 491	-	-	-	-	-	-	-	-	-	-	-	-	593 760						
Time of Use (Low Voltage>80Amp) TOUT	0	-	7 420 574	24 029 290	9 571 862	-	-	-	-	-	-	12 201 507	9 470 695	4 648 591	517 449	11 232 218	19 645 929	12 344 603	111 082 718						
Time of Use (Low Voltage>80Amp) TOUT SSEG	0	-	317 433	1 809 893	449 189	-	-	-	-	-	-	292 607	140 491	160 122	12 904	523 651	936 324	544 478	4 852 052						
Time of Use (Medium Voltage) TOL2	0	-	3 657 402	31 213 363	19 612 399	-	-	-	-	-	-	28 728 770	20 399 462	12 250 436	404 041	27 835 377	46 790 688	34 971 381	225 863 319						
Time of Use (Medium Voltage) TOL2 SSEG	0	-	1 447	2 895 909	573 564	-	-	-	-	-	-	635 767	320 318	396 262	50 080	690 579	737 616	972 762	7 274 304						
Wheeling at low voltage (<400V) in c/kWh	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Wheeling at medium voltage (>400V) in c/kWh	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Availability	0	-	627 516	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	627 516						
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	0	-	38 358	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38 358						
	792 316 349	7.7%	####	39 327 983	88 482 152	85 872 576	145 289 796	13 504 327	93 724 626	78 897 410	80 994 150	-	41 858 651	30 330 966	17 455 411	984 473	40 287 626	67 769 558	48 833 224	853 583 128					

Table 20 shows an analysis of the newly calculated revenue compared with the actual revenue.

Table 20

		Energy Peak	TOTAL	Actual: Reference			
1	CALCULATED REVENUE						
1	TARIFF NAME	Rand /season	R/year	Total	Difference	% Diff	
1	Domestic: Life Line PP	-	41 322 861	35 949 322	5 373 539	14.9%	
1	Domestic: Regular PP 20 Amp	-	76 202 265	70 618 111	5 584 153	7.9%	
1	Domestic: Regular PP <600 kWh/m	-	-	-	-	#DIV/0!	
1	Domestic: Regular PP >600 kWh/m	-	61 532 045	57 144 972	4 387 073	7.7%	
1	Domestic: Regular 60 Amp 1 & 3 ph	-	81 967 098	76 877 830	5 089 268	6.6%	
1	Domestic: Renew able Energy (DOM5) SSEG w with export	-	514 090	515 895	-1 805	-0.3%	
1	Commercial: Life Line20 Amp PP	-	302 319	280 548	21 771	7.8%	
1	Commercial: Low 40 Amp 1 & 3 ph PP	-	272 869	263 460	9 409	3.6%	
1	Commercial: Regular PP 80 Amp 1 & 3 ph	-	36 260 903	34 557 365	1 703 538	4.9%	
1	Commercial: Credit meters 80 Amps 1 & 3 ph	-	30 664 191	29 250 429	1 413 762	4.8%	
1	Commercial: Regular PP 80 Amp 1 & 3 ph	-	-	-	-	#DIV/0!	
1	Commercial: Renew able Energy (COM5) SSEG	-	563 957	544 582	19 374	3.6%	
1	Agricultural: Regular 80Amp 3 phase	-	5 280 407	4 979 921	300 486	6.0%	
1	AGRICULTURAL: Renew able Energy (AGRI 1.1) own use & export	-	403 781	377 686	26 096	6.9%	
1	Large Power: Low Voltage > 80 Amp	-	83 870 311	77 969 190	5 901 121	7.6%	
1	Large Power: Low Voltage > 80 Amp SSEG	-	693 172	645 443	47 729	7.4%	
1	Industrial: Medium Voltage (IND2)	-	46 195 923	42 776 957	3 418 965	8.0%	
1	Industrial Medium Voltage (IND 2.1): SSEG	-	-	-	-	#DIV/0!	
1	Municipal: Street and Traffic lights (MUN1)	-	9 375 971	8 689 435	686 535	7.9%	
1	Municipal: Low Voltage <80 Amp (MUN2)	-	1 816 568	1 669 749	146 819	8.8%	
1	Municipal: Low Voltage >80 Amp (MUN3)	-	25 797 909	23 908 554	1 889 355	7.9%	
1	NPA : Single Phase 20 Amp Prepaid (NPO1)	-	6 335	5 861	474	8.1%	
1	NPA : LV > 60 Amp PP SARS Approved (NPO2)	-	67 079	62 109	4 970	8.0%	
1	Sport: Low All Consumers (<80A) and Prepaid (SPO1)	-	141 047	130 593	10 454	8.0%	
1	Sport: High Consumers (>80A) Maximum Demand (SPO2)	-	593 760	532 692	61 068	11.5%	
1	Time of Use (Low Voltage>80Amp) TOU1	11 232 218	111 082 718	102 425 426	8 657 293	8.5%	
1	Time of Use (Low Voltage>80Amp) TOU1 SSEG	529 651	4 852 052	4 763 267	88 785	1.9%	
1	Time of Use (Medium Voltage) TOU2	27 835 377	225 863 319	210 092 780	15 770 540	7.5%	
1	Time of Use (Medium Voltage) TOU2 SSEG	690 579	7 274 304	6 936 378	337 927	4.9%	
1	Wheeling at low voltage (<400V) in c/kWh	-	-	-	-	#DIV/0!	
1	Wheeling at medium voltage (>400V) in c/kWh	-	-	-	-	#DIV/0!	
1	Availability	-	24 269 495	24 269 495	-	0.0%	
1	SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	-	38 358	(29 554)	67 912	-229.8%	
1		815 958 328	40 287 826	877 225 107	816 208 496	61 016 611	7.48%

It shows an increase of 7.7% which is very close to the average price increase of 7.47%. This gives high confidence in accuracy of the data.

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 21.

Table 21

S00	0	0	0	0	0	0	0	0	0				0
S01	0	0	0	0	0	0	0	0	0				0
S02	0	0	0	0	0	0	0	0	0				0
S03	0	0	0	0	0	0	0	0	0				0
S04	129 039 422	0	0	0	0	0	0	0	0				129 039 422
S05		67 211 637	0	0	0	0	0	0	0				67 211 637
S06	0	0	12 842 104	1 911 028	22 682 206	55 764 499	25 934	421 472	73 828 052	4 596 488	-984 190	3 197 371	174 284 965
S07	0	0	0	0	0	0	0	0	0				0
S08	0	0	0	0	0	0	0	0	0				0
S09	0	0	0	0	0	0	0	0	0				0
	129 039 422	67 211 637	12 842 104	1 911 028	22 682 206	55 764 500	25 934	421 472	73 828 052	4 596 488	-984 190	3 197 371	370 536 024
												Bulk	392 350 191
												Difference	5.56%
													370 536 024
													-21 814 167

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 initial estimated loss factors are then modified until the total load, as calculated, is equal to the total load supplied in bulk.

The resultant calculations are shown in Table 22 and Table 22.

Table 22

Input at each network.			
Supply		Through	Grand
position	kWh/y	Network	Total
		TOTAL	392 350 191
S0	0	NL0	392 350 191
S1	0	NL1	392 350 191
S2	0	NL2	392 350 191
S3	0	NL3	388 531 515
S4	129 039 422	NL4	382 269 630
S5	67 211 637	NL5	248 348 430
S6	174 284 965	NL6	174 284 965
S7	0	NL7	0
S8	0	NL8	0
S9	0	NL9	0
370 536 024			
COMPARISONS			
Supply		Grand	
position		Total	
Bulk Purchases		392350191	
Total calculated		392350191	
Difference		-	
% Difference		0.00%	
Total losses		5.56%	
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 23

STELLENBOSCH				
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%	0.98%	S3	0.98%
N4	2.50%	1.64%	S4	2.64%
N5	3.00%	1.97%	S5	4.65%
N6	6.00%	3.93%	S6	8.77%
N7	0.00%	0.00%	S6	8.77%
Total losses				5.56%

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

9. BULK SUPPLY ANALYSIS.

Stellenbosch buys all its power from:

- Eskom at 3 x 66 kV points at: Franschhoek, Cloetesville and Stellenbosch.
- Drakenstein at 3 x 11 kV points: FRG, Riversmeet and Victor Verster.

All points are charged at Eskom Megaflex.

These actual kWh and Rand values are summarised to represent the total purchase costs for Stellenbosch from Drakenstein in **Table 24** and Eskom in **Table 25**.

Table 24

STELLEN
BOSCH
MUNICIPALITY

ALITY

Period	Meter number	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Total
01/07-01/08	FRG															
	OP17140014	583 820	617 010	538 370	591 790		697 020	836 230	780 020	849 720	741 520	714 270	552 570	7 502 340		
	PP17140014	226 650	223 580	205 000	212 350		246 720	263 220	259 270	287 340	227 400	230 260	206 390	2 588 180		
	SP17140014	571 640	569 950	515 590	569 800		626 290	686 500	677 730	744 910	612 880	592 330	512 640	6 680 270		
	Total kWh	1 382 110	1 410 540	1 258 960	1 373 940	1392310	1 570 030	1 785 950	1 717 020	1 881 980	1 581 800	1 536 880	1 271 600	18 163 100		
	RA17140014	241 840	242 750	195 030	232 060		272 080	353 910	406 650	354 850	0	0	200 200	2 499 370		
	KVA	2 663.70	2 649	2 530	2 880		3 304	3 343	3 516	3 435	3 182	3 015	2 943	33 460		
	NMD	4 000	4 000	4 000	4 000		4 000	4 000	4 000	4 000	4 000	4 000	4 000	44 000		

		2021-07-01	2021-08-01	2021-09-01	2021-10-01	1900-01-00	2021-12-01	2022-01-01	2022-02-01	2022-03-01	2022-04-01	2022-05-01	2022-06-01	Total
Description	Tariff Charge	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount
Admin Charge	125.02	3 876	3 876	3 751	3 876		3 876	3 876	3 501	3 876	3 751	3 876	3 751	41 882
TX Network Capacity Charge NMD	22.2600	89 040	89 040	89 040	89 040		89 040	89 040	89 040	89 040	89 040	89 040	89 040	979 440
Network Capacity Charge NMD	11.4400	45 760	45 760	45 760	45 760		45 760	45 760	45 760	45 760	45 760	45 760	45 760	503 360
Network Demand Charge	42.2100	112 435	111 802	106 804	121 582		139 466	141 053	148 389	144 996	134 300	127 263	124 237	1 412 325
Urban Low Voltage Subsidy NMD	-	0	0	0	0		0	0	0	0	0	0	0	0
Ancillary Service Charge	0.0055	7 602	7 758	6 924	7 557		8 635	9 823	9 444	10 351	8 700	8 453	6 994	92 239
HS Standard Charge	1.3427	767 541	765 272	513 064	567 008		623 221	683 136	674 409	741 270	609 877	589 428	688 322	7 222 547
HS Peak Charge	4.4327	1 004 671	991 063	296 389	307 016		356 708	380 563	374 853	415 436	328 775	332 910	914 865	5 703 249
HS Off Peak Charge	0.7293	425 780	449 985	339 765	373 479		439 889	527 745	492 271	536 258	467 973	450 776	402 989	4 906 911
Electrification @ Rural Subsidy	0.1080	149 268	152 338	135 968	148 386		169 563	192 883	185 438	203 254	170 834	165 981	137 333	1 811 245
Service Charge	277.35	8 598	8 598	8 321	8 598		8 598	8 598	7 766	8 598	8 321	8 598	8 321	92 912
Reactive Power Charge HS	0.1951	47 183	47 361	0	0		0	0	0	0	0	0	39 059	133 603
		2 661 753	2 672 852	1 545 785	1 672 300	-	1 884 756	2 082 476	2 030 870	2 198 838	1 867 330	1 822 084	2 460 669	22 899 713
		Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount
Admin Charge	125.02	3 876	3 876	3 751	3 876		3 876	3 876	3 501	3 876	3 751	3 876	3 751	41 882
TX Network Capacity Charge NMD	22.2600	89 040	89 040	89 040	89 040		89 040	89 040	89 040	89 040	89 040	89 040	89 040	979 440
Network Capacity Charge NMD	11.4400	45 760	45 760	45 760	45 760		45 760	45 760	45 760	45 760	45 760	45 760	45 760	503 360
Network Demand Charge	42.2100	118 568	116 411	111 468	106 804		116 909	124 612	128 065	131 349	119 091	114 271	136 123	1 323 672
Urban Low Voltage Subsidy NMD	-	0	0	0	0		0	0	0	0	0	0	0	0
Ancillary Service Charge	0.0055	7 099	6 539	5 535	5 491		6 003	6 847	6 763	7 095	5 934	6 060	5 734	69 099
HS Standard Charge	1.3427	710 651	626 410	368 973	376 208		422 002	452 840	465 757	512 397	422 131	434 690	559 127	5 351 185
HS Peak Charge	4.4327	1 091 818	1 011 941	290 606	244 861		279 372	293 815	314 143	333 691	286 803	296 837	911 895	5 355 783
HS Off Peak Charge	0.7293	375 633	360 354	274 257	284 595		299 198	370 203	343 508	343 495	287 996	290 066	306 605	3 335 911
Electrification @ Rural Subsidy	0.1080	139 389	128 404	108 687	107 824		117 871	134 448	132 800	139 320	116 523	118 990	112 595	1 356 853
Service Charge	-	0	0	0	0		0	0	0	0	0	0	0	0
Reactive Power Charge HS	0.1951	74 156	70 259	0	0		0	0	0	0	0	0	59 738	204 153
		2 655 989	2 458 995	1 298 077	1 264 457	-	1 380 031	1 521 442	1 529 336	1 606 022	1 377 030	1 399 589	2 230 368	18 721 337
		Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount
Admin Charge	125.02	3 876	3 876	3 751	3 876		3 876	3 876	3 501	3 876	3 751	3 876	3 751	41 882
TX Network Capacity Charge NMD	22.2600	22 260	22 260	22 260	22 260		22 260	22 260	22 260	22 260	22 260	22 260	22 260	244 860
Network Capacity Charge NMD	11.4400	11 440	11 440	11 440	11 440		11 440	11 440	11 440	11 440	11 440	11 440	11 440	125 840
Network Demand Charge	42.2100	13 278	15 960	15 890	18 201		18 272	16 996	15 067	15 454	14 197	12 655	16 341	172 312
Urban Low Voltage Subsidy NMD	-	0	0	0	0		0	0	0	0	0	0	0	0
Ancillary Service Charge	0.0055	744	725	710	799		920	944	725	753	653	653	622	8 248
HS Standard Charge	1.3427	75 966	70 003	53 645	62 930		73 039	67 501	52 484	54 631	47 346	46 517	60 585	664 647
HS Peak Charge	4.4327	109 674	106 088	37 060	34 741		43 906	40 098	33 313	34 025	30 959	31 516	97 466	598 846
HS Off Peak Charge	0.7293	39 358	40 647	31 233	36 587		40 074	47 991	35 403	36 870	31 369	31 681	33 589	404 804
Electrification @ Rural Subsidy	0.1080	14 611	14 235	13 935	15 686		18 065	18 534	14 243	14 780	12 819	12 824	12 222	161 955
Service Charge	-	0	0	0	0		0	0	0	0	0	0	0	0
Reactive Power Charge HS	0.1951	11 234	11 306	0	0		0	0	0	0	0	0	8 942	31 482
		302 440.37	296 539.15	189 924.28	206 520.30	-	231 851.47	229 639.55	188 436.02	194 089.69	174 793.97	173 421.34	267 218.52	2 454 874.67
		Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount
Admin Charge	125.02	11 627	11 627	11 252	11 627	0	11 627	11 627	10 502	11 627	11 252	11 627	11 252	125 645
TX Network Capacity Charge NMD	22.2600	200 340	200 340	200 340	200 340	0	200 340	200 340	200 340	200 340	200 340	200 340	200 340	2 203 740
Network Capacity Charge NMD	11.4400	102 960	102 960	102 960	102 960	0	102 960	102 960	102 960	102 960	102 960	102 960	102 960	1 132 560
Network Demand Charge	42.2100	244 281	244 173	234 163	246 587	0	274 647	282 662	291 522	291 799	267 588	254 189	276 700	2 908 309
Urban Low Voltage Subsidy NMD	-	0	0	0	0	0	0	0	0	0	0	0	0	0
Ancillary Service Charge	0.0055	15 444	15 022	13 169	13 847	0	15 558	17 613	16 932	18 199	15 287	15 166	13 350	169 586
HS Standard Charge	1.3427	1 554 158	1 461 685	935 682	1 006 146	0	1 118 263	1 203 477	1 192 649	1 308 298	1 079 354	1 070 634	1 308 034	13 238 379
HS Peak Charge	4.4327	2 206 164	2 109 092	624 055	586 617	0	679 986	714 477	722 309	783 152	646 537	661 263	1 924 226	11 657 878
HS Off Peak Charge	0.7293	840 771	850 987	645 256	694 661	0	779 161	945 939	871 182	916 624	787 339	772 523	743 184	8 847 626
Electrification @ Rural Subsidy	0.1080	303 268	294 977	258 590	271 896	0	305 499	345 865	332 481	357 354	300 177	297 795	262 150	3 330 053
Service Charge	-	8 598	8 598	8 321	8 598	0	8 598	8 598	7 766	8 598	8 321	8 598	8 321	92 912
Reactive Power Charge HS	0.1951	132 572	128 926	0	0	0	0	0	0	0	0	0	107 739	369 237
		5 620 183	5 428 386	3 033 786	3 143 277	3 819 490	3 496 638	3 833 558	3 748 642	3 998 950	3 419 154	3 395 094	4 958 256	47 895 414

STELLENBOSCH MUNICIPALITY BULK PURCHASES SPREADSHEET - ESKOM ELECTRICITY ACCOUNTS															
		Intake no 1 : Stellenbosch 66kV		60MVA		STELLENBOSCH MUNIC TOTAL NMD		86MVA							
		Intake no 2: Cloetesville 66kV		16MVA											
		Intake no 3: Franschhoek 66kV		10MVA											
Acc No	5801626136	5801626136	5801626136	5801626136	5801626136	5801626136	5801626136	5801626136	5801626136	5801626136	5801626136	5801626136	5 801 626 136		
Billing Date	04/08/2021	03/09/2021	05/10/2021	04/11/2021	03/12/2021	05/01/2022	03/02/2022	03/03/2022	05/04/2022	05/05/2022	03/06/2022	05/07/2022	Total		
Acc Month	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Year		
Deu Date	03/08/2021	03/09/2021	03/10/2021	03/11/2021	03/12/2021	03/01/2022	03/02/2022	03/03/2022	03/04/2022	03/05/2022	03/06/2022	03/07/2022	Year		
Approved															
Maximum Demand (kVA)															
Franschhoek Demand kVa	8 438.72	8 045.30	7 845.58	7 869.44	7 840.02	7 615.27	8 364.16	8 834.31	8 786.32	9 428.70	8 569.77	9 056.47	100 694		
Cloetesville Demand kVa	9 423.11	8 657.47	8 017.70	10 084.14	12 259.56	7 054.49	7 293.13	8 857.22	8 589.63	8 478.19	8 833.81	9 420.41	106 969		
Stellenbosch Demand kVa	46 107.23	50 667.34	46 028.82	44 598.12	41 343.50	37 495.00	48 387.17	50 850.87	51 204.98	47 533.17	48 290.78	49 022.92	561 530		
Total kVa p/m	63 969.06	67 370.11	61 892.10	62 551.70	61 443.08	52 164.76	64 044.46	68 542.40	68 580.93	65 440.06	65 694.36	67 499.80	769 193		
Load Factor(%)															
Load Factor(%)	69.05%	66.70%	67.17%	62.89%	61.15%	69.64%	62.53%	57.46%	63.12%	59.78%	65.32%	60.38%	8		
Aantal ure p/m	732	732	732	732	732	732	732	732	732	732	732	732	8 784		
Electricity Cos(R)															
Franschhoek Amount	R 7 402 569.66	R 7 202 951.63	R 4 367 109.47	R 4 200 900.11	R 4 144 606.65	R 4 522 811.19	R 4 927 542.50	4 725 910.69	R 5 130 015.34	R 4 420 801.68	R 4 629 017.39	R 7 130 856.98	R 62 805 093		
Cloetesville Amount	R 10 346 322.23	R 9 856 883.58	R 5 727 401.35	R 5 324 792.53	R 5 200 993.41	R 4 949 721.85	R 5 085 894.42	R 5 196 244.77	R 5 991 348.66	R 5 545 280.35	R 6 191 867.39	R 9 974 641.20	R 79 391 392		
Stellenbosch Amount	R 41 403 382.02	R 42 283 234.40	R 25 271 313.02	R 23 761 755.99	R 23 098 352.77	R 21 339 527.58	R 23 628 683.14	R 23 748 552.56	R 25 494 698.12	R 22 645 059.63	R 25 181 905.82	R 37 592 805.23	R 335 449 270		
Total Amount Vat Incl	R 59 152 273.91	R 59 343 069.61	R 35 365 823.84	R 33 287 448.63	R 32 443 952.83	R 30 812 060.62	R 33 642 120.06	R 33 670 708.02	R 36 616 062.12	R 32 611 141.66	R 36 002 790.60	R 54 698 303.41	R 477 645 755		
Energy Consumption (kWh)															
Franschhoek															
Franschhoek Off Peak	1 499 618	1 625 391	1 419 650	1 448 700	1 306 184	1 595 983	1 840 258	1 606 678	1 755 550	1 709 156	1 593 232	1 498 825	18 899 225		
Franschhoek Standard	1 760 625	1 658 252	1 526 396	1 457 612	1 459 316	1 571 203	1 697 665	1 674 751	1 834 596	1 440 015	1 616 027	1 579 327	19 275 785		
Franschhoek Peak	668 237	633 702	640 156	561 414	595 216	625 295	678 555	679 971	751 374	583 097	655 614	664 090	7 736 721		
Reactive /kvarh	0	0	0	0	0	0	0	0	0	0	0	84	84		
Total kWh FHK	3 928 480	3 917 345	3 586 202	3 467 726	3 360 716	3 792 481	4 216 478	3 961 400	4 341 520	3 732 268	3 864 873	3 742 242	45 911 731		
Cloetesville															
Cloetesville Off Peak	2 024 880	2 108 386	1 857 600	1 863 694	1 642 512	1 772 164	1 922 380	1 748 611	2 002 439	2 171 849	2 152 429	2 070 505	23 337 449		
Cloetesville Standard	2 520 056	2 269 850	2 096 595	1 917 244	1 888 517	1 749 036	1 754 285	1 865 212	2 262 414	1 927 487	2 289 000	2 244 980	24 784 676		
Cloetesville Peak	990 586	946 806	915 069	753 471	776 918	698 593	710 613	772 918	896 505	760 120	935 920	986 014	10 143 533		
Reactive /kvarh	0	0	0	0	0	0	0	0	0	0	0	406	406		
Total kWh CLVile	5 535 522	5 325 042	4 869 264	4 534 409	4 307 947	4 219 793	4 387 278	4 386 741	5 161 358	4 859 456	5 377 349	5 301 499	58 265 658		
Stellenbosch													0		
Stellenbosch Off Peak	8 966 480	9 718 225	8 801 266	8 755 486	7 804 748	8 032 557	8 902 724	8 136 308	8 887 142	9 219 038	9 291 981	8 440 045	104 956 000		
Stellenbosch Standard	10 089 334	10 067 502	9 247 343	8 643 447	8 436 460	7 581 039	8 515 862	8 912 308	9 477 679	7 861 035	9 303 584	8 950 682	107 086 275		
Stellenbosch Peak	3 812 820	3 864 488	3 928 484	3 396 310	3 592 086	2 966 705	3 291 779	3 432 186	3 820 626	2 964 665	3 572 360	3 401 443	42 043 952		
Reactive /kvarh	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total kWh Stell	22 868 634	23 650 215	21 977 093	20 795 243	19 833 294	18 580 301	20 710 365	20 480 802	22 185 447	20 044 738	22 167 925	20 792 170	254 086 227		
TOTAL KWH	32 332 636	32 892 602	30 432 559	28 797 378	27 501 957	26 592 575	29 314 121	28 828 943	31 688 325	28 636 462	31 410 147	29 835 911	358 263 616		
Total	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Total	from profiles	% Error
Off Peak	12 490 978	13 452 002	12 078 516	12 067 880	10 753 444	11 400 704	12 665 362	11 491 597	12 645 131	13 100 043	13 037 642	12 009 375	147 192 674	148 450 090.79	0.85%
Standard	14 370 015	13 995 604	12 870 334	12 018 303	11 784 293	10 901 278	11 967 812	12 452 271	13 574 689	11 228 537	13 208 611	12 774 989	151 146 736	152 507 366.42	0.89%
Peak	5 471 643	5 444 996	5 483 709	4 711 195	4 964 220	4 290 593	4 680 947	4 885 075	5 468 505	4 307 882	5 163 894	5 051 547	59 924 206	60 595 939.06	1.11%

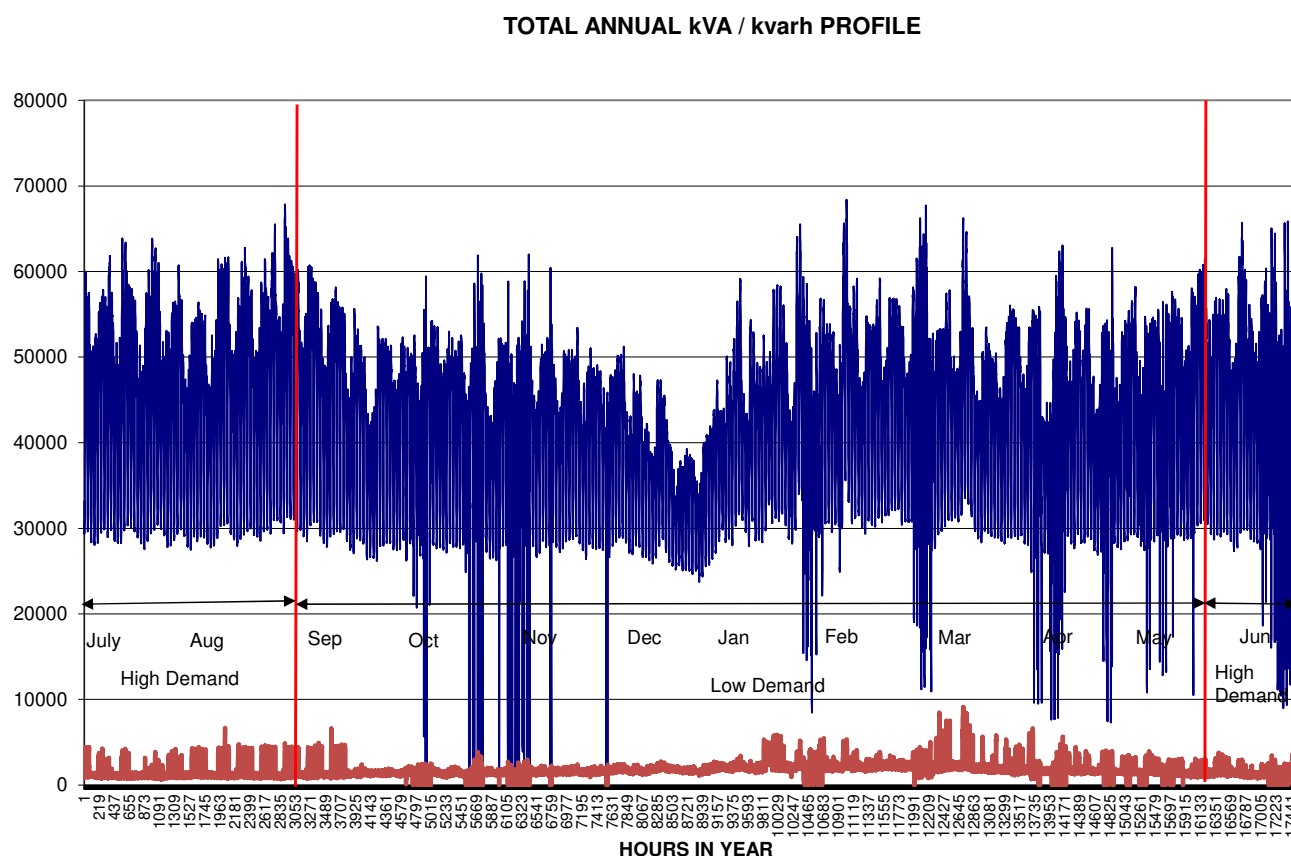
The following should be noted in this respect:

- The bottom of the Table 25 shows a comparison of the consumption quantities from the bills with that calculated from the $\frac{1}{2}$ hourly load profiles. It shows a very small differences which gives confidence to the accuracy of the bills.

The first set of profiles which will be analysed are the purchase profiles. The $\frac{1}{2}$ hourly profiles for the 2021/2022 financial year were obtained from Drakenstein and Eskom for each of the points of supply.

Figure 5 shows the total $\frac{1}{2}$ hourly KVA purchases (Y-Axis) for all of the Stellenbosch bulk points of supply added together over the 12 months (X-Axis).

Figure 5

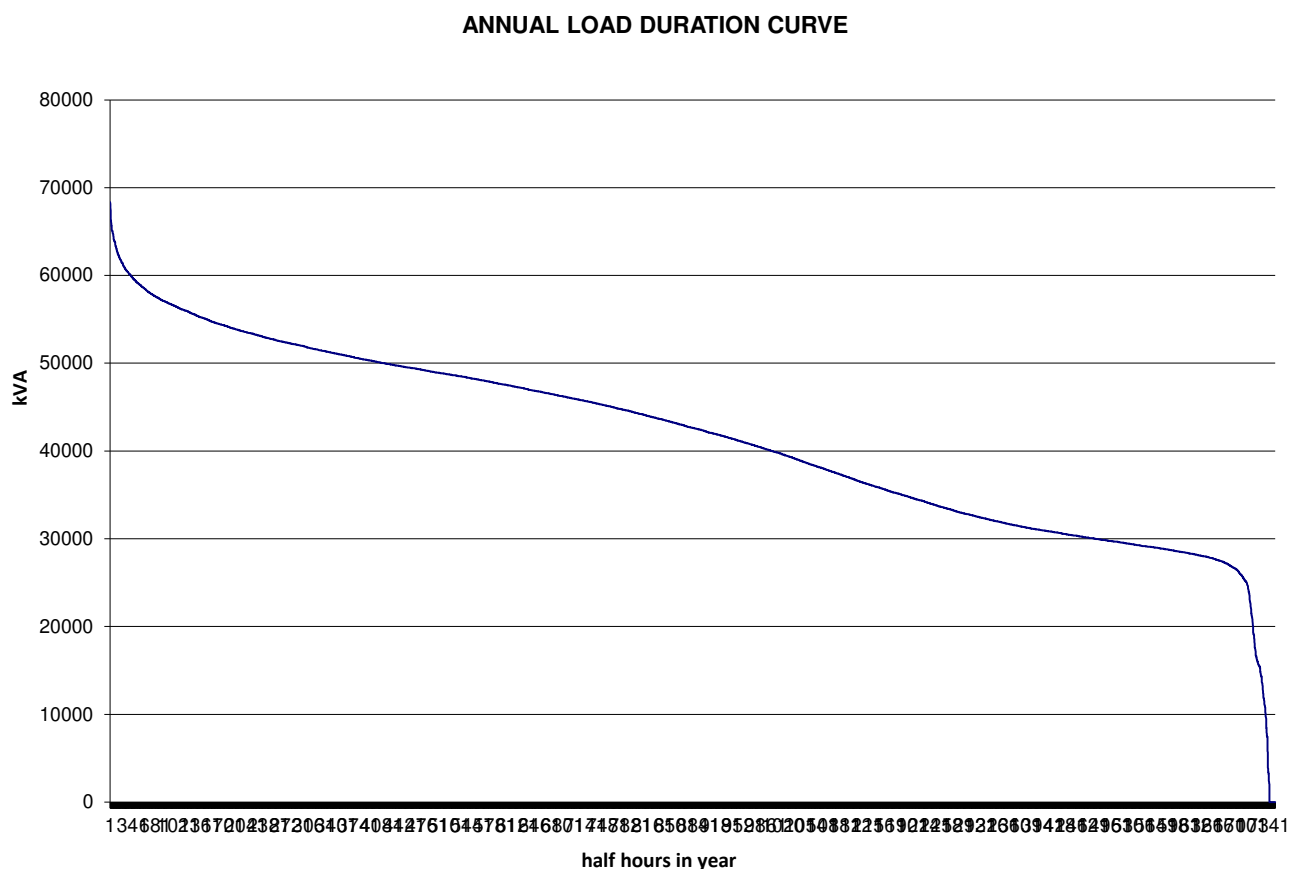


The following observations can be made from this:

- It shows a drop in consumption during the month of December which co-insides with the drop in university / school and business activity during this period.
- The extensive periods of no load confirms the load shedding during this period.

Figure 7 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

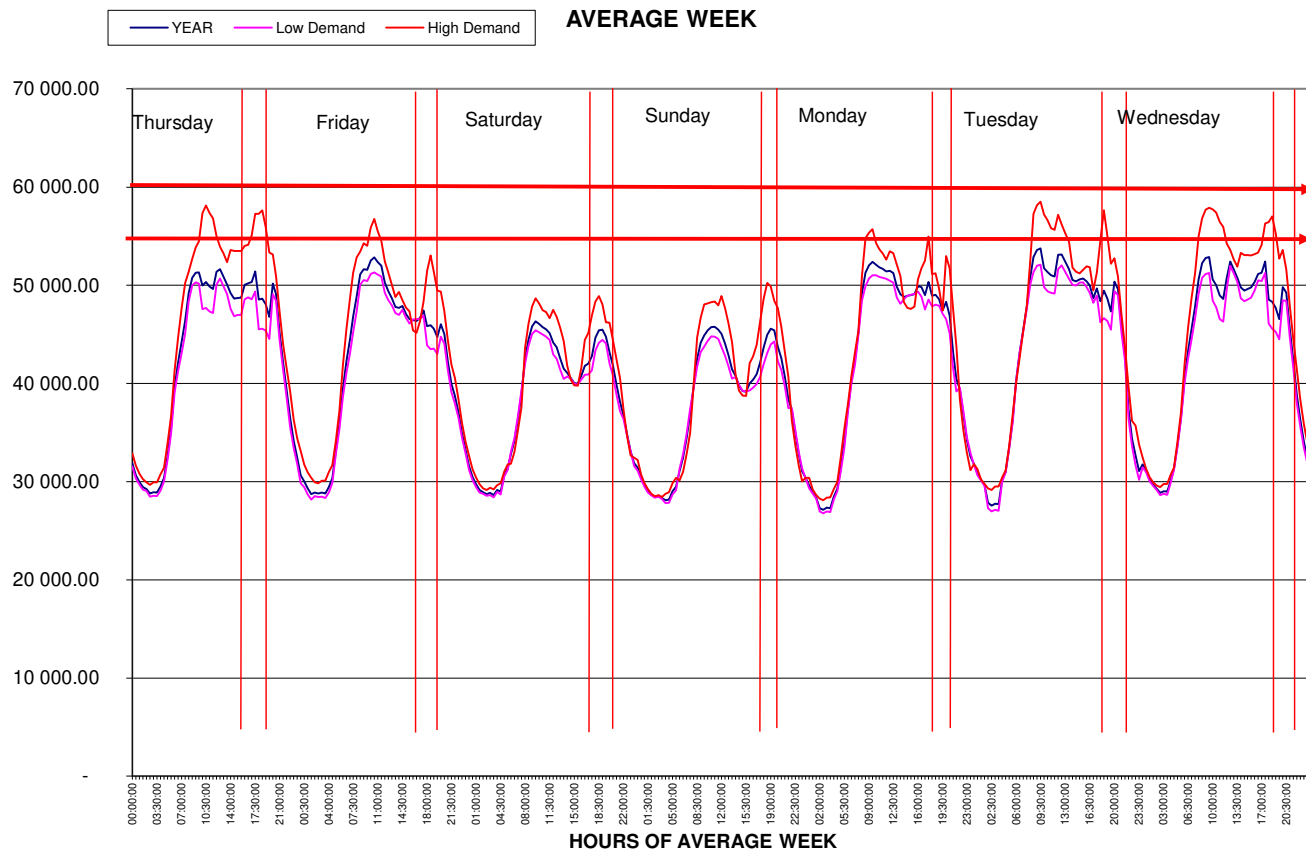


This shows that there is reasonable opportunity to save on maximum demand charges by only cutting out the peaks for a few hours in the year. Although the potential looks limited for the combined load, it will become clear that there are great opportunities to reduce peaks at each individual Bulk point of supply. Analysis shows that close to 4 MW can be further reduced by managing less than 100 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

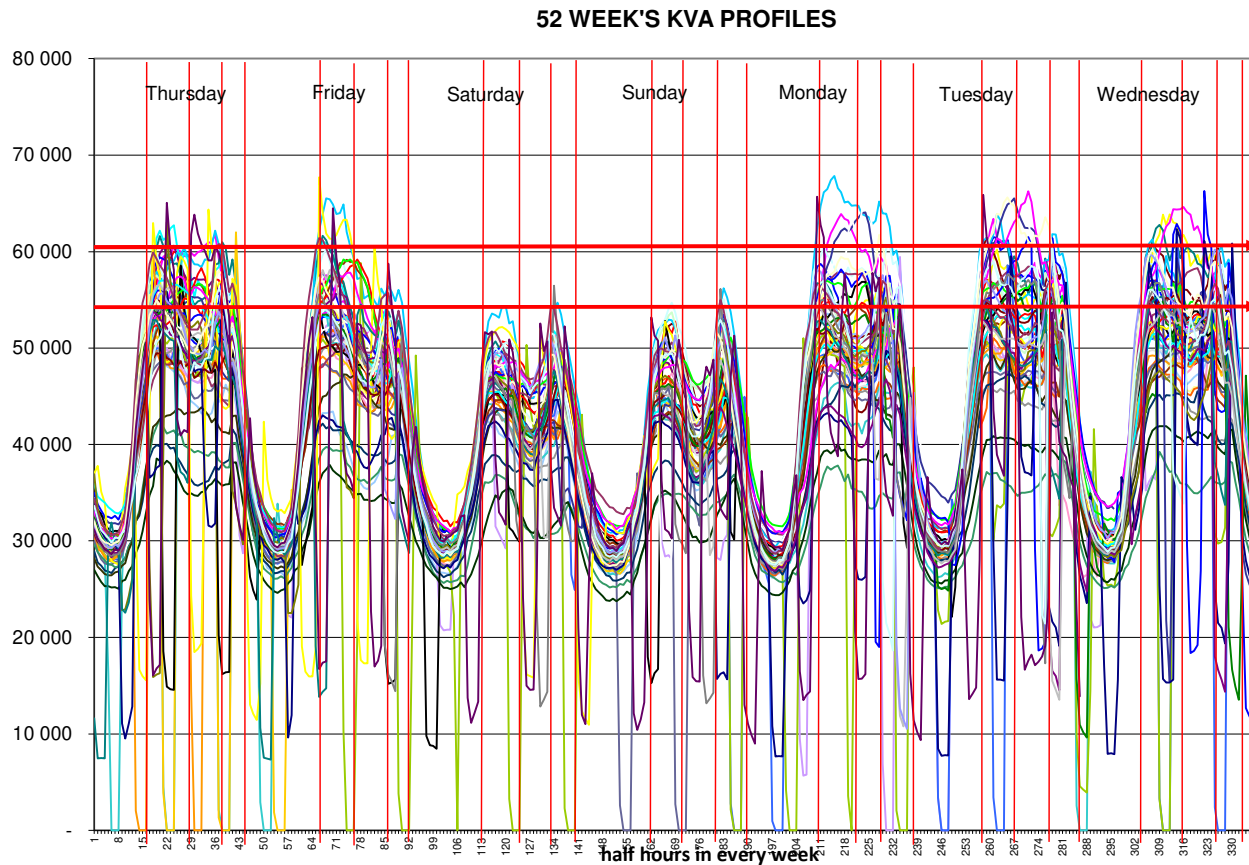


The following can be said in this respect:

- This is similar to other town profiles with morning and evening peaks.
- It shows higher demands during the mornings during High demand period (Winter) period. This could be from all the municipal and other business activities during the cold winter mornings.
- With the hot summers there are higher morning peaks co-incident with air-conditioning usage.
- It shows lower consumption on Saturdays and 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 morning peaks are more dominant.
- It also shows that there are only a few days in the year where the demand actually exceeds 65 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 the morning peaks but the rising evening peaks cannot be ignored specifically in local networks.
- Although the municipality has extensive geyser control system and relays in place it is not clear from the load profile that it is being used effectively to control those few peaks every month that are contributing to the high maximum demand and access charges.

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 are accepted and for which data is separately available include the following:

- MVatHV
- LPU MV
- LPU LV
- MunicS
- Agricu
- Commer
- Reside
- NPA
- Sports
- DomRDP
- SSEGIm
- SSEGEx
- Lights

The following process was followed to obtain representative load profiles:

- Various annual ½ hourly load profiles were obtained from the meters of Stellenbosch 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.
- These were then used to calculate the relevant representative load profiles.

The consumer / substation / feeder profiles used are listed in Table 26.

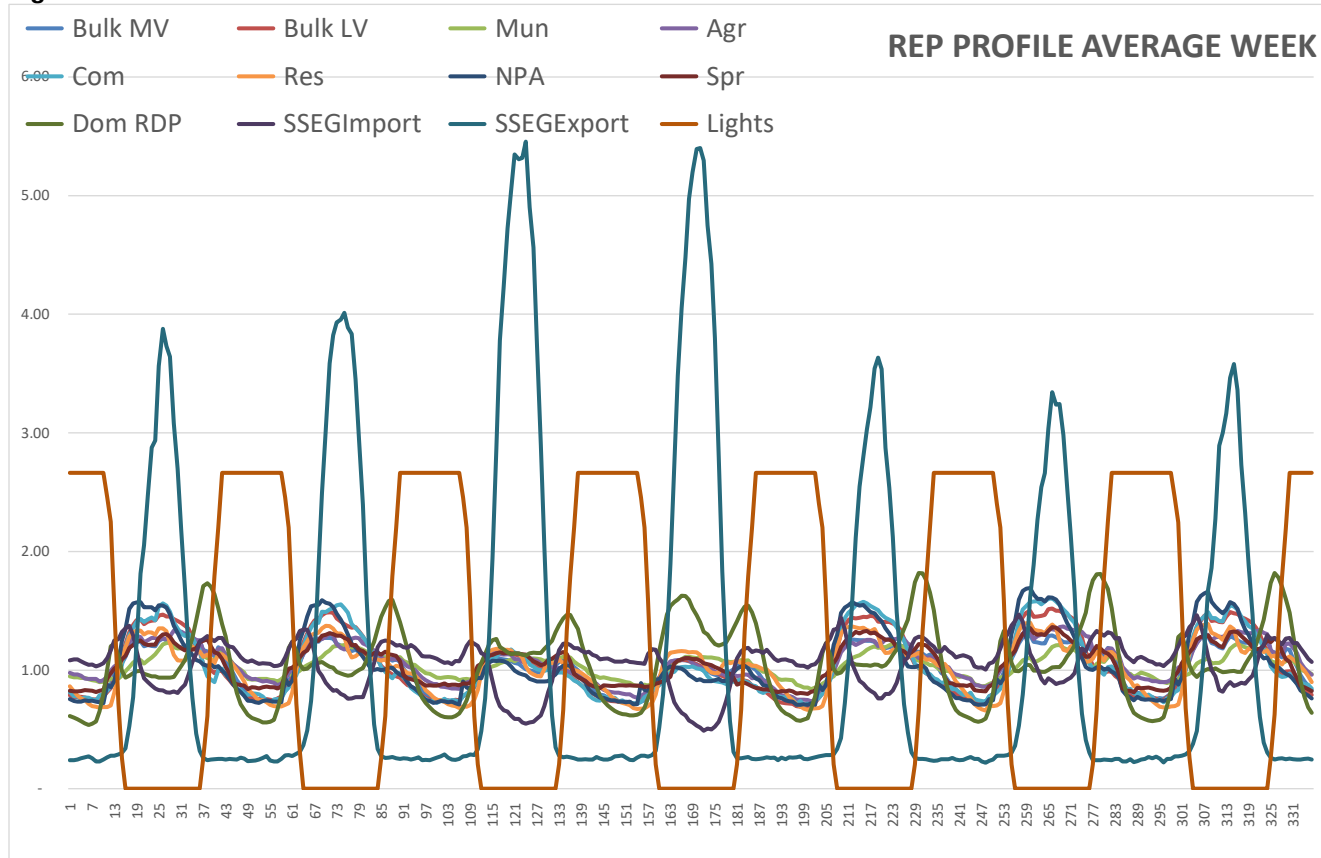
Table 26

LOAD PROFILE DETAILS						
Meter No	Name	Tariff	Profile	Voltage		
10390008	FH : IMIBALA ORCHARDS	TOU1	Agr	LV		
11340050	FH : FRANCOLLEEN (PTY) LTD (garage)	TOU1	Com	LV		
11350018	STB: BOSCHENDAL LIMITED	TOU2	Ind	LV		
11390021	FH: Municipality Erf 1331/15	MUN3	Mun	LL		
12220087	FH : RHODES FOOD GROUP (PTY) LTD (Melkery)	TOU2	Agr	LV		
17290019	FH : YODRIVE (PTY) LTD	TOU1	Agr	LV		
17410024	FH : RHODES FOOD GROUP (PTY) LTD. - (RFG Fabriek)	TOU2	Agr	LV		
29828806	FH : AC+TE. WIDLAKE (Solar client)	COM6	Com	LL		
30060243	FH: GRANDE PROVINCE PROPERTIES (PTY) LTD - Gaste H	TOU1	Com	LL		
30060244	STB: Caltex Olie (SA) EDMS	TOU1	Com	LL		
30060263	FH: SAPD Franschhoek	IND1	Com	LL		
30060433	FH: Klein Dassenberg (LEEUE DASSENBERG WINERY (PTY) LTD)	IND1	Ind	LV		
30060436	FH: S I Sampson	IND1	Ind	LL		
30061959	FH: GRANDE PROVINCE PROPERTIES (PTY) LTD - Kelder	TOU1	Com	LV		
30061980	FH : Surrey Holmes (PTY) LTD	IND1	Ind	LL		
30062007	STB: De Ouwe Werf	TOU1	Com	LV		
30062076	STB: STELLENBOSCH MUNISIPALITEIT	MUN3	Mun	LL		
33017246	STB: Huis Horison	TOU1	Res	LV		
33017247	FH: Rio Ridge - La Lude	TOU1	Com	LV		
33017249	FH: La Avenue (L'AVENUE DE FRANSCHHOEK H.O.A)	IND2	Ind	LL		
33017251	STB: Cyrus	IND1	Com	LL		
33021154	STB: Pandero Investments 103 CC	TOU1	Com	LL		
33022596	STB: Eikehof	IND1	Com	LL		
35008991	FH: COL PIZZERIA FRANSCHHOEK CC	IND1	Com	LL		
35009004	STB: Distell - Adam Tas	TOU2	Ind	MV		
35009022	FH: Haute Cabriere (CLOS CABRIERE)	TOU1	Ind	LV		
35009025	STB: UNIVERSITY OF STELLENBOSCH (Konservatorium)	TOU2	Com	MV		
35009062	FH: Xabisa Prop	TOU1	Com	LL		
35012897	STB: Lod Laser Cut	TOU1	Com	LV		
35012918	STB: Dannie	IND1	Com	LL		
35012925	STB: Stellenbosch Lab Pty Ltd	TOU1	Com	LL		
35012935	STB: STELLENBOSCH PREMIER MANUFACTURERS PTY (Naco)	TOU1	Ind	LV		
35012953	FH: WIDEPROP'S 49 PTY LTD	TOU1	Com	LV		
35012970	STB: Idas Valley Mews	IND1	Com	LL		
35012972	FH: TK Retail Consultants CC	IND1	Com	LL		
35012978	STB: UNIVERSITY OF STELLENBOSCH (Monica Koshuis)	TOU2	Res	MV		
35012980	STB: Millennia Park	IND2	Com	LV		
35012988	STB: Boland Kollege	IND2	Com	LV		
35012991	FH: F H Country Est	IND2	Ind	MV		
35012993	STB: Medi-Clinic Corp	TOU2	Com	LV		
35012995	STB: Lurend Investment	IND2	Ind	MV		
35012997	STB: CATWALK INVESTMENTS 385 (PTY) LTD	IND2	Ind	LV		
35012998	STB: Munic - Techno Park Pump Station	MUN3	Mun	LL		
35012999	STB: Paradyskloof Villas	IND1	Res	LL		
35013001	STB: Boland Distrik Munic - Undercover	IND2	Com	LV		
35013004	FH: French Connection	TOU1	Com	LL		
35013008	STB: Bloemhof Hostel	TOU1	Res	LV		
35013009	STB: UNIVERSITY OF STELLENBOSCH (Erica Koshuis)	TOU2	Res	MV		
35013010	STB: Rhenish Girls High School	TOU1	Com	LV		
35013011	STB: Rhenish Girls High School	TOU1	Com	MV		
35013012	STB: Capitec Bank	TOU1	Com	LL		
35013014	STB: UNIVERSITY OF STELLENBOSCH (Helderberg)	TOU2	Res	LV		
35013017	FH: REUBEN'S RESTAURANT AND BAR TRUST	IND1	Com	LL		
35013018	STB: TPARK BODY CORP	IND1	Com	LL		
35013026	FH: Clos Cabriere	TOU1	Ind	LV		
35013034	STB: Stelkloof Trust	TOU1	Com	LL		
35013044	STB: Kaggelsberg Pty Ltd	IND1	Com	LL		
35013045	STB: Kaggelsberg Pty Ltd	IND1	Com	LV		
35013055	STB: ACVV (Azaliahof)	TOU2	Com	LV		
35013058	STB: Stellenbosch Lodge	TOU1	Com	LL		
35013061	STB: Boland District Munic (Bird)	IND1	Res	LL		
35013062	FH : BP Shop (WIDEPROP'S 49 PTY LTD)	TOU1	Com	LL		
35013063	STB: Eikestad Panelbeaters	TOU1	Com	LL		
36009901	STB: Gyro Properties	IND1	Com	LL		
36009902	STB: Munic - Papegaaienberg Pump Station	MUN3	Mun	LV		
36009908	STB: BLUE DOT PROPERTIES (BOSSA)	TOU1	Com	LV		
36009911	STB: CROSS ATLANTIC PROPERTIES 54 (PTY) LTD	IND1	Com	LL		
36009913	STB: Nedbank (Bird 38)	TOU1	Com	LL		
36009914	STB: REGSPERSOON BERGZICHT PLAZA	IND1	Com	LL		
36009915	STB: Glen Elley	TOU2	Agr	LV		
36009921	STB: CAMPUSKEY (PTY) LTD (Block C)	TOU1	Com	LL		
36009926	STB: Municipality - Kammalieleieland	MUN3	Mun	LV		
36009928	STB: Anglo Afr Estate (Eikestad Mall)	TOU1	Com	LL		
36009930	STB: Standard Bank	IND1	Com	LL		
36009931	STB: Department of Agriculture ELSENBURG	TOU1	Com	LL		
36009934	STB: Comar Inter (George Blake)	TOU1	Com	LL		
36009936	STB: UNIVERSITY OF STELLENBOSCH (Lobelia Flats)	IND1	Res	LL		
36009940	STB: UNIVERSITY OF STELLENBOSCH (Lobelia Flats)	IND1	Res	LL		
36009941	STB: Eikestad Primary 1	TOU1	Com	LL		
36009945	STB: Comar International (Industria)	TOU1	Com	LL		
36009948	STB: Landbou Navorsingraad (NIVV)	IND2	Ind	MV		
36012966	STB: Cape Blouberg (PTY) LTD	TOU1	Com	LL		
36027600	STB: Telkom SA Ltd	TOU2	Com	LV		
36027602	STB: CSIR (WNNR)	TOU2	Com	LV		
36027603	STB: CAPITEC BANK LTD (Quantum 1-7)	TOU1	Com	LV		
36027605	STB: GREENFIELD 4 TRUST	TOU2	Com	LV		
36027606	STB: Titan House	IND1	Com	LL		
36027608	STB: GREEN EARTH ENERGY	TOU1	Com	LL		
36027610	STB: Stellenbosch Hospital	IND2	Com	LV		
36027611	STB: VINTAGE AFRICA INVESTMENTS 705 (PTY) LTD (One Visi)	IND1	Com	LL		
36027612	STB: PMG TRUST (Rhino Building)	TOU1	Com	LL		
36027613	STB: Vastech SA Pty LTD	TOU1	Com	LL		
36027616	STB: Stellenryck Landgoed Edms	IND2	Ind	LV		
36027618	STB: Huis Du Preez	Res	LV			
36027619	STB: UNIVERSITY OF STELLENBOSCH (BJ Voster)	TOU2	Com	MV		
36027622	STB: Q25 PROPERTY (PTY) LTD	TOU1	Com	LV		
36027626	STB: Capitec Properties (PTY) LTD	IND1	Com	LL		
36027628	STB: Distell - Distillery	TOU2	Ind	LV		
36027631	STB: Prontuit Beleggings	IND1	Com	LL		
36027632	STB: Tamric Trust	IND1	Com	LV		
36027633	STB: Parmalat (Trumali)	IND1	Com	LV		
36027634	STB: GARBERANDI BUSINESS TRUST	IND1	Com	LL		
36027635	STB: Protea Hotel	TOU1	Com	MV		
36027636	STB: FOODPROP PROPERTY HOLDINGS (PTY) LTD	TOU2	Ind	MV		
36027637	STB: Tamric Trust	IND1	Com	LL		
36032125	STB: Geribel Beleggings (Edms) Bpk	TOU2	Com	LV		
36032126	STB: UNIVERSITEIT VAN STELLENBOSCH (DF Malan)	TOU2	Com	MV		
36032131	STB: Department of Public Works	IND2	Com	LL		
36032134	STB: Cottillion Place	TOU1	Com	LV		
36032137	STB: TEKLEK BODY CORPORATE	IND1	Com	LV		
36032140	STB: Avon Place	TOU1	Com	LL		
36032142	FH: FH Wingerd Wynsentrum	IND1	Com	LV		
36032146	STB: VAN LAMP TRUST	IND1	Com	LL		
36032148	STB: Intake: Cloetesville 66kV Substation	Other	Sub	MV		
36032149	STB: Agrimark	TOU1	Com	LV		
36032152	STB: EMSS Properties (PTY) LTD	IND1	Com	LL		
36032153	STB: CLUB RETAIL PARK PTY LTD	TOU1	Com	LL		
36036756	STB: Consol	IND1	Com	LL		
36036757	STB: Boland Dist Munic (Langenhoven)	IND1	Com	LL		
36036760	STB: Kilotreads	IND1	Com	LL		
36036762	STB: PEACE PARKS FOUNDATION	IND1	Com	LL		
36036763	STB: Municipality - Rokewood	MUN3	Mun	LV		
36036764	FH: ANY NAME PROPERTY 5004 (PTY), LTD	TOU1	Com	LL		
36036765	STB: DR NJ VLOK & VENNOTE (Stelkor)	IND1	Com	LL		
36036766	STB: FARADAY PROPERTIES (PTY) LTD	IND1	Com	LL		
36036767	STB: BAKER HOLDINGS PROPRIETARY LIMITED (Demtex)	IND1	Com	LL		
36036768	STB: ABSA Ream	TOU1	Com	LL		
36036769	STB: Joria Beleggings	TOU1	Res	LL		
36036770	FH: TFMC - Telkom	IND1	Com	LL		
36036771	STB: Nietvoorbij Farm	IND2	Ind	LV		
36036775	FH: Friedman	IND1	Com	LL		
36036776	STB: Java Internet Café	IND1	NPA	LL		
36036777	STB: Vinn Investments (KWV Park 8A)	IND1	Com	LL		
36036779	STB: ENGEN PETROLEUM LTD (Supra Tolken) (Toyota Dealers	IND1	Com	LL		
36036782	STB: Stellenbosch High School	TOU1	NPA	LV		
36036783	STB: Depart of Public Works (Muller)	IND1	Com	LV		
36036784	STB: DISTELL PTY LTD (Oude Libertas)	IND1	Com	LL		
36036785	STB: ERF 2055 WILDERNESS C C 9Paradyskloof Friendly)	TOU1	Com	LV		
36036786	STB: Washington Laundry (Unit 5)	TOU1	Com	LV		
36036787	FH: Food 4 All (MORE WEALTH INVESTMENTS 27 CC)	TOU1	Com	LV		
36036793	STB: Dancol (Die Boord Spar)	IND2	Com	MV		
36036794	STB: CSIR Defencetek (ANGLO AFRICAN ESTATES (PTY) LTD)	TOU1	Com	LL		
36036796	STB: VERREWEIDE 14 BEHEERLIGGAAM	IND1	Res	LL		
36036797	STB: Dorpstreet Auto - 010429374	TOU1	Com	LV		
36036798	FH: Kaap Agri	IND1	Ind	LL		
36036804	STB: Stellenbosch Golf Club (Tegno)	TOU1	Com	LV		
36036816	STB: VESCOM SEVENTEEN (EDMS) BPK	TOU1	Com	LL		
36036861	FH: Hager	IND1	Com	LL		
36043816	FH: Dennegeur	TOU2	Agr	LV		
36045537	STB: PEC METERING (La Belle Vie)	TOU1	Agr	LV		
36045615	STB: CROWNED CORMORANT INVESTMENTS 17 (PTY)	IND1	Com	LL		
36045621	STB: PZK BELEGINGS 6000 BK (McDonalds)	IND1	Com	LV		
36045623	STB: DE WATERKANT TRUST	TOU1	Com	LL		
36045635	STB: SIDELING HILL PROPERTIES (WSP Engineers)	IND1	NPA	LL		
36045650	STB: Spaxton Properties	IND1	Com	LL		
36045660	STB: Cloetesville Senior	TOU1	NPA	LL		
36045671	STB: Munic - Beltana	MUN3	Mun	LV		
36045675	STB: Dept of Public Works (Alexander)	IND1	Ind	LL		
36045681	STB: NULANE INVESTMENTS 40 (PTY) LTD	IND2	Ind	MV		
36045687	STB: Bloemhof High (The Hall)	TOU1	NPA	LL		
36045690	STB: Bloemhof High	TOU1	NPA	LV		
36045691	STB: CSIR Defencetek (ANGLO AFRICAN ESTATES (PTY) LTD)	IND1	Com	LL		
36045693	STB: UNIVERSITY OF STELLENBOSCH (Huis Neethling) -	TOU1	Res	LL		
36045697	STB: G.V.V Investment	IND1	Com	LL		
36045699	STB: JOERNINGS BUILDING REGSPERSOON	TOU1	Com	LL		
36045703	STB: Valerida Beleggings	TOU1	NPA	LV		
36045710	STB: Tembador 166	TOU1	Com	LL		
36045730	STB: STELLENBOSCH HOSPITAAL (Tennantville Daghospitaal)	IND1	Com	LL		
36045737	STB: MEDICLINIC (PROPRIETARY) LIMITED	IND1	Com	LL		
36045757	STB: Boland District Munic (Alexander)	IND1	Com	LL		
36045759	STB: Munic - Rozendal Pump Station	MUN3	Mun	LV		
36064357	STB: Navors Inst vir Plante Beskerming	IND1	Ind	LV		
36064358	STB: Intake: Franschhoek 66kV Substation	Other	Sub	MV		
36064359	STB: Dir Imm Del Sud Afrika	IND1	Com	LL		
36064361	STB: SELFORD PROPERTIES	TOU1	Com	LL		
36064363	STB: Plant en Gehalte Beheer	IND1	Agr	LL		
36064364	STB: Time Square	TOU1	Com	LV		
36068542	STB: VASTECH SA (PROPRIETARY) LIMITED (Quantum 7)	TOU1	Com	LL		
36068551	STB: Noolitgedacht Block B	IND1	Com	LL		
36068580	STB: Dorpsuis Hotel	TOU1	Com	LV		
36068582	STB: Stellenbosch Hotel	TOU1	NPA	LV		
36068588	STB: KIRFANE (PTY) LTD (Octo Place)	TOU1	Ind	MV		
36068596	FH: La Resedance 1 (LA RES FRANSCHHOEK PTY LTD)	TOU1	Res	LV		
36068600	STB: Reichenbach Properties	TOU1	Com	LV		
36068609	FH: LA VIE DE LUC MINERAL WATER (PTY) LTD	TOU1	Ind	LV		
36068610	STB: TRESSO TRADING 750 PTY LTD T/A Villa Fonte	TOU1	Ind	LV		
36068613	STB: Munic - Electricity Offices	MUN3	Mun	LL		
36068622	STB: BEXCO	IND1	Ind	LL		
36068627	STB: MARCEL'S GOURMET (Frozen Yoghurt)	TOU1	Ind	MV		
36068633	STB: Municipality - Welgelegen Pump	MUN3	Mun	LL		
36068634	STB: Municipality - Welgelegen Pump	MUN3	Mun	LL		
36068636	STB: Munic - Idas Valley Water Works	MUN3	Mun	LL		
36068639	STB: Anglo African Estate (Meul)	TOU1	Ind	LV		
36068640	STB: MARSH (PTY) LTD	IND1	Com	LL		
36068641	STB: Dorothea Opleiding Sentrum	IND1	NPA	LL		
36068648	STB: COVA DA IRIA TRUST (Old Mutual)	IND1	Com	LV		

36068653	STB: MERRIMAN BP SERVICE STATION CC	TOU1	Com	LV	53132148	STB: ONTECH SYSTEMS (Friendly Food Emp)	TOU1	Com	MV
36068659	STB: De Wagen Office Park (ITRON METERING SOLUTIONS SC	TOU1	Com	LV	53132150	FH: La Grange (ANY NAME PROPERTY 5007 (PTY) LTD)	TOU1	Com	LV
36068663	STB: Selford Motors	TOU1	Com	LV	53132151	FH: Chamonix Office	TOU1	Com	LL
36068664	STB: COVA DA IRIA TRUST (Five Star Fisheries)	TOU1	Com	LV	53132152	STB: HDK PROJECTS 8 (PTY) LTD	IND1	Com	LL
36068675	STB: Storage RSA	IND1	Com	LL	53132153	STB: De Wet Centre	IND1	Com	LV
36068677	STB: CP De Leeuw	IND1	Com	LL	53132154	STB : COASTAL PROPERTY HOLDINGS CC	IND1	Com	LL
36088284	STB: Shoprite Checkers (U Save)	TOU1	Com	LL	53132155	FH: LA PROVIDENCE FARM FRANSCHHOEK PTY LTD	TOU1	Agr	LL
36088286	STB: Marleo Investments (PTY) LTD	IND1	Com	LL	53132157	STB: MEDICLINIC PROPERTIES (PTY) LTD	TOU1	Com	MV
36088289	STB: Munic - Idas Valley Sports Ground	SPO2	Spr	LL	53132158	STB: Shell South Africa LTD	TOU1	Com	LV
36088291	STB: Municipality - Town Hall Kitchen	MUN3	Mun	LL	53132159	STB: Pleinstraat 43 Regspersoon	IND1	Com	LV
36088301	STB: Syngrowth Pty Ltd	TOU1	Ind	LV	53132160	STB: Master Tyre	IND1	Com	LL
36088303	STB: Municipality - Town Hall	MUN3	Mun	LL	53132161	STB: REGSPERSOON PLANKENPARK VIER	TOU1	Com	LL
36118945	STB: Udel	IND1	Com	LL	53132165	STB: Ink Studing Housing	IND1	Com	LL
36118947	STB: Municipality - New Offices	MUN3	Mun	LV	53132166	FH : Seven Growers Proprietary LTD (Solar client)	IND1	Com	LV
36118948	STB: HORN EN DE KONING BELEGGINGS (PTY) LTD Nassau (K	IND1	Res	LL	53132167	STB: STELLENBOSCH ERFENIS TRUST	TOU1	Com	LV
36118949	STB: Municipality - Neetlinghuis	MUN3	Res	LV	53132168	STB: Sajoth Beleggings : Pizza Hut	IND1	Com	LL
36118950	STB: Dequeker Family Trust	TOU1	Res	LV	53132169	FH : WOOLWORTHS (PTY)LTD	IND1	Com	LV
36118951	STB: First National Bank	IND1	Com	LL	53132170	FH: GREEN WILLOWS PROPERTIES 302 (PTY LTD)	TOU1	Agr	LV
36118956	STB: ABSA	TOU1	Res	LV	53132171	STB: Helderzicht	IND1	Com	LL
36118957	STB: Caltex Oil	IND1	Com	LL	53132172	FH : Aralia Trading (PTY) LTD	IND1	Com	LV
36130887	STB: PEC METERING (Mea Casa)	TOU2	Ind	MV	53132173	STB: Municipality - Traffic Department	MUN3	Mun	LL
36130897	STB: BODY CORPORATE 14 ON LOUW	IND1	Com	LL	53132174	FH: KLEIN DASSENBERG ESTATES (PTY) LTD	IND1	Com	LL
36130911	STB: ALFRED DANIEL KONSTRUKSIE BK	TOU2	Com	LV	53132175	STB: WORK GROOVE PTY LTD	IND1	Com	LL
36130918	STB: ACVV Utopia	TOU1	Com	LL	53132176	STB: Thales Services Pty Ltd	IND1	Com	LV
36130921	FH : BONUSWORKS (PTY) LTD	IND1	Agr	LL	53132178	STB: Municipality Water Plant	MUN3	Mun	LL
36130925	FH: Sound Props 1057 INV PTY LTD	TOU1	Com	LL	53132179	STB: MY SPACE (PTY) LTD	IND1	Com	LV
36130933	STB: UNIVERSITY OF STELLENBOSCH (Isinda 183)	IND1	Res	LL	53132180	STB: UNIVERSITEIT VAN STELLENBOSCH (Biologie)	TOU2	Com	MV
36143921	STB: The Den Body Corp	IND1	Res	LL	53132181	STB: Campuskey Pty Ltd	TOU1	Res	LV
36143922	STB: Winterland Properties	IND1	Com	LL	53132182	STB: Departement van Openbare Werke	IND2	Ind	LV
36143930	STB: Fiddlers (Tolmax Pty Ltd)	IND1	Com	LL	53132183	STB: Departement van Openbare Werke	IND2	Ind	MV
36143935	STB: Munic - Cloetessville Water Tower	MUN3	Mun	LL	53132184	STB: TFD	IND1	Com	LL
36143942	STB: Gerhard Rupert Trust	IND1	Com	LL	53132185	STB: Munisipaal Uitvalwerke	MUN3	Mun	MV
36143943	STB: Bird Street Fisheries(Blazing Blizz Trading	TOU1	Com	LV	53132186	STB: EMSS Antennas	IND1	Com	LL
36143944	STB: Com Trust	IND1	Com	LL	53132187	STB: One Vision Investments (Vin Lab)	IND1	Com	LV
36143945	STB: L-ABRI MANOR	IND1	Res	LL	53132188	STB: Octofin Medical Stellenbosch	TOU1	Com	LV
36143947	STB: Britos Meat Centre	IND1	Com	LL	53132190	FH: NATIONAL DEPARTMENT OF PUBLIC WORKS (Meerlust B	TOU1	Com	LV
36143948	STB: MBV Trust	IND1	Com	LL	53132191	JDAL : Johannesburg Pty Ltd	IND1	Com	LL
36143952	STB: ROYAL HOTEL RIVERSDALE CC	IND1	Com	LL	53132198	STB: Stellenbosch Academy of Design	IND1	Com	LV
36143954	STB: Telkom (Arnold)	IND1	Com	LL	53132199	STB: Rupert Museum 2	IND1	Com	LV
36143956	STB: ACVV	IND1	NPA	LL	53132199	STB: Rupert Museum 2	IND1	Com	LV
36143959	STB: Municipality - Plein Street	MUN3	Com	LL	53132209	FH: Celebase Pty LTD	TOU1	Com	LV
36143960	STB: Municipality - Blakes Drift Pump	MUN3	Mun	LL	53132209	FH: Celebase Pty LTD	TOU1	Com	LV
36143963	STB: SIMONSRUS 6905 (PTY) LTD	IND1	Com	LL	53132210	FH: Celebase Pty LTD	TOU1	Com	MV
36143967	STB: Munic - Cloetessville Library	MUN3	Mun	LL	53132217	STB: Cova Da Iria Fantastic Food Court	TOU1	Com	LV
36143971	STB: Stellenbosch Station	IND1	Com	LL	53132218	STB: BUNDORAN BEACH (PTY) LTD	IND1	Com	LL
36143973	STB: Dept of Public Works (Banhoek)	IND1	Ind	LL	53132219	STB: Stellenbosch Primary School	IND1	NPA	LL
36143976	STB: Dequeker Family Trust Eden Estate	IND1	Ind	LL	53132232	STB: SUPERGROUP TRADING PTY LTD	TOU1	Com	LL
36143978	STB: VELISARIOU EN RICHMOND (Rosenhof)	IND1	Ind	LL	53132234	STB: Stellenbosch Fine Wines	TOU1	Com	LV
36143988	STB: LANDBOONAVORSINGSRAAD	IND1	Com	LL	53132236	STB: Nootgedacht Flats C(Gen Lights) (TRADE-OFF 33 (PTY	IND1	Com	LL
36143992	STB: Rondebosch Restaurant	IND1	Com	LL	53132239	STB: Bergzicht Restaurant (BERGZICHT MOTORS (PTY) LTD)	IND1	Com	LL
36143998	STB: Visser Family Trust	IND1	Com	LL	53132240	STB: Munic - Irrigation Pump Station	MUN3	Mun	LL
46030627	STB: MASSBUILD PTY LIMITED T/A BUILDERS WAR	IND1	Com	LV	53134123	STB: Cova Da Iria Five Star Laundry	TOU1	Com	LL
46030633	FH: EC Haumann	TOU1	Agr	LL	54064339	STB : KRIGESTRAAT 12 (PTY) LTD0	TOU1	Com	LL
46030647	STB: Afriland (Capital Place)	TOU2	Ind	MV	54064342	STB: The Niche Body Corporate	TOU1	Res	LL
46030652	STB: DORPSTRAAT 98 REGSPERSOON	IND1	Com	LV	54064345	STB : Hebrew Synagogue	TOU1	NPA	LL
46030741	STB: ATTACQ RETAIL FUND (PTY) LTD+OTHERS	TOU2	Com	MV	54064346	STB : CANON CAVE PROPERTY PTY LTD	IND1	Res	LL
46030749	STB: UNIVERSITY OF STELLENBOSCH (HIV Center)	TOU1	Com	LV	54064348	FH : PICKWICK TRADING PTY LTD	IND1	Ind	LV
46030757	STB: Decameron Reggperson	IND1	Res	LV	54064353	STB : Mias Van Der Westhuyzen Familie Trust	IND1	Com	LV
46030763	STB: ATTSTEIN (PTY) LTD	IND1	Ind	LV	62030829	STB: Janine Rossouw Familie Trust	IND1	Com	LL
46030766	FH: Dolman Inv	IND1	Agr	LL	62030833	STB: BERTIES MOORINGS INVESTMENT T/A THE FAT BUTCHER	TOU1	Com	LL
50094476	STB: CAMPUSKEY (PTY) LTD (Block A)	TOU1	Res	LL	62030840	STB: LANDBOONAVORSINGSRAAD (TV Tower Pump Station)	IND1	Ind	LL
50094490	STB: CAMPUSKEY (PTY) LTD (Block B)	TOU1	Res	LL	62030855	STB: Atoll Property Services	IND1	Com	LL
53069838	FH: Chamonix Kelder	TOU1	Ind	LV	62030858	FH : Boutique Hotel - (SOUTHERN SPIRIT PROPERTIES 166 (P	IND1	Com	LL
53069846	FH: Tehuis vir Bejaardes	IND1	Res	LV	62036339	STB: DEPT VAN OPENBARE WERKE	IND1	Ind	LL
53069849	FH: FH Hoërskool	IND1	NPA	LL	62039623	STB: Stellenbosch College	TOU1	Com	LV
53069855	STB: UNIVERSITY OF STELLENBOSCH (Simonsberg)	TOU2	Res	MV	62040940	FH: FH Vrughte Verpakkers	TOU2	Ind	MV
53069856	FH: Mont Rochelle	TOU2	Agr	LV	73042066	FH: FH Wingerd	IND1	Agr	MV
53069858	STB: Cloetessville Primary	IND1	NPA	LL	73054908	STB: Millennia Park	IND1	Com	LV
53069859	STB: KP Harris	IND1	Com	LL	8440011	FH : DELTA VALLEY FARMS (PTY) LTD - (Vark plaas)	TOU1	Agr	LL
53069864	STB: LANGVERWAG BODY CORPORATE (Old Age Home)	IND1	Res	LV	96088570	STB: La Gratitude Phase 2	TOU1	Com	LV
53069866	STB: I.C.A Properties	IND1	Com	LV	96088571	STB: BANGHOEK BEHEERLIGGAAM	IND1	Res	LL
53069869	FH: La Rochelle Koshuis	IND1	Res	LL	96088572	STB: SCARLET IBIS INVESTMENTS 70 (PTY) LTD (Merriman Loc	TOU1	Com	LV
53069876	STB: Selford Prop Barloworld Automark	IND1	Com	LL	96088573	STB: Usentra Pty LTD	TOU1	Com	LV
53069877	FH: Ricety Bridge	TOU1	Com	LV	96408792	STB: Dennis de Wet Family Trust	IND1	Res	LL
53069878	FH: GREEN WILLOWS PROPERTIES 302 (PTY) LTD Pick n Pay	IND1	Com	LV	96408794	STB: ANTIC REALTY STELLENBOSCH (PTY) LTD	IND1	Com	LL
53069886	FH: La Garre (LA GARRE SHOPPING CENTRE PTY LTD)	TOU1	Com	LV	96408795	STB: UNIVERSITEIT VAN STELLENBOSCH (Uni Electronica) (Bc	IND1	Com	LL
53069888	FH: GREEN WILLOWS PROPERTIES 302 (PTY) LTD Pick n Pay	IND1	Com	LL	96408796	STB: Stellenbosch Panelbeaters	TOU1	Com	LL
53069889	STB: Paul Roos Gym Sports Grounds	IND1	Spr	LL	96408807	STB: EIKENFORT (EDMS) BPK (Stellenbosch Sports Institute)	TOU1	Com	LV
53085202	FH: Lermitage	TOU2	Res	LV	96408808	STB: Parmalat (Stoffel Smit)	TOU1	Com	LV
53126787	FH: Rusthof (CAPSTONE 1458 (PTY) LTD)	IND1	Ind	LV	96408809	STB: Mobile Tel Network MTN Tower	IND1	Com	LL
53126846	FH: Tykana Properties Ltd Pty	IND1	Com	LL	96408810	STB: Barloworld	TOU1	Com	LV
53126847	FH: Chamonix Hoof Huis	IND1	Res	LL	99632958	STB: ATTACQ RETAIL FUND (PTY) LTD	TOU1	Com	LV
53126848	STB: FAIRWEATHER TRUST	IND1	Com	LL	99799825	STB: Nootgedacht Building A - (CITOSOLVE INVESTMENTS (H	IND1	Com	LL
53126852	STB: Cell C Tower (ATC SA WIRELESS INFRASTRUCTURE (PTY	IND1	Com	LL					
53126853	FH: La Resedance 2(LA RES FRANSCHHOEK PTY LTD)	TOU1	Res	LL					
53126854	STB: DC Meat Market	IND1	Com	LL					
53126865	STB: Reutech Radar Systems	TOU1	Com	LV					
53126866	STB: ATTACQ RETAIL FUND (PTY) LTD+OTHERS (Mill Square)	TOU1	Com	LV					
53126867	FH: Chamonix Water 2	TOU1	Com	LL					
53126874	STB: SUPERSTRIKE INVESTMENTS 121 (PROP) LTD (Isa Carster	TOU1	Res	LV					
53126876	FH: LEEU DASSENBERG ESTATES (PTY) LTD	IND1	Agr	LV					
53126877	FH: Chamonix Water 1	TOU1	Com	LL					
53126884	FH: Langrug Reservoir	MUN3	Mun	LV					
53126886	STB: UNIVERSITY OF STELLENBOSCH (Stias Research)	TOU1	Com	LV					
53126887	FH: Full Sail - Alora (SOUTHERN SPIRIT PROPERTIES 166 (PTY	TOU1	Com	LL					
53126894	STB: Stellenbosch Golf Club (Strand)	TOU1	Spr	LV					
53132142	STB: Stellenbosch Golf Club (Strand)	TOU1	Spr	MV					
53132144	STB: CAMPUSKEY (PTY) LTD (Kiosk 2)	TOU1	Com	LL					
53132145	STB: Le Cap Foods	TOU1	Com	LV					
53132147	STB: ONTECH SYSTEMS (Friendly Food Emp)	TOU1	Com	LV					

Figure 9 shows the normalised (average demand 1 kVA) $\frac{1}{2}$ hourly kVA values (Y-axis) for the average week (7 day $\frac{1}{2}$ hours per week = x-axis) for each of the representative load profiles.

Figure 9



It is important to note that the annual representative load profiles and not the week average, are used for the simulations. 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 load being taken at the infeed point of every network by adding the losses to the load being taken from the outgoing side of that network.
- Calculate the load through each individual network by adding the load infeed at the outgoing side of that network to the load going through the next network.
- This is an integrated process starting with the last points on the networks from where loads are taken and working upwards towards the main supply point to the distributor.
- This should be done for every half hour of the year, yielding an annual half hourly profile going through every network.

The result is an annual profile at N2 (the Bulk 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.

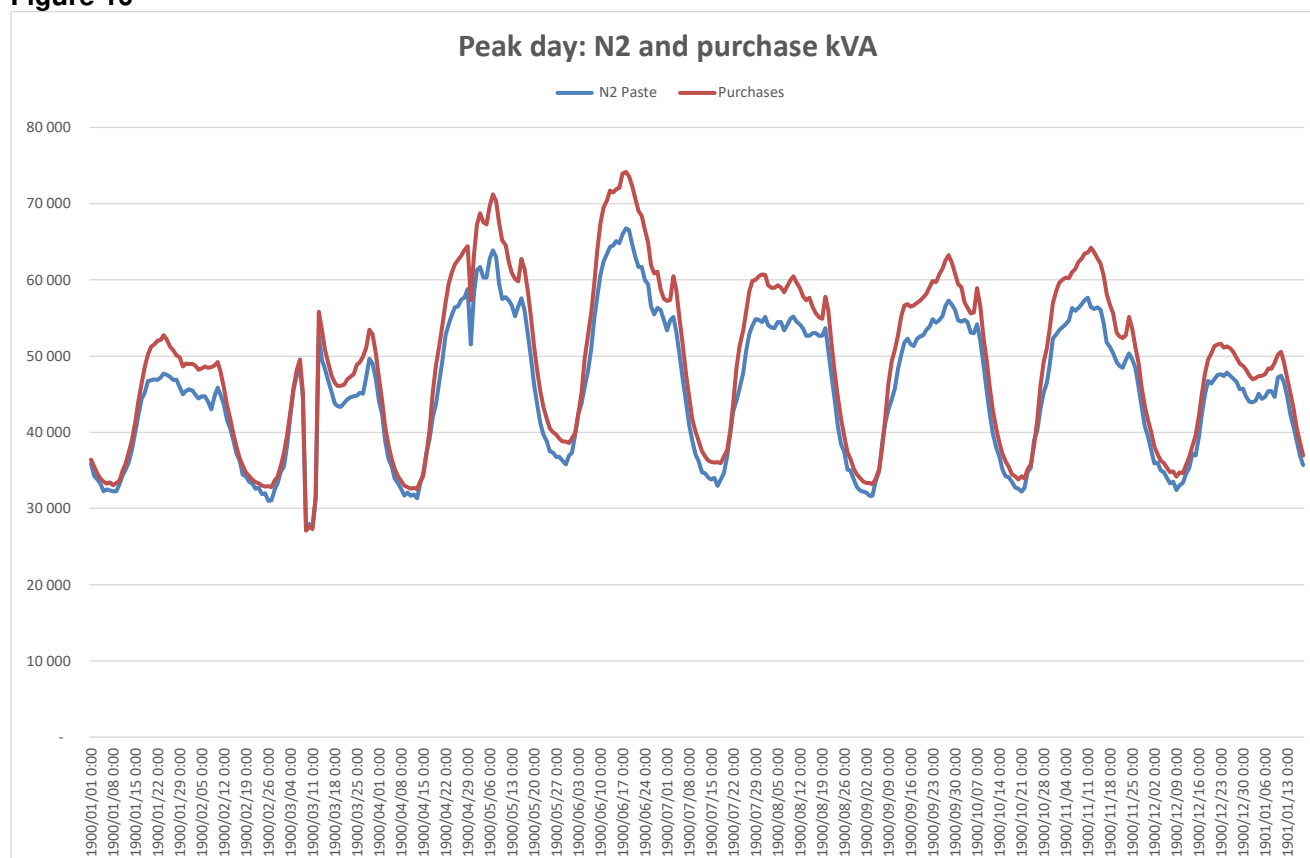
Table 27 below shows the maximum demand with date and time for the actual purchase profile and the N2 profile. The maximum demand occurs within ½ hour of each other but differ by 4 months. The actual maximum differs by about 6%.

Table 27

N2 Max	N2 Max date	N2 Max
71 827.91	2022/06/14 12:00	71 827.91
Σ kVA at Peak	Σ Own Max	Max
72 068.74	93 243.15	
		1
Purchase Max	Max date	
74 181.02	2022/02/15 12:30	74181.02
Σ kVA at Peak	Σ Own Max	
69 787.67	103 071.34	

Figure 10 shows the ½ hourly kVA profile of the peak week for purchase Vs N2. It shows a very good correlation in terms of the peak and hour and day of the week.

Figure 10



This concludes the analysis of load profiles. The various network profiles will thus be used to determine the capacity on each of the networks. 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	MAX DEMAND	MAX DEMAND	MAX DEMAND P&S	KVA LOAD FACTOR	P	S	O	P	S	O	Annual Max	Annual LF	Reactive
PROFILE	kWh (for)	kW	kVA	kVA	%	kWh (for)	kWh (for)	kWh (for)	kWh (for)	kWh (for)	kWh (for)	kVA	%	Excess kvarh
aMVatHV	-	-	-	-	0.14%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0%	0.00%
bLPU MV	131 895 003	275 652.35	280 874.60	280 874.60	65.85%	3.8%	9.9%	9.6%	12.7%	31.9%	32.1%	27 878	54%	0.038%
cLPU LV	69 833 353	163 923.86	168 966.14	168 966.14	59.19%	3.9%	10.9%	9.6%	12.6%	32.9%	30.0%	17 757	45%	0.112%
dMunicS	13 783 673	26 076.95	27 212.37	27 212.37	70.97%	3.7%	10.1%	11.7%	10.9%	29.0%	34.7%	2 582	61%	0.19%
eAgricu	2 051 143	4 206.71	4 487.61	4 487.61	64.24%	3.6%	9.3%	9.2%	12.3%	31.9%	33.8%	490	48%	3.52%
fCommer	24 345 241	77 674.06	79 678.69	79 678.69	45.44%	4.0%	11.3%	9.7%	12.4%	33.0%	29.7%	11 989	23%	1.63%
gReside	59 853 092	140 266.56	143 471.31	143 471.31	59.41%	4.5%	12.5%	11.9%	12.1%	29.2%	29.7%	15 217	45%	0.00%
hNPAsss	27 835	80.50	82.65	82.65	45.31%	4.3%	11.1%	9.7%	13.6%	32.2%	29.1%	8	38%	0.64%
iSports	452 374	1 204.99	1 250.61	1 250.61	54.89%	4.3%	10.8%	11.4%	12.3%	30.3%	30.9%	130	40%	0.98%
jDomRDP	79 241 044	226 772.67	230 280.43	230 029.91	46.82%	5.6%	12.6%	11.7%	12.2%	28.0%	30.0%	24 265	37%	2.25%
kSSEGIIm	4 933 498	13 350.28	13 742.31	13 742.31	48.91%	4.6%	8.9%	10.7%	13.1%	25.5%	37.1%	1 478	38%	3.03%
ISSEGEEx	(1 056 350)	-0.01	11 887.97	10 787.39	-10.86%	0.2%	9.7%	6.6%	5.5%	49.9%	28.1%	1 277	-9%	-12.33%
mLights	3 431 799	10 248.00	12 509.28	12 509.28	40.42%	1.2%	5.2%	20.4%	3.0%	11.3%	58.8%	1 042	38%	5.72%

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	
BILLING CYCLE	P&S	ENERGY	MAX DEMAND	MAX DEMAND	MAX DEMAND P&S	Monthly KVA LOAD FACTOR	P	S	O	P	S	O	Max	kVA Load factor
MONTH	kvarh	kWh (FOR)	kW	kVA	kVA	%	Wh (FOR)	Wh (FOR)	Wh (FOR)	Wh (FOR)	Wh (FOR)	Wh (FOR)	kVA	LF
Purchases	10 761	392 350 191	819 217.01	824 635.90	824 635.90	66.69%	4%	12%	11%	12%	31%	30%	74 181	60.38%
N2	322 852	388 791 705	776 109.76	794 688.34	794 688.34	66.60%	4%	11%	11%	12%	31%	31%	71 828	61.79%
Total N3	322 852	388 791 705	776 109.76	794 688.34	794 688.34	66.60%	4%	11%	11%	12%	31%	31%	71 828	61.79%
Total N4	320 208	385 608 135	769 754.69	788 181.14	788 181.14	66.60%	4%	11%	11%	12%	31%	31%	71 240	61.79%
Total N5	897 569	251 334 782	515 793.11	528 460.98	528 160.33	65.42%	5%	12%	11%	12%	30%	31%	49 162	58.36%
Total N6	988 827	180 040 531	398 001.63	405 727.20	405 503.27	61.38%	5%	12%	12%	12%	29%	31%	39 995	51.39%

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 Stellenbosch 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/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.
- The various accounts are also grouped to a level that still allows a good understanding of what the exact transactions are which may require adjustment / re-allocation.

This process is illustrated graphically in **Figure 11** below.

STELLENBOSCH RINGFENCING PROCESS

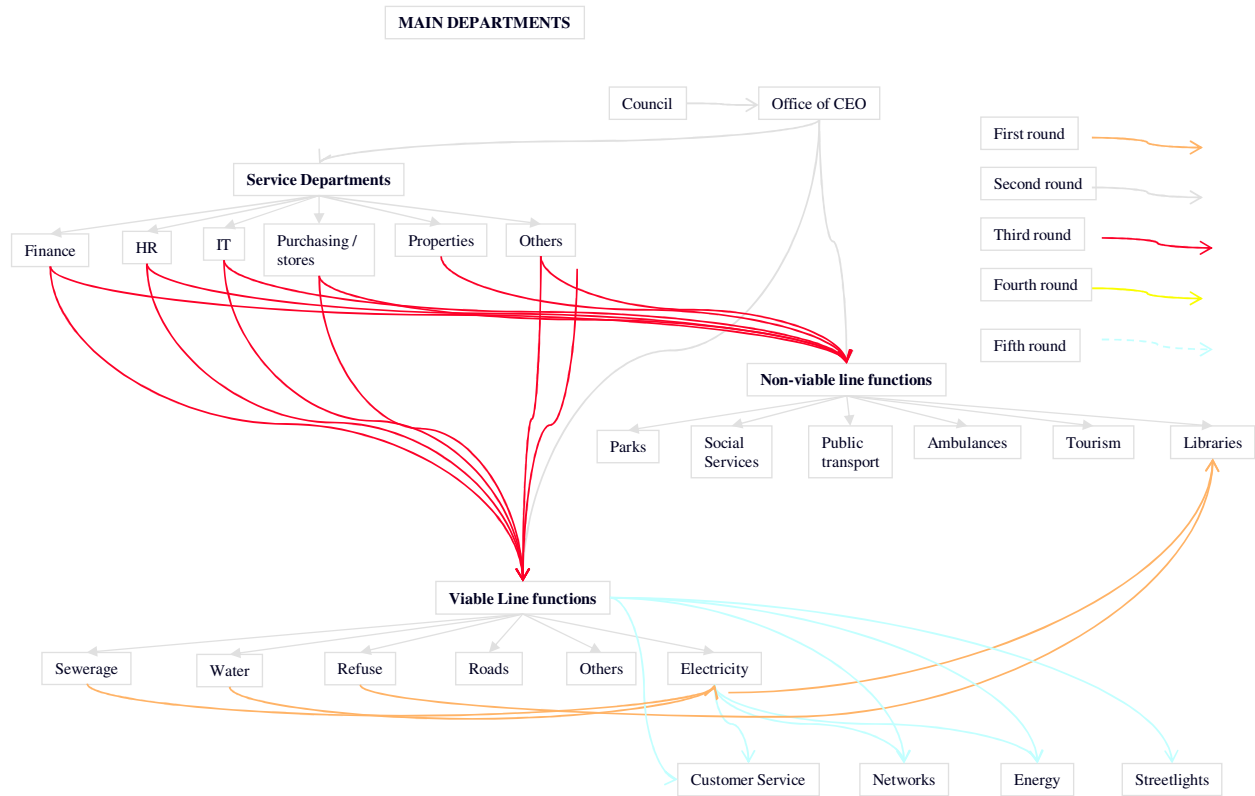


Table 30 shows the trial balance per group before any adjustments.

Table 30

[illegible]

[illegible]

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.

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

Table 31

TRIAL BALANCE 2021/2022	ELECTRICAL ENGINEERING SERVICES Total	TRIAL BALANCE 2021/2022	ELECTRICAL ENGINEERING SERVICES Total
Row Labels		Interest, Dividends and Rent on Land	5 226 963
Expenditure	627 111 838	Interest Paid	5 226 963
Bad Debts Written Off	373 182	Inventory Consumed	3 804 693
Bulk Purchases	528 011 715	Consumables	1 439 515
Electricity	528 011 715	Standard Rated	172 242
Contracted Services	12 169 342	Zero Rated	1 267 273
Contractors	12 169 342	Materials and Supplies	2 365 178
Maintenance of Equipment	66 654	Operational Cost	11 694 528
(blank)	5 427 769	Advertising, Publicity and Marketing	100 071
Prepaid Electricity Vendors	6 674 919	Assets less than the Capitalisation Threshold	21 732
Depreciation and Amortisation	35 345 335	Contribution to Provisions	2 409 429
Amortisation	6 938	Entertainment	- 1 856
Intangible Assets	6 938	Executive Committee	- 1 856
Licences and Rights	6 938	Hire Charges	114 734
Computer Software and Applications	6 938	Indigent Relief	6 134 237
Depreciation	35 338 397	Licences	186 087
Computer Equipment	74 923	Motor Vehicle Licence and Registrations	186 087
Electrical Infrastructure	29 262 197	Municipal Services	2 358 801
Capital Spares	508 106	Printing, Publications and Books	870
HV Substations	261 130	Professional Bodies, Membership and Subscri	18 692
LV Networks	10 248 201	Travel and Subsistence	5 085
Power Plants	11 471 660	Accommodation	2 700
Furniture and Office Equipment	147 936	Food and Beverage (Served)	2 385
Information and Communication Infrastructu	176 005	Uniform and Protective Clothing	346 647
Machinery and Equipment	336 095	Revenue	- 794 576 260
Other Assets	505 531	Exchange Revenue	- 748 259 085
Housing	488 900	Interest, Dividend and Rent on Land	- 1 484 989
Operational Buildings	16 631	Interest	- 1 484 989
Roads Infrastructure	562 285	Receivables	- 1 484 989
Transport Assets	1 682 532	Operational Revenue	- 868 988
Water Supply Infrastructure	2 590 893	Merchandising, Jobbing and Contracts	- 849 488
Distribution	2 055 604	Recovery Maintenance	- 19 500
Reservoirs	535 289	Sales of Goods and Rendering of Services	- 3 261 746
Employee Related Cost	30 486 080	Development Charges	- 3 261 746
Municipal Staff	30 486 080	Service Charges	- 742 643 362
Salaries, Wages and Allowances	25 366 167	Electricity	- 742 643 362
Allowances	7 259 297	Availability Charges	- 24 269 495
Accommodation, Travel and Incidental	1 982	Connection/Reconnection	- 3 731 395
Cellular and Telephone	152 820	Disconnection/Reconnection Fees	- 3 731 044
Housing Benefits and Incidental	321 073	Temporary Connection Fee	- 352
Essential User	106 206	Electricity Sales	- 717 762 495
Housing Benefits	214 867	Agricultural Low	- 1 017 978
Non-pensionable	53 977	Commercial Conventional (Single Phase)	- 27 043 099
Service Related Benefits	6 154 742	Domestic High	- 252 711 291
Acting and Post Related Allowances	35 119	Conventional	- 67 899 890
Bonus	2 114 659	Prepaid	- 184 811 401
Leave Pay	29 307	Industrial (400 Volts) (Low Voltage)	- 73 433 090
Overtime	1 756 664	Industrial more than 400 less than 11 000 v	- 43 906 278
Non Structured	1 756 664	Sports Grounds/Churches/Holiday/Old-ag	- 89 710
Scarcity Allowance	647 243	Street Lighting	-
Standby Allowance	1 571 751	Time of Use Tariffs	- 319 561 049
Travel or Motor Vehicle	574 704	Meter Compliance Testing	- 1 287
Basic Salary and Wages	18 106 870	Meter Reading Fees	3 134 040
Social Contributions	5 119 913	Notice Revenues	- 12 730
Bargaining Council	10 053	Non-exchange Revenue	- 46 317 175
Group Life Insurance	366 168	Transfers and Subsidies	- 46 317 175
Medical	1 394 046	Capital	- 14 467 664
Pension	3 193 873	Integrated National Electrification Progr	- 13 757 664
Unemployment Insurance	155 774	Provincial Governments	- 710 000
		Equitable Share	- 31 849 510
		Total cost	627 111 838
		Total Revenue	(794 576 260)
		Net	(167 464 422)

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

Table 32

Sum of Actual Balance inc Shadow															
	Office of the Municipal Manager Total	Strategic And Corporate Services Total	PLANNING AND DEVELOPME NT Total	Financial Services Total	Community And Protection Services Total	Infrastructure Services								Infrastructure Services Total	Grand Total
						Services And Project Management Total	ENGINEERING SERVICES	Refuse Removal Total	Roads and Traffic Total	Sewerage Network Total	Water Network Total	ELECTRICAL ENGINEERING SERVICES Total			
COST ADJUSTMENTS	-	-	-	-	-	-	-	-	562 285.00	-	2 590 893.15	9 287 414.88	-	-	-
Roads Infrastructure									562 285.00			-	562 285.00		-
Water Supply Infrastructure											2 590 893.15	2 590 893.15			-
Contribution to Provisions															-
Indigent Relief												6 134 236.83			-
Municipal Services															-
															-
															-
REVENUE ADJUSTMENTS	-	-	-	-	-	5 352 770.50	17 352 350.78	-	-	12 898 121.32	2 523 821.11	6 227 413.34	27 802 575.93	-	-
Integrated National Electrification Programme Grant													13 757 664.49		-
Infrastructure						571 212.98	17 352 350.78			600 000.00			710 000.00		-
Equitable Share													10 073 164.96		-
Development Charges						4 781 557.52			12 298 121.32	2 523 821.11	6 227 413.34	3 261 746.48			-
															-
															-
New Total Cost						297 273 848	21 307 152	39 449 100	124 516 610	109 023 923	129 228 245	161 252 148	617 824 423		1 963 264 800
New Total Revenue						(161 470 787)	(23 204 899)	(34 804 632)	-	(45 910 908)	(133 369 852)	(158 266 640)	(766 773 684)		(2 066 732 341)
New net income						135 803 061	(1 897 747)	4 644 467	-	63 113 016	(4 141 607)	2 985 507	(148 949 261)		(103 467 541)

The following cost adjustments were made:

- Depreciation Roads Infrastructure – this is moved to Roads
- Depreciation Water Supply Infrastructure – this is moved to Water
- Contribution to Provisions – This is provision for bad debt. Although it is considered very high no change is made.
- Indigent Relief – this is Equitable share allocation to Eskom consumers for FBE. This should be a direct allocation from Finance to Eskom and have nothing to do with Stellenbosch electricity supply. It will however be retained here as the equitable share amount exceeds the FBE granted to own consumers.
- Municipal Services – Apparently this is for services provided by other departments to Electricity. No changes made.

The following revenue adjustments were made:

- Integrated National Electrification Programme Grant – This is a capital grant and should off-set capital expenditure – moved to Finance.
- Provincial Infrastructure Grant – This is a capital grant and should off-set capital expenditure – moved to Finance.
- Development Charges – These are supposed to cover the cost of new capacity due to new developments / loads expenditure – moved to Finance.
- Equitable Share – The amount for Free Basic Electricity (FBE) 100 kWh/m is calculated to be equal to R 21 776 345.24 and the amount paid to Eskom for FBE is equal to R6 134 237. The actual equitable share amount paid to Electricity is equal to R31 849 510. An adjustment is thus made to only reflect the actual amounts of FBE paid.

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.

Table 33 below shows the overhead cost category and the cost allocation ratio that will be used to allocate to the various line functions as well as the % to be applied in respect of each of the factors.

Table 33

ALLOCATION TO LINE DEPARTMENTS		
Audit Total	Total cost (exc purchases)	100%
Communication Services Total	Community services	100%
IDP And Strategic Programs Total	Total cost (exc purchases)	100%
Liaison Executive Total	Total cost (exc purchases)	100%
Municipal Manager Total	Total cost (exc purchases)	100%
Public Participation Total	Total cost (exc purchases)	100%
Corporate Director Total	Total cost (exc purchases)	100%
Councillors Total	Not allocated	0%
Information Technology Total	Total cost (exc purchases)	100%
Legal Services Total	Total cost (exc purchases)	100%
Municipal Buildings And Structures Total	Total cost (exc purchases)	100%
Occupational Safety Total	HR cost	50%
Occupational Safety Total	HR Numbers	50%
Property Management Total	Total cost (exc purchases)	100%
BUILDING CONTROL Total	Total cost (exc purchases)	100%
COMMUNITY DEVELOPMENT Total	Community development	100%
Housing Administration Total	Total cost (exc purchases)	100%
Human Settlements Total	Community development	100%
Informal Settlements Total	Community development	100%
Local Economic Development Total	Total cost (exc purchases)	100%
PLANNING AND DEVELOPMENT GENERAL	Total cost (exc purchases)	100%
TOWN DEVELOPMENT Total	Total cost (exc purchases)	100%
TOWN PLANNING Total	Total cost (exc purchases)	100%
Financial Services	Total cost (exc purchases)	100%
Budget And Treasury Office Total	Revenue	33%
Budget And Treasury Office Total	Number of meter readings	33%
Budget And Treasury Office Total	Outstanding debt	33%
Logistics And Fleet Management Total	Total cost (exc purchases)	100%
Special Rating Areas Total	Total cost (exc purchases)	100%
Supply Chain Management Total	Inventory, contracts & Leases	100%
Engineering overheads	Total cost (exc purchases)	100%

The allocation factors to the various departments are shown in Table 34.

Table 34

Sum of Actual Balance inc Shadow										
	Community And Protection Services Total	Infrastructure Services							Infrastructure Services Total	Grand Total
		Services And Project Management Total	ENGINEERING SERVICES	Refuse Removal Total	Roads and traif Total	Sewerage Network Total	Water Network Total	ELECTRICAL ENGINEERING SERVICES Total		
ALLOCATER DATA										
Allocation factors to all Line departments										
Total cost (-purchases)	297 273 848	21 307 152	39 449 100	124 516 610	109 023 923	129 228 245	161 252 148	95 946 945		977 997 971
Ratio	30.4%	2.2%	4.0%	12.7%	11.1%	13.2%	16.5%	9.8%		100.0%
Revenue	- 161 470 787	- 23 204 899	- 34 804 632	-	- 45 910 908	- 133 369 852	- 158 266 640	- 772 907 921		- 1 329 935 638
Ratio	12.1%	1.7%	2.6%	0.0%	3.5%	10.0%	11.9%	58.1%		100.0%
Number of customers / bills / vending				29 442		29 442	29 442	29 442		117 767
Ratio	0.0%	0.0%	0.0%	25.0%	0.0%	25.0%	25.0%	25.0%		100.0%
Number of meter readings /y				29 442			29 442	4 665		63 549
Ratio	0.0%	0.0%	0.0%	46.3%	0.0%	0.0%	46.3%	7.3%		100.0%
Staff costs	141 704 434	8 195 176	6 114 786	17 550 252	33 818 278	37 300 652	44 981 601	30 486 080		320 151 259
Ratio	44.3%	2.6%	1.9%	5.5%	10.6%	11.7%	14.1%	9.5%		100.0%
Staff numbers	387	19	8	67	94	105	91	79		850
Ratio	45.5%	2.2%	0.9%	7.9%	11.1%	12.4%	10.7%	9.3%		100.0%
Infrastructure Asset values	153 609 789		4 524 664	66 955 884	1 361 719 012	1 264 405 554	1 856 882 252	1 415 785 086		6 123 882 240
Ratio	2.5%	0.0%	0.1%	1.1%	22.2%	20.6%	30.3%	23.1%		100.0%
Depreciation	18 408 108	-	882 329	5 272 062	45 776 972	34 712 920	35 425 952	35 345 335		175 823 678
Ratio	10.5%	0.0%	0.5%	3.0%	26.0%	19.7%	20.1%	20.1%		100.0%
Outstanding customer debt				858 766		757 314	2 659 017	869 260		5 144 357
Ratio	0.0%	0.0%	0.0%	16.7%	0.0%	14.7%	51.7%	16.9%		100.0%
Inventory, contracts & Leases	24 366 767	13 021 971	3 280 663	65 103 592	22 425 152	10 200 748	3 515 145	12 169 342		154 083 380
Ratio	15.8%	8.5%	2.1%	42.3%	14.6%	6.6%	2.3%	7.9%		100.0%
Allocation factors of Technical servuces										
Total cost (-purchases)		-		124 516 609.85	109 023 923.36	129 228 244.76	161 252 147.73	95 946 945.07		619 967 871
Ratio				20.1%	17.6%	20.8%	26.0%	15.5%		100.0%

The actual allocations amounts from each of the overhead departments are shown in Table 38 below.
Table 35

										Office of the Municipal Manager Total							
				Audit Total	Communica tion Services Total	IDP And Strategic Programs Total	Liaison Executive Total	Municipal Manager Total	Public Participation Total		Corporate Director Total	Councillors Total	Information Technology Total	Legal Services Total	Municipal Buildings And Structures Total	Occupational Safety Total	Property Management Total
ALLOCATION TO LINE DEPARTMENTS				- 9 335 254.09	- 2 494 330.77	- 4 006 556.38	- 485 471.81	- 5 077 260.20	- 121 012.97	-	- 15 834 156.85	-	- 44 586 711.10	- 7 311 947.74	- 10 538 349.93	- 41 195 894.93	- 14 528 112.02
Audit Total	Total cost (exc purchases)	100%	- 9 335 254.09														
Communication Services Total	Community services	100%		- 2 494 330.77													
IDP And Strategic Programs Total	Total cost (exc purchases)	100%			- 4 006 556.38												
Liaison Executive Total	Total cost (exc purchases)	100%					(485 472)										
Municipal Manager Total	Total cost (exc purchases)	100%						- 5 077 260.20									
Public Participation Total	Total cost (exc purchases)	100%							- 121 012.97								
Corporate Director Total	Total cost (exc purchases)	100%									- 15 834 156.85						
Councillors Total	Not allocated	0%										-					
Information Technology Total	Total cost (exc purchases)	100%											- 44 586 711.10				
Legal Services Total	Total cost (exc purchases)	100%												- 7 311 947.74			
Municipal Buildings And Structures Total	Total cost (exc purchases)	100%													- 10 538 349.93		
Occupational Safety Total	HR cost	50%														- 20 597 947.47	
Occupational Safety Total	HR Numbers	50%														- 20 597 947.47	
Property Management Total	Total cost (exc purchases)	100%															- 14 528 112.02
NEW COST AFTER ALLOCATION				-	-	-	-	-	-	-	-	42 513 794	-	149 623	-	1 202 082	4 128 870
NEW REVENUE				-	-	-	-	-	-	-	-	(306 216)	-	(149 623)	-	(1 202 082)	(4 128 870)
NEW NET INCOME				-	-	-	-	-	-	-	-	42 207 578	-	0	-	(0)	-
Sum of Actual Balance inc Shadow																	
												PLANNING AND DEVELOPMEN T Total	Financial Services				Financial Services Total
			BUILDING CONTROL Total	COMMUNITY DEVELOPMEN T Total	Housing Administratio n Total	Human Settlements Total	Informal Settlements Total	Local Economic Development Total	AND DEVELOPMEN T GENERAL Total	TOWN DEVELOPMEN T Total	TOWN PLANNING Total		Total	Budget And Treasury Office Total	Logistics And Fleet Management Total	Special Rating Areas Total	Supply Chain Management Total
ALLOCATION TO LINE DEPARTMENTS			- 7 675 413.03	- 12 844 597.51	- 14 383 780.73	10 317 058.37	- 6 637 020.30	- 5 420 346.73	- 6 900 836.36	- 6 602 175.91	- 11 664 769.96	-	34 383.36	- 207 342 095.01	- 70 359 775.02	- 6 276 887.37	- 19 002 302.79
BUILDING CONTROL Total	Total cost (exc purchases)	100%	- 7 675 413.03														
COMMUNITY DEVELOPMENT Total	Community development	100%		- 12 844 597.51													
Housing Administration Total	Total cost (exc purchases)	100%			- 14 383 780.73												
Human Settlements Total	Community development	100%				10 317 058.37											
Informal Settlements Total	Community development	100%					- 6 637 020.30										
Local Economic Development Total	Total cost (exc purchases)	100%						- 5 420 346.73									
PLANNING AND DEVELOPMENT GENERAL	Total cost (exc purchases)	100%							- 6 900 836.36								
TOWN DEVELOPMENT Total	Total cost (exc purchases)	100%								- 6 602 175.91							
TOWN PLANNING Total	Total cost (exc purchases)	100%									- 11 664 769.96						
Financial Services	Total cost (exc purchases)	100%										34 383.36					
Budget And Treasury Office Total	Revenue	33%											- 69 114 031.67				
Budget And Treasury Office Total	Number of meter readings	33%											- 69 114 031.67				
Budget And Treasury Office Total	Outstanding debt	33%											- 69 114 031.67				
Logistics And Fleet Management Total	Total cost (exc purchases)	100%												- 70 359 775.02			
Special Rating Areas Total	Total cost (exc purchases)	100%													- 6 276 887.37		
Supply Chain Management Total	Inventory, contracts & Leases	100%														- 19 002 302.79	
Engineering overheads	Total cost (exc purchases)	100%															
NEW COST AFTER ALLOCATION			23 478	74 000	668 603	12 516 726	-	9 082 246	3 211 037	-	-	-	(138 228 063)	5 113 141	1 393 653	(4 909 564)	
NEW REVENUE			(23 478)	(74 000)	(668 603)	(12 516 726)	-	(9 082 246)	(3 211 037)	-	-	-	(577 314 056)	(5 113 141)	(1 393 653)	4 909 564	
NEW NET INCOME			(0)	(0)	-	-	-	-	-	-	-	-	(715 542 119)	-	-	-	

The allocation from the various overhead departments to the line departments are shown in Table 36 below.

Table 36

Sum of Actual Balance Inc Shadow			Community And Protection Services Total	Infrastructure Services								Infrastructure Services Total	Grand Total
				Services And Project Management Total	ENGINEERING SERVICES	Refuse Removal Total	Roads and traifi Total	Sewerage Network Total	Water Network Total	ELECTRICAL ENGINEERING SERVICES Total			
ALLOCATION TO LINE DEPARTMENTS			114 827 727.84	9 051 698.55	12 524 709.60	85 032 193.80	36 479 337.17	55 162 220.49	121 249 545.37	85 946 184.98	-	-	0.00
Audit Total	Total cost (exc purchase)	100%	2 837 558.96	203 382.51	376 552.28	1 188 544.58	1 040 662.72	1 233 518.41	1 539 195.19	915 839.44			-
Communication Services Total	Community services	100%	2 494 330.77										-
IDP And Strategic Programs T	Total cost (exc purchase)	100%	1 217 839.37	87 288.84	161 610.81	510 106.19	446 637.43	529 408.31	660 600.37	393 065.07	-	-	0.00
Liaison Executive Total	Total cost (exc purchase)	100%	147 564.80	10 576.73	19 582.28	61 809.23	54 118.76	64 148.06	80 044.51	47 627.44	-	-	0.00
Municipal Manager Total	Total cost (exc purchase)	100%	1 543 292.24	110 615.73	204 799.35	646 425.91	565 995.88	670 886.28	837 137.84	498 106.97	-	-	-
Public Participation Total	Total cost (exc purchase)	100%	36 783.30	2 636.45	4 881.25	15 407.11	13 490.12	15 990.11	19 952.60	11 872.03	-	-	-
Corporate Director Total	Total cost (exc purchase)	100%	4 812 975.97	344 970.85	638 695.84	2 015 970.98	1 765 138.53	2 092 254.13	2 610 733.23	1 553 417.31	-	-	0.00
Councillors Total	Not allocated	0%	-	-	-	-	-	-	-	-	-	-	-
Information Technology Total	Total cost (exc purchase)	100%	13 552 648.95	971 388.37	1 798 475.73	5 676 684.69	4 970 376.54	5 891 487.09	7 351 449.74	4 374 200.00	-	-	-
Legal Services Total	Total cost (exc purchase)	100%	2 222 551.48	159 301.75	294 939.01	930 941.55	815 111.33	966 167.82	1 205 592.76	717 342.03	-	-	-
Municipal Buildings And Struc	Total cost (exc purchase)	100%	3 203 253.92	229 593.76	425 081.06	1 341 720.17	1 174 779.79	1 392 490.07	1 737 561.44	1 033 869.71	-	-	0.00
Occupational Safety Total	HR cost	50%	9 117 004.58	527 262.65	393 414.14	1 129 151.17	2 175 806.27	2 399 855.88	2 894 034.08	1 961 418.71	-	-	0.00
Occupational Safety Total	HR Numbers	50%	9 378 124.32	460 424.71	193 863.03	1 623 602.92	2 277 890.66	2 544 452.33	2 205 192.02	1 914 397.47	-	-	0.00
Property Management Total	Total cost (exc purchase)	100%	4 415 988.47	316 516.71	586 014.45	1 849 688.15	1 619 545.05	1 919 679.25	2 395 392.77	1 425 287.18	-	-	-
BUILDING CONTROL Total	Total cost (exc purchase)	100%	2 333 030.98	167 220.38	309 599.96	977 217.17	855 629.22	1 014 194.49	1 265 520.86	752 999.96	-	-	-
COMMUNITY DEVELOPMEN	Community development	100%	12 844 897.51										-
Housing Administration Total	Total cost (exc purchase)	100%	4 372 117.30	313 372.23	580 192.62	1 831 312.20	1 603 455.48	1 900 607.97	2 371 595.45	1 411 127.49	-	-	0.00
Human Settlements Total	Community development	100%	10 317 058.37										-
Informal Settlements Total	Community development	100%	6 637 020.30										-
Local Economic Development	Total cost (exc purchase)	100%	1 647 577.37	118 090.38	218 638.28	690 106.95	604 242.02	716 220.19	893 705.89	531 765.63	-	-	-
PLANNING AND DEVELOPM	Total cost (exc purchase)	100%	2 097 589.40	150 345.07	278 356.18	878 599.73	769 282.02	911 845.42	1 137 808.79	677 009.76	-	-	0.00
TOWN DEVELOPMENT Total	Total cost (exc purchase)	100%	2 006 808.09	143 838.30	266 309.24	840 574.92	735 988.36	872 381.77	1 088 565.70	647 709.53	-	-	-
TOWN PLANNING Total	Total cost (exc purchase)	100%	3 545 642.38	254 134.51	470 517.00	1 485 133.56	1 300 349.31	1 541 330.14	1 923 285.39	1 144 377.67	-	-	0.00
Financial Services	Total cost (exc purchase)	100%	10 451.22	749.09	1 386.91	4 377.62	3 832.94	4 543.26	5 669.12	3 373.20	-	-	-
Budget And Treasury Office T	Revenue	33%	8 391 306.11	1 205 911.08	1 808 725.47	-	2 385 895.85	6 930 958.07	8 224 793.20	40 166 441.88	-	-	-
Budget And Treasury Office T	Number of meter reading	33%	-	-	-	32 020 020.57	-	-	32 020 020.57	5 073 990.53	-	-	-
Budget And Treasury Office T	Outstanding debt	33%	-	-	-	11 537 449.92	-	10 174 459.43	35 723 687.00	11 678 435.32	-	-	-
Logistics And Fleet Manage	Total cost (exc purchase)	100%	21 386 671.22	1 532 893.22	2 838 073.15	8 958 056.07	7 843 471.00	9 297 023.61	11 600 908.36	6 902 678.40	-	-	0.00
Special Railing Areas Total	Total cost (exc purchase)	100%	1 907 932.86	136 751.40	253 188.21	799 159.87	699 726.29	829 399.61	1 034 932.18	615 796.95	-	-	-
Supply Chain Management T	Inventory, contracts & Le	100%	3 005 026.80	1 605 932.01	404 587.15	8 028 887.80	2 765 577.48	1 258 005.29	433 504.57	1 500 781.69	-	-	-
Engineering overheads	Total cost (exc purcha	100%	-	7 153 952.03	17 169 176.93	4 885 145.99	4 277 323.18	5 069 997.03	6 326 387.17	3 764 275.58	-	-	-
NEW COST AFTER ALLOCATION			412 101 576	23 204 899	34 804 632	214 433 950	149 780 584	189 460 462	288 828 080	713 669 121			1 963 264 800
NEW REVENUE			(161 470 787)	(23 204 899)	(34 804 632)	-	(45 910 908)	(133 369 852)	(158 266 640)	(772 907 921)			(2 066 732 341)
NEW NET INCOME			250 630 789	-	-	214 433 950	103 869 676	56 090 611	130 561 440	(59 238 800)			(103 467 541)

The resultant trial balance thus shows that all overhead costs have been allocated to the line departments. The net revenue remaining in Budget and treasury and other line departments can be used to cross subsidise those services that make a loss.

The result for electricity department is shown in Table 37 below.

Table 37

ELECTRICITY SUMMARY	Rand
Bad Debts Written Off	373 181.99
Bulk Purchases	528 011 715.18
Prepaid Electricity Vendors	6 674 918.56
Contracted Services (rest)	5 494 423.09
Operational Cost	11 694 528.34
Depreciation and Amortisation	35 345 335.31
Employee Related Cost	30 486 079.72
Interest, Dividends and Rent on Land	5 226 962.96
Inventory Consumed	3 804 693.25
COST ADJUSTMENTS	- 3 153 178.15
ALLOCATION TO LINE DEPARTMENTS	85 126 825.76
Allocation from Technical Services	3 764 275.58
TOTAL COST	712 849 761.60
Interest, Dividend and Rent on Land	- 1 484 988.60
Operational Revenue	- 868 988.28
Service Charges	- 742 643 362.02
Transfers and Subsidies	
Sales of Goods and Rendering of Services	- 3 261 746.48
Capital	- 14 467 664.49
Equitable Share	- 31 849 510.20
REVENUE ADJUSTMENTS	21 668 339.10
Total Revenue	- 772 907 920.97
NET INCOME	- 60 058 159.37

The items are then grouped as per the NERSA requirements as shown in Table 38.

Table 38

RINGFENCED	Rand
Bulk purchase costs	528 011 715
Operating cost	33 612 487
Shared cost	88 891 101
Depreciation	32 192 157
Interest	5 226 963
Repairs & Maintenance	24 542 156
Impairment loss	373 182
Total cost	712 849 762
Revenue	- 772 907 921
Surplus actual	- 60 058 159
Surplus %	7.77%

These figures will be used for the cost of supply calculations.

12. REVENUE REQUIREMENT.

This section calculates the revenue requirement for Stellenbosch using the NERSA method. The calculation of the revenue requirement is shown in Table 39

Table 39

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Table 39

NERSARR	Rand
Bulk	528 011 715.18
Operating cost	33 612 486.76
Shared cost	89 710 460.56
Depreciation	32 192 157.16
Interest	5 226 962.96
Repairs & Maintenance	24 542 156.20
Impairment loss	373 181.99
Sub-total cost	713 669 120.81
Surplus: 15%	107 050 368.12
Revenue requirement	820 719 488.93
Current revenue	772 907 920.97
% Structure increase	6.2%

The following important comments in his respect:

- The shared cost of R88 mill is very high. This represents 93% of own costs excluding bulk purchases.
- Without any shared costs the surplus would be equal to 19%.
- NERSA need to still get their heads around this issue and issue guidelines in this respect.
- NERSA is unlikely to accept this high value. Various options were considered but this issue needs to be further discussed.

Based on this and all the adjustments it is clear that the current Stellenbosch tariffs recover the NERSA formula revenue requirement depending on the treatment of shared costs. 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.

13.1. Cost Categorization

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 40.

Table 40

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 maintenacne	None	All	None
Customer Services		None	None	All

The % values show the estimated % of time that each staff member spends on each of the respective activities are shown in Table 42. This has been developed based on the experience of the Electricity department.

Table 41

ELECTRICITY STAFF				Networks											
				HV											
				HV/MV											
				MV											
				MV/LV											
				LV											
				Consumer services											
				Streetlights											
				Energy								Consumers service		Streetlights	
EMPLOYEE NAME		SURNAME						Networks							
				Energy		HV		HV/MV		MV		MV/LV		LV	
PATIENCE NOMBULELO		ZWANE (MATYELU)		25%	10%	20%	10%	10%	10%	10%	10%	10%	10%	5%	100%
VICTOR		DYUSHA		15%	10%	10%	10%	10%	15%	15%	15%	15%	10%	100%	
DANNY		MURONGA		0%	0%	0%	0%	10%	25%	30%	25%	15%	10%	105%	100%
FILICIA		SOPAZI		0%	5%	10%	15%	15%	15%	15%	20%	20%	20%	100%	100%
JEFFREY		WHITELANE		0%	5%	10%	15%	15%	15%	15%	20%	20%	20%	100%	100%
VUYISWA JEANET		ADAM		0%	5%	10%	15%	15%	15%	15%	20%	20%	20%	100%	100%
MARTINUS NICOLAAS		SLABBER (FRANSCH)		5%	5%	10%	15%	15%	20%	20%	20%	5%	10%	100%	100%
CARLO		GOUWS		5%	5%	10%	15%	15%	20%	20%	20%	5%	10%	100%	100%
MAWETHU		MAKELANI		0%	0%	5%	15%	20%	20%	20%	25%	15%	100%	100%	100%
AYANDA ERNEST		GONGQA		5%	5%	10%	20%	15%	20%	20%	20%	5%	10%	100%	100%
CHRISTIAAN		JAFTHAS (FRANSCH)		0%	0%	5%	15%	20%	20%	20%	25%	15%	100%	100%	100%
GERT		JEFTHAS (FRANSCH)		0%	5%	10%	15%	20%	20%	20%	25%	5%	100%	100%	100%
ASHWELL ANDREW		BEUKES		0%	0%	5%	15%	20%	20%	20%	25%	15%	100%	100%	100%
MALIBUYE		FOKWANA		0%	0%	5%	15%	15%	15%	15%	25%	25%	100%	100%	100%
ROGER		VAN GRAAN		0%	0%	5%	15%	15%	15%	15%	25%	25%	100%	100%	100%
LESLEY		BLANKENBERG		0%	0%	5%	15%	15%	15%	15%	25%	25%	100%	100%	100%
MANUEL		PHILANDER (FRANSCH)		0%	5%	10%	15%	20%	20%	20%	25%	5%	100%	100%	100%
ETTIENE LOUIS PETER		KLAASTE		0%	0%	0%	5%	5%	30%	30%	30%	30%	100%	100%	100%
WARREN TREVOR		MORKEL		5%	5%	10%	5%	5%	40%	25%	5%	100%	100%	100%	100%
IAN BARRY		CALVERT		0%	5%	5%	0%	0%	30%	30%	30%	30%	100%	100%	100%
SONWABO ISAAC		MAYEKISO		0%	0%	0%	5%	5%	30%	30%	30%	30%	100%	100%	100%
ROBERT WILLIAM		LOUW		5%	5%	5%	5%	5%	40%	35%	0%	100%	100%	100%	100%
KURT		JACOBS		0%	0%	10%	5%	5%	25%	25%	30%	30%	100%	100%	100%
NONTUTHUZELO CONSTANC		GANGILE (GONGOTHA)		0%	0%	5%	20%	20%	20%	20%	15%	100%	100%	100%	100%
DAVID ISAAC		CUPIDO (DAVID)		0%	0%	0%	5%	5%	30%	30%	30%	30%	100%	100%	100%
LETCHMEE RENE		DAVIDS (LOGGENBERG)		0%	0%	5%	5%	10%	35%	35%	10%	100%	100%	100%	100%
XOLISWA SUSSAN		TOKWE		0%	0%	5%	5%	10%	35%	35%	10%	100%	100%	100%	100%
LOURENS JAKOBUS		DE LANGE		10%	10%	15%	20%	20%	10%	10%	5%	100%	100%	100%	100%
MERCIA		DAVIDSE		0%	0%	5%	5%	10%	35%	35%	10%	100%	100%	100%	100%
LAMEEZ		CHRISTIANS		0%	0%	5%	5%	10%	35%	35%	10%	100%	100%	100%	100%
GREGORY GARETH		NIMB		5%	5%	10%	20%	20%	30%	10%	0%	100%	100%	100%	100%
DANIELS		GARNETH		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
DAVID WILLIAM		ARRIES		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
CONSTANT RANDELL		ABRAHAMS		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
QUENTIN HAROLD		VAN KERWEL		0%	5%	10%	15%	20%	20%	25%	5%	100%	100%	100%	100%
BRENT SPENCER		SIMMERS		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
FRANSWA JACOBUS		STRYDOM		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
SIVUYISE		TSAAWE		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
MAXWELL		WILLEMSE		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
GARNETH MARLON		DANIELS		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
WILBUR STEVE		FEBRUARY		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
JEANDRE		PEDRO		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
TYRONE CRAIG		LANGVELDT		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
WANDISA FELICIA		JAXA		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
CLINTON GARTH		ROBERTS		0%	0%	5%	30%	25%	30%	10%	0%	100%	100%	100%	100%
GILMOUR ADRIAN		SMITH		0%	5%	10%	15%	20%	20%	25%	5%	100%	100%	100%	100%
SANDISO		NDIKA		0%	5%	15%	25%	25%	25%	5%	0%	100%	100%	100%	100%
MARK JUAN		BENSON		5%	5%	10%	10%	15%	5%	25%	25%	100%	100%	100%	100%
BERNINE		KWAGO		0%	0%	5%	5%	10%	35%	35%	10%	100%	100%	100%	100%
TERRANCE ALEXANDER		MILES		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
SHELTON RODGER		PETERSEN		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
ABRAHAM		MWEZENI		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
ADRIAN		COBEN		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
NDAKHE JOSEPH		DYOSI		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
THEMBELANI		TINISE		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
MSINDISENI		SIZIBA		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
BAPHIWE		PAKAMILE		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
SIPHELELE		MFULELWA		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
LINDELWA		QOSHA		0%	5%	10%	5%	5%	20%	30%	25%	100%	100%	100%	100%
PHUMELELE		MACOPOZO		0%	5%	10%	15%	20%	20%	25%	5%	100%	100%	100%	100%
HOWARD JOHN MARCEL		KANNEMEYER		0%	5%	10%	15%	20%	20%	25%	5%	100%	100%	100%	100%
WILLO		OTTO		0%	0%	5%	5%	5%	20%	35%	30%	100%	100%	100%	100%
MTHEHELE		MAFENTILE (MBALI)		0%	0%	5%	5%	5%	20%	35%	30%	100%	100%	100%	100%
CESARE		SCAIOLA		0%	5%	10%	15%	15%	10%	25%	20%	100%	100%	100%	100%
SIBONGILE		TSHAKA		0%	0%	5%	5%	5%	20%	35%	30%	100%	100%	100%	100%
BONGIWE		MNENO		0%	0%	5%	5%	5%	20%	35%	30%	100%	100%	100%	100%
PHUMZILE		FILE		0%	0%	5%	5%	5%	20%	35%	30%	100%	100%	100%	100%
SIYAMCELA		WAKA		0%	0%	0%	5%	5%	20%	40%	30%	100%	100%	100%	100%
ZOLISA		NGCENI		0%	0%	0%	5%	5%	20%	40%	30%	100%	100%	100%	100%
MPHUMZI		BHOBI		0%	0%	0%	5%	5%	20%	40%	30%	100%	100%	100%	100%
BEREND TIMOTHEUS		WILLEMSE		0%	5%	10%	15%	20%	20%	25%	5%	100%	100%	100%	100%
DILLON SIMON		FARAO		0%	5%	10%	15%	20%	20%	25%	5%	100%	100%	100%	100%
SHAUN ANTONIE		BALIE		0%	5%	10%	15%	20%	20%	25%	5%	100%	100%	100%	100%
XOLISA		MSUTHU		0%	0%	0%	5%	5%	20%	40%	30%	100%	100%	100%	100%
VUYANI SYDWELL		GXILISHE		0%	0%	0%	5%	5%	20%	40%	30%	100%	100%	100%	100%
				85%	190%	520%	1005%	1055%	1735%	1825%	1090%	7505%	100%	100%	100%
				1.13%	2.53%	6.93%	13.39%	14.06%	23.12%	24.32%	14.52%	100%	100%	100%	100%
74				0.838108	1.873418	5.127249	9.909394	10.4023984	17.10726	17.99467	10.7475	74	100%	100%	100%

Table 42 below shows the calculation of the allocation factors which will be used to allocate the electricity costs to the various categories of costs.

Table 42

ELECTRICITY ALLOCATION RATIOS	Energy	Service and connection Total	HV	HV/MV	MV	MV/LV	LV	Streetlight Total	Electricity Total
Asset provision	1 698 706	11 627 953	620 664	1 917 234	5 467 914	3 970 249	11 559 262	3 710 316	40 572 298
	4.2%	28.7%	1.5%	4.7%	13.5%	9.8%	28.5%	9.1%	100.0%
Depreciation	1 571 975	10 939 626	489 201	1 511 146	4 403 018	3 267 740	9 729 117	3 433 511	35 345 335
	4.4%	31.0%	1.4%	4.3%	12.5%	9.2%	27.5%	9.7%	100.0%
Interest'	126 730	688 327	131 462	406 088	1 064 896	702 509	1 830 145	276 805	5 226 963
	2.4%	13.2%	2.5%	7.8%	20.4%	13.4%	35.0%	5.3%	100.0%
HR numbers	0.84	1.87	5.13	9.91	10.40	17.11	17.99	10.75	74.00
	1.1%	2.5%	6.9%	13.4%	14.1%	23.1%	24.3%	14.5%	100.0%

The categorisation of cost per sub-part of the electricity business is then done as shown in Table 43.

Table 43

ELECTRICITY SUMMARY		Energy	Service and connection Total	HV	HV/MV	MV	MV/LV	LV	Streetlight Total	Electricity Total
Bad Debts Written Off	Deduct from revenue									
Bulk Purchases	Energy	528 011 715								528 011 715
Prepaid Electricity Vendors	Consumer services		6 674 919							
Contracted Services (rest)	Asset provision	230 044	1 574 693	84 052	259 638	740 481	537 663	1 565 390	502 462	5 494 423
Operational Cost	Staff numbers	132 450	296 064	810 280	1 566 023	1 643 934	2 703 532	2 843 773	1 698 472	11 694 528
Depreciation and Amortisation	Depreciation ratio	1 571 975	10 939 626	489 201	1 511 146	4 403 018	3 267 740	9 729 117	3 433 511	35 345 335
Employee Related Cost	Staff numbers	345 279	771 799	2 112 293	4 082 413	4 285 518	7 047 748	7 413 337	4 427 692	30 486 080
Interest, Dividends and Rento	Interest ratio	126 730	688 327	131 462	406 088	1 064 896	702 509	1 830 145	276 805	5 226 963
Inventory Consumed	Asset provision	169 213	1 177 579	52 659	162 665	473 956	351 751	1 047 276	369 595	3 804 693
COST ADJUSTMENTS	Rev	-	-	-	-	-	-	-	-	3 153 178
ALLOCATION TO LINE DEPA	Total cost - purchases	2 490 143	14 935 000	3 557 724	7 722 663	12 192 919	14 125 659	23 617 659	10 352 867	85 946 185
Allocation from Technical Serv	Total cost - purchases	107 489	640 345	159 009	343 440	534 893	626 798	1 033 173	456 978	3 764 276
TOTAL COST		533 185 038	37 698 351	7 396 682	16 054 076	25 339 616	29 363 399	49 079 870	21 518 382	706 621 020

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 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 44.

Table 44

STELLENBOSCH							
OPERATING COST SEPARATION							
			Opex				
					To calc ratio of Opex		Network Capex Labour ratio
ENERGY/DSM			3 332 907		N0		
NETWORK SUPPORT COST TOTAL			101 949 437		Energy	N1	6 894 380 0.0%
CUSTOMER SERVICES TOTAL			25 084 217		HV	N2	3 869 012 0.0%
LIGHTING			17 498 543		HV/MV	N3	11 951 400 0.0%
TOTAL			147 865 104		MV	N4	32 606 739 0.0%
					MV to LV	N5	22 554 771 0.0%
Direct Network support	Direct				LV	N6	62 256 267 0.0%
	% shared support	100%	101 949 437				
					TOTAL		140 132 568 0.0%
		Adjust Factor	Initial	New ratio	ALLOCATED SUPPORT		
N0							
N1	Energy	100%	3 332 907	2.71%	3 332 907		
N2	HV	100%	6 731 918	5.48%	6 731 918		
N3	HV/MV	100%	14 000 615	11.40%	14 000 615		
N4	MV	100%	19 474 781	15.86%	19 474 781		
N5	MV to LV	100%	25 098 572	20.44%	25 098 572		
N6	LV	100%	36 643 551	29.84%	36 643 551		
LIGHTING		100%	17 498 543	14.25%	17 498 543		
	TOTAL		122 780 887	100.00%	122 780 887		
Customer service direct							
	% shared support	0%	-	Total			
	Service connection / Metering share		50.0%	12 542 108			
	Billing share		25.0%	6 271 054			
	Customer service share		25.0%	6 271 054			
			100.00%	25 084 217			
Service connection / Metering Revenue requirement				12 542 108			
Metering	Meter capex RR	Customers	Equivalent meter cost weight	Equivalent single phase meters	Portion of metering opex	Opex R/y	Metering: Capex and Opex
1 PH kWh Pre-paid	10 125 176	27 634	1.50	41 451	80.17%	10 054 480	20 179 656
3 PH kWh Pre-paid	418 488	879	2.50	2 196	4.25%	532 776	951 264
1 PH kWh	376 349	2 943	1.00	2 943	5.69%	713 952	1 090 300
3 Ph kWh	212 227	1 261	2.00	2 523	4.88%	611 959	824 185
3 TOU	103 217	349	5.00	1 743	3.37%	422 765	525 981
3 PH TOU & ct's	404	1	10.00	10	0.02%	2 426	2 829
TOU RMU & CT/VT's	379 012	55	15.00	825	1.60%	200 113	579 125
TOU at HV sub With CB	13 082	1	15.00	15	0.03%	3 638	16 721
SUB-TOTAL	11 627 953	33 123	52	51 707	100.00%	12 542 108	24 170 062
Billing/ cust.service							
	Equivalent cost weight	Number of customers	Equivalent < 50 kW customers	Billing/cust.serv. cost R/y	R/cust/m	12 542 108	
Small <50 kVa	1	32718	32 718	12 166 475	30.99		
Medium <500 kVa	5	195	975	362 412	154.94		
Large <2000 kVa	10	2	18	6 611	309.89		
Very large >2000kVa	20	1	18	6 611	619.77		
	Total	32915	33 728	12 542 108			
Sub-Total							25 084 217
GRAND TOTAL							147 865 104

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

Stellenbosch 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 the relevant Megaflex LG rates is shown in Table 45.

Table 45

Megaflex			2022/2023
> 900km			
≥ 66kV & ≤ 132kV	Transmission network access	R/kVA/m	R 12.42
	Network access charge:	R/kVA/m	R 8.65
	Network demand High:	R/kVA/m	R 16.00
	Network demand Low:	R/kVA/m	R 16.00
TOU: High Demand Season (June -Aug)	Peak	c/kWh	R 481.44
	Standard	c/kWh	R 145.83
	Off-peak	c/kWh	R 79.21
TOU: Low Demand Season (Sept-May)	Peak	c/kWh	R 157.03
	Standard	c/kWh	R 108.08
	Off-peak	c/kWh	R 68.54
Electrification and rural		c/kWh	R 11.73
Affordability		c/kWh	R 0.00
Urban low voltage subsidy charge [R/kVA/m]		R/kVA/m	R 21.18
Reliability service		c/kWh	R 0.55
REACTIVE ENERGY (c/kvarh)	High Demand	c/kvarh	R 21.19
	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 46. The cost of the actual streetlights plus overheads is allocated on a per light basis.

Table 46

STELLENBOSCH													
CATEGORISED TOTAL COST													
ENERGY													
Eskom												528 011 715	
Capex												528 011 715.18	
Opex													
TOTAL NETWORK COSTS													
(System peak week demand)				ALLOCATION RATIOS						TOTAL COST			
				TOTAL		Cost	CAPEX	SUPPORT					
				CAPEX	SUPPORT	Type	Deman	Units	PODs	Deman	Units	PODs	Demand
						R/y							
				N0	0	0	100%	0%	0%	100%	0%	0%	0
													0
Energy	Energy	N1	1 292 854	3 332 907	R/y	0%	100%	0%	0%	100%	0%	0%	0
HV	HV	N2	725 528	6 731 918	R/y	100%	0%	0%	100%	0%	0%	0%	7 457 446
HV/MV	HV/MV	N3	2 241 160	14 000 615	R/y	100%	0%	0%	100%	0%	0%	0%	16 241 776
MV	MV	N4	6 114 508	19 474 781	R/y	100%	0%	0%	100%	0%	0%	0%	25 589 289
MV to LV	MV to LV	N5	4 229 535	25 098 572	R/y	100%	0%	0%	100%	0%	0%	0%	29 328 106
LV	LV	N6	11 674 472	36 643 551	R/y	100%	0%	0%	100%	0%	0%	0%	48 318 023
Lights	Lights	N7	2 823 853	17 498 543	R/y	0%	0%	100%	0%	0%	100%	0%	0
					R/y	100%	0%	0%	100%	0%	0%	0%	0
					R/y	100%	0%	0%	100%	0%	0%	0%	0
			29 101 911	122 780 887									126 934 641
													4 625 761
													20 322 396
Service connection / Metering Revenue requirement													
Metering				Meter capex RR	Opex R/y								Total cost R/Y
1 PH kWh Pre-paid				6 995 751	10 054 480								17 050 231
3 PH kWh Pre-paid				289 144	532 776								821 920
1 PH kWh				358 309	713 952								1 072 260
3 Ph kWh				202 054	611 959								814 012
3 TOU				98 269	422 765								521 033
3 PH TOU & ct's				384	2 426								2 810
TOU RMU & CT/VT's				360 844	200 113								560 957
TOU at HV sub With CB				12 455	3 638								16 094
				-	-								0
				-	-								0
SUB-TOTAL				8 317 210	12 542 108								20 859 318
Billing/ cust.service				-	-								
				-	-								R/y
Small <50 kVa					12 166 475								12 166 475
Medium <500 kVa					362 412								362 412
Large <2000 kVa					6 611								6 611
Very large >2000kVa					6 611								6 611
Total					12 542 108								12 542 108
				37 419 120	147 865 104								713 295 939

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-incidental 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 47. The network kVA and kWh quantities were obtained from the Quantities tables. The sales data was obtained from the sales data.

Table 47

STELLENBOSCH					
TOTAL ALLOCATION UNITS					
NETWORK					
(System peak week)			kVA	kWh	PODs
			kVA	kWh	PODs
		N0	794 688	388 791 705	
Energy	Energy	N1	794 688	388 791 705	
HV	HV	N2	794 688	388 791 705	
HV/MV	HV/MV	N3	794 688	388 791 705	
MV	MV	N4	788 181	385 608 135	
MV to LV	MV to LV	N5	528 461	251 334 782	Total
LV	LV	N6	405 727	180 040 531	
Lights	LV	N6			9 659
		N5/6			
GRAND TOTAL					9 659
Metering					
Metering					
1 PH kWh Pre-paid		27 634			
3 PH kWh Pre-paid		879			
1 PH kWh		2 943			
3 Ph kWh		1 261			
3 TOU		349			
3 PH TOU & ct's		1			
TOU RMU & CT/VT's		55			
TOU at HV sub With CB		1			
		0			
SUB-TOTAL		33 123			
Billing/ cust.service		0			
Small <50 kVa		32 718			
Medium <500 kVa		195			
Large <2000 kVa		2			
Very large >2000kVa		1			
Total		32 915			

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 48.

Table 48

STELLENBOSCH						
COST PER UNIT						
NETWORK						
(System peak week demand)				kVA	kWh	PODs
				All	c/kWh	R/PODs
		N0		0.00	0.00	0.00
Energy	Energy	N1		0.00	0.012	0.00
HV	HV	N2		9.38	0.00	0.00
HV/MV	HV/MV	N3		20.44	0.00	0.00
MV	MV	N4		32.47	0.00	0.00
MV to LV	MV to LV	N5		55.50	0.00	0.00
LV	LV	N6		119.09	0.00	0.00
Lights	LV	N6		119.09	0.00	175.33
GRAND TOTAL						
Metering		R/C/m				
1 PH kWh Pre-paid		51				
3 PH kWh Pre-paid		78				
1 PH kWh		30				
3 Ph kWh		54				
3 TOU		125				
3 PH TOU & ct's		234				
TOU RMU & CT/VT's		850				
TOU at HV sub With CB		1341				
NA		0				
AVERAGE		52				
Billing/ cust.service						
		R/C/m				
Small <50 kVa		31				
Medium <500 kVa		155				
Large <2000 kVa		310				
Very large >2000kVa		620				
NA		0				
AVERAGE		32				

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 49.

Table 49

STELLENBOSCH			2021/2022	Eskom adjust			0.00%
COSTS PER TARIFF COST CATEGORY				Cost increase			4.5%
				+ Surplus			7.7%
FOR ALL LOAD FACTORS							
			Access	Demand	Peak	Standard	Off-peak
HIGH SEASON	Access / Demand	R/kVA/m	22.68	40.03			
	Energy	c/kWh			5.1834	1.5701	0.8528
LOW SEASON	Access / Demand	R/kVA/m	22.68	40.03			
	Energy	c/kWh			1.6907	1.1636	0.7379
	Super Peak	c/kvarh			-	-	
Fixed charges (R/m)		R/m					
Reactive energy - Hi	Total excess for year	c/kvarh	0.2281				
Transmission network		R/m					
National levies		c/kWh	0.1322				
TOTAL COSTS PER SUPPLY POSITION			Acc %	Acc	DM		
Total Network Charges (including losses)			30%	R/KVA/m	R/KVA/m	c/kWh	R/pod/m
		Total losses		All	All	All	
S0		0.00%	0	0.00	0.00	0	0.00
S1	Non-Tech	0.00%	0.00	0.00	0.00	0	0.00
S2		0.00%	10.53	3.16	7.37	0	0.00
S3		0.98%	33.45	10.03	23.41	0	0.00
S4		2.64%	70.22	21.07	49.16	0	0.00
S5		4.65%	133.49	40.05	93.44	0	0.00
S6		8.77%	269.69	80.91	188.79	0	0.00
S7 Lights		8.8%	269.69	80.91	188.79	0	175.33
Metering	R/C/m						
1;1 PH kWh Pre-paid	57.67						
2;3 PH kWh Pre-paid	87.44						
3;1 PH kWh	34.05						
4;3 Ph kWh	60.32						
5;3 TOU	139.71						
6;3 PH TOU & ct's	262.66						
7;TOU RMU & CT/VT's	953.32						
8;TOU at HV sub With CB	1504.28						
9;NA	0.00						
10;0	0.00						
AVERAGE	58.86						
Billing/ cust.service	0						
	R/C/m						
1;Small <50 kVa	35						
2;Medium <500 kVa	174						
3;Large <2000 kVa	348						
4;Very large >2000kVa	695						
5;NA							
NA	36						

The following should be noted in this respect:

- Own costs increase by CPI.
- The surplus is the actual surplus.
- The surplus reflects the current surplus which NERSA would allow under normal circumstances.
- 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.
 - 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 50.

Table 50

STELLENBOSCH					
30/06/2021					
	347	2021/2022			
TARIFF CODE	Capacity (Amps)	Sub Category	Profile	Meter	Size
Domestic: Life Line PP	30	S6	jDomFDP	1;1 PH kWh Pre-paid	1;Small <50 kVa
Domestic: Regular PP 20 Amp	30	S6	jDomFDP	1;1 PH kWh Pre-paid	1;Small <50 kVa
Domestic: Regular PP <600 kWh/m	30	S6	jDomFDP	1;1 PH kWh Pre-paid	1;Small <50 kVa
Domestic: Regular PP >600 kWh/m	30	S6	gReside	1;1 PH kWh Pre-paid	1;Small <50 kVa
Domestic: Regular 60 Amp 1 & 3 ph	30	S6	gReside	3;1 PH kWh	1;Small <50 kVa
Domestic: Renewable Energy (DOM5) SSEG with export	30	S6	kSSEGLm	5;3 TOU	1;Small <50 kVa
Commercial: Life Line 20 Amp PP	40	S6	fCommer	1;1 PH kWh Pre-paid	1;Small <50 kVa
Commercial: Low 40 Amp 1 & 3 ph PP	40	S6	fCommer	1;1 PH kWh Pre-paid	1;Small <50 kVa
Commercial: Regular PP 80 Amp 1 & 3 ph	50	S6	fCommer	1;1 PH kWh Pre-paid	1;Small <50 kVa
Commercial: Credit meters 80 Amps 1 & 3 ph	40	S6	fCommer	3;1 PH kWh	1;Small <50 kVa
Commercial: Regular PP 80 Amp 1 & 3 ph	120	S6	fCommer	1;1 PH kWh Pre-paid	1;Small <50 kVa
Commercial: Renewable Energy (COM5) SSEG	120	S6	kSSEGLm	5;3 TOU	1;Small <50 kVa
Agricultural: Regular 80Amp 3 phase	90	S6	eAgricu	4;3 Ph kWh	2;Medium <500 kVa
AGRICULTURAL: Renewable Energy (AGRI 1.1) own use & export	60	S6	eAgricu	5;3 TOU	2;Medium <500 kVa
Large Power: Low Voltage > 80 Amp	30	S5	eLPU LV	5;3 TOU	2;Medium <500 kVa
Large Power: Low Voltage > 80 Amp SSEG	60	S5	kSSEGLm	5;3 TOU	2;Medium <500 kVa
Industrial: Medium Voltage (IND2)	60	S4	bLPU MV	7;TOU RMU & CT/VT's	3;Large <2000 kVa
Industrial: Medium Voltage (IND 2.1): SSEG	90	S4	kSSEGLm	7;TOU RMU & CT/VT's	3;Large <2000 kVa
Municipal: Street and Traffic lights (MUN1)	180	S6	mLights	9;NA	5;NA
Municipal: Low Voltage <80 Amp (MUN2)	180	S4	fCommer	4;3 Ph kWh	1;Small <50 kVa
Municipal: Low Voltage >80 Amp (MUN3)	180	S5	dMunicS	5;3 TOU	2;Medium <500 kVa
NPA : Single Phase 20 Amp Prepaid (NPO1)	90	S6	jDomFDP	1;1 PH kWh Pre-paid	1;Small <50 kVa
NPA : LV > 60 Amp PP SARS Approved (NPO2)	0	S6	hNPAsss	2;3 PH kWh Pre-paid	1;Small <50 kVa
Sport: Low All Consumers (<80A) and Prepaid (SPO1)	0	S6	hNPAsss	1;1 PH kWh Pre-paid	1;Small <50 kVa
Sport: High Consumers (>80A) Maximum Demand (SPO2)	0.9	S5	iSports	5;3 TOU	2;Medium <500 kVa
Time of Use (Low Voltage>80Amp) TOU1	0.9	S5	cLPU LV	6;3 PH TOU & ct's	2;Medium <500 kVa
Time of Use (Low Voltage>80Amp) TOU1 SSEG	40	S5	kSSEGLm	6;3 PH TOU & ct's	2;Medium <500 kVa
Time of Use (Medium Voltage) TOU2	20	S4	bLPU MV	7;TOU RMU & CT/VT's	3;Large <2000 kVa
Time of Use (Medium Voltage) TOU2 SSEG	60	S4	kSSEGLm	7;TOU RMU & CT/VT's	3;Large <2000 kVa
Wheeling at low voltage (<400V) in c/kWh	0	S6	eLPU LV	6;3 PH TOU & ct's	2;Medium <500 kVa
Wheeling at medium voltage (>400V) in c/kWh	0	S5	bLPU MV	7;TOU RMU & CT/VT's	2;Medium <500 kVa
Availability	0	S6	gReside	9;NA	5;NA
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	0	S6	iSSEGLx	5;3 TOU	1;Small <50 kVa

The resultant costs per tariff broken up in all the different components are shown in Table 51.

Table 51

STELLENBOSCH		CHARGES APPLICABLE FOR ALL MONTHS OF THE YEAR				HIGH SEASON CHARGES				LOW SEASON CHARGES			
30/06/2021		2021/2022 TARIFF RATES				Months in year. 3,000				Months in year. 9,000			
		Basic	Access	MD (all hours)	ALL Energy	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy
TARIFF CODE		R/POS	RkVA/m	RkVA/m	R kWh	ckWh	ckWh	ckWh	ckvarh	ckWh	ckWh	ckWh	ckvarh
Domestic: Life Line PP		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Domestic: Regular PP 20 Amp		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Domestic: Regular PP >600 kWh/m		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Domestic: Regular PP >600 kWh/m		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Domestic: Regular 60 Amp 1 & 3 ph		80.352	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Domestic: Renewable Energy (DOM5) SSEG with export		203.739	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Commercial: Life Line 20 Amp PP		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Commercial: Low 40 Amp 1 & 3 ph PP		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Commercial: Regular PP 80 Amp 1 & 3 ph		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Commercial: Credit meters 80 Amps 1 & 3 ph		80.352	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Commercial: Regular PP 80 Amp 1 & 3 ph		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Commercial: Renewable Energy (COM5) SSEG		203.739	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Agricultural: Regular 80 Amp 3 phase		273.381	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
AGRICULTURAL: Renewable Energy (AGRI 1.1) own use & export		366.095	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Large Power: Low Voltage > 80 Amp		366.095	76.666	163.119	0.138	5.425	1.643	0.893	0.2118	1.769	1.218	0.772	
Large Power: Low Voltage > 80 Amp SSEG		366.095	76.666	163.119	0.138	5.425	1.643	0.893	0.2118	1.769	1.218	0.772	
Industrial: Medium Voltage (IND2)		1 519.145	52.439	106.894	0.136	5.320	1.611	0.875	0.2118	1.735	1.194	0.757	
Industrial Medium Voltage (IND 2.1): SSEG		1 519.145	52.439	106.894	0.136	5.320	1.611	0.875	0.2118	1.735	1.194	0.757	
Municipal: Street and Traffic lights (MUN1)		-	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Municipal: Low Voltage <80 Amp (MUN2)		111.024	52.439	106.894	0.136	5.320	1.611	0.875	0.2118	1.735	1.194	0.757	
Municipal: Low Voltage <80 Amp (MUN2)		366.095	76.666	163.119	0.138	5.425	1.643	0.893	0.2118	1.769	1.218	0.772	
NPA - Single Phase 20 Amp Prepaid (NPO1)		175.332	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
NPA - LV > 60 Amp PP/SARS Approved (NPO2)		175.332	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Sport: Low All Consumers (<80A) and Prepaid (SPO1)		107.935	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Sport: High Consumers (>80A) Maximum Demand (SPO2)		366.095	76.666	163.119	0.138	5.425	1.643	0.893	0.2118	1.769	1.218	0.772	
Time of Use (Low Voltage<80Amp) TOU1		509.664	76.666	163.119	0.138	5.425	1.643	0.893	0.2118	1.769	1.218	0.772	
Time of Use (Low Voltage<80Amp) TOU1 SSEG		509.664	76.666	163.119	0.138	5.425	1.643	0.893	0.2118	1.769	1.218	0.772	
Time of Use (Medium Voltage) TOU2		1 519.145	52.439	106.894	0.136	5.320	1.611	0.875	0.2118	1.735	1.194	0.757	
Time of Use (Medium Voltage) TOU2 SSEG		1 519.145	52.439	106.894	0.136	5.320	1.611	0.875	0.2118	1.735	1.194	0.757	
Wheeling at low voltage (<400V) in c/kWh		509.664	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
Wheeling at medium voltage (>400V) in c/kWh		1 316.199	76.666	163.119	0.138	5.425	1.643	0.893	0.2118	1.769	1.218	0.772	
Availability		-	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)		203.739	131.579	290.631	0.144	5.638	1.708	0.928	0.2118	1.839	1.266	0.803	

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 52.

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.

Table 52

STELLENBOSCH		QUANTITIES CHARGEABLE FOR ALL MONTHS OF THE YEAR				HIGH SEASON QUANTITIES				LOW SEASON QUANTITIES			
CONSUMPTION		Number of POD's	Highest MD in year	Σ MDs all hours / 12	ALL Energy	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy
TARIFF CODE	Units	POD's	kVA	kVA	kWh	kWh	kWh	kWh	kvarh	kWh	kWh	kWh	kvarh
Domestic: Life Line PP		10 701	10 215	97 610	33 359 458	1 860 956	4 201 119	3 896 237	751 976	4 078 102	9 326 204	9 996 841	-
Domestic: Regular PP 20 Amp		11 121	12 392	118 412	40 468 593	2 257 539	5 096 406	4 726 552	912 227	4 947 174	11 313 683	12 127 239	-
Domestic: Regular PP <600 kWh/m		1 987	6 014	54 538	23 653 580	1 072 686	2 968 007	2 822 656	14	2 864 074	6 912 302	7 013 856	-
Domestic: Regular PP 60 Amp 1 & 3 ph		3 607	8 164	74 038	32 110 919	1 456 225	4 029 218	3 831 896	20	3 888 124	9 383 796	9 521 660	-
Domestic: Renewable Energy (DOM5) SSEG with export		13	59	548	195 677	9 075	17 451	20 928	5 938	25 581	49 995	72 647	-
Commercial: Life Line 20 Amp PP		30	51	310	102 616	4 063	11 608	9 988	1 676	12 746	33 886	30 525	-
Commercial: Low 40 Amp 1 & 3 ph PP		8	52	320	106 210	4 197	11 991	10 318	1 731	13 167	35 005	31 533	-
Commercial: Regular PP 80 Amp 1 & 3 ph		717	5 778	35 368	11 732 617	463 633	1 324 631	1 139 756	191 206	1 454 512	3 866 809	3 483 275	-
Commercial: Credit meters 80 Amps 1 & 3 ph		536	5 289	32 378	10 740 564	424 431	1 212 627	1 043 384	175 039	1 331 526	3 539 851	3 188 746	-
Commercial: Regular PP 80 Amp 1 & 3 ph		-	-	-	-	-	-	-	-	-	-	-	-
Commercial: Renewable Energy (DOM5) SSEG		7	61	569	203 296	9 429	18 130	21 743	6 169	26 577	51 942	75 476	-
Agricultural: Regular 80 Amp 3 phase		42	424	3 785	1 774 877	63 354	165 450	162 792	62 465	217 427	566 401	599 454	-
AGRICULTURAL: Renewable Energy (AGRI 1.1) own use & export		3	33	290	136 151	4 860	12 692	12 488	4 792	16 679	43 449	45 984	-
Large Power: Low Voltage > 80 Amp		185	6 075	55 294	23 892 434	943 457	2 604 254	2 298 270	26 742	3 004 698	7 862 546	7 179 209	-
Large Power: Low Voltage > 80 Amp SSEG		3	42	390	139 300	6 461	12 423	14 898	4 227	18 211	35 591	51 716	-
Industrial: Medium Voltage (IND2) SSEG		18	3 412	33 576	16 141 289	618 351	1 593 484	1 555 374	6 056	2 046 630	5 141 292	5 186 158	-
Industrial: Medium Voltage (IND2.1) SSEG		-	-	-	-	-	-	-	-	-	-	-	-
Municipal: Street and Traffic lights (MUN1)		15	971	10 836	3 197 371	39 783	166 691	653 239	182 843	95 877	361 231	1 880 549	-
Municipal: Low Voltage <80 Amp (MUN2)		50	336	2 054	681 511	26 931	76 944	66 205	11 107	84 488	224 611	202 333	-
Municipal: Low Voltage >80 Amp (MUN3)		21	2 278	23 474	12 160 593	450 973	1 222 262	1 421 332	22 767	1 320 249	3 529 790	4 215 988	-
NPA : Single Phase 20 Amp Prepaid (NPO1)		2	1	6	2 154	120	271	252	49	263	602	646	-
NPA : LV > 60 Amp PP-SARS Approved (NPO2)		4	7	72	23 779	1 030	2 649	2 300	153	3 227	7 652	6 921	-
Sport: Low All Consumers (<80A) and Prepaid (SPO1)		14	17	171	56 437	2 444	6 288	5 460	362	7 658	18 161	16 426	-
Sport: High Consumers (>80A) Maximum Demand (SPO2)		4	105	911	365 035	15 544	39 559	41 776	3 590	44 720	110 502	112 935	-
Time of Use (Low Voltage>80Amp) TOL1		134	11 015	100 253	43 319 203	1 710 575	4 721 755	4 166 978	48 485	5 447 797	14 255 526	13 016 573	-
Time of Use (Low Voltage>80Amp) TOL1 SSEG		6	450	4 210	1 503 183	69 717	134 055	160 768	45 617	196 512	384 060	558 071	-
Time of Use (Medium Voltage) TOL2		35	23 863	234 843	112 898 133	4 324 977	11 145 414	10 878 860	42 354	14 314 889	35 960 091	36 273 902	-
Time of Use (Medium Voltage) TOL2 SSEG		2	765	7 156	2 555 032	118 501	227 859	273 265	77 537	334 020	652 806	948 581	-
Wheeling at low voltage (<400V) in c/kWh		-	-	-	-	-	-	-	-	-	-	-	-
Wheeling at medium voltage (>400V) in c/kWh		-	-	-	-	-	-	-	-	-	-	-	-
Availability		6 282	15 076	-	-	-	-	-	-	-	-	-	-
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)													
Total		35 545	112 944	891 414	371 520 214	15 959 315	41 023 236	39 237 716	2 585 141	45 794 927	113 667 781	115 837 242	-

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 as shown in Table 53.

Table 53

STELLENBOSCH		REVENUES FROM CHARGES APPLICABLE FOR ALL MONTHS OF THE YEAR												HIGH SEASON REVENUES				LOW SEASON REVENUES					
TOTAL COSTS		Basic	Access	MD (all hours)	ALL Energy	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy										
TARIFF CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Domestic: Life Line PP		12 947 669	15 068 051	26 501 368	4 797 273	10 491 931	7 174 454	3 614 119	159 268	7 499 249	11 803 948	8 023 872	-	-	108 081 202								
Domestic: Regular PP 20 Amp		13 456 198	18 279 158	32 148 990	5 819 605	12 727 635	8 703 381	4 384 313	193 210	9 097 391	14 319 453	9 733 815	-	-	128 863 316								
Domestic: Regular PP <600 kWh/m		-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Domestic: Regular PP >600 kWh/m		2 403 905	8 870 509	14 807 230	3 401 514	6 047 725	5 068 609	2 618 273	3	5 266 763	8 748 732	5 629 606	-	-	62 862 872								
Domestic: Regular 60 Amp 1 & 3 ph		3 248 972	12 042 160	20 101 556	4 617 726	8 210 089	6 880 891	3 554 437	4	7 149 897	11 876 841	7 642 472	-	-	85 325 045								
Domestic: Renewable Energy / (DOM5) SSEG with export		30 643	86 440	148 801	28 139	51 156	29 801	19 413	1 258	47 041	63 278	58 309	-	-	564 290								
Commercial: Life Line 20 Amp PP		36 400	74 684	84 149	14 785	22 906	19 824	9 265	355	23 439	42 888	24 500	-	-	353 196								
Commercial: Low 40 Amp 1 & 3 ph PP		9 680	77 150	86 928	15 274	23 663	20 478	9 571	367	24 213	44 304	25 309	-	-	336 936								
Commercial: Regular PP 80 Amp 1 & 3 ph		888 051	8 522 430	9 602 559	1 687 215	2 613 930	2 282 137	1 057 229	40 497	2 674 712	4 894 126	2 795 818	-	-	37 018 704								
Commercial: Credit meters 80 Amps 1 & 3 ph		482 358	7 801 815	8 790 613	1 544 552	2 392 909	2 070 862	967 835	37 073	2 448 552	4 480 303	2 559 417	-	-	33 576 289								
Commercial: Renewable Energy / (COM5) SSEG		15 797	89 806	154 595	29 235	53 159	30 962	20 169	1 307	49 873	65 741	60 580	-	-	570 223								
Agricultural: Regular 80Amp 3 phase		128 970	625 161	1 027 586	255 237	357 183	282 547	151 005	13 230	399 828	716 879	481 146	-	-	4 438 772								
AGRICULTURAL: Renewable Energy (AGRI 1.1) own use & export		12 312	47 956	78 826	19 579	27 400	21 674	11 584	1 015	30 671	54 992	36 909	-	-	342 917								
Large Power: Low Voltage > 80 Amp		759 238	5 221 281	8 425 843	3 305 895	5 117 933	4 279 180	2 051 216	5 664	5 316 353	9 575 001	5 544 355	-	-	49 601 959								
Large Power: Low Voltage > 80 Amp SSEG		10 644	35 854	59 454	19 274	35 047	20 413	13 297	895	32 221	43 343	39 940	-	-	310 682								
Industrial: Medium Voltage (IND5)		306 537	2 005 367	3 352 835	2 190 346	3 289 680	2 567 856	1 361 417	1 283	3 551 380	6 140 350	3 927 965	-	-	28 695 220								
Industrial Medium Voltage (IND 2.1): SSEG		-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Municipal: Street and Traffic lights (MUN1)		-	1 432 589	2 942 085	459 799	224 294	284 667	605 940	38 726	176 310	417 251	1 509 405	-	-	8 131 016								
Municipal: Low Voltage <80 Amp (MUN2)		62 230	197 291	205 152	92 480	143 275	123 993	57 949	2 352	146 607	268 258	153 245	-	-	1 452 832								
Municipal: Low Voltage <80 Amp (MUN3)		85 158	1 957 607	3 576 971	1 682 610	2 446 373	2 008 360	1 268 545	4 822	2 335 977	4 236 575	2 255 920	-	-	22 920 518								
NPA - Single Phase 20 Amp Prepaid (NPO1)		3 331	973	1 712	310	678	463	223	10	484	762	518	-	-	9 475								
NPA - LV > 60 Amp PP SARS Approved (NPO2)		8 065	10 622	19 519	3 420	5 806	4 525	2 134	32	5 933	9 685	5 555	-	-	75 295								
Sport: Low All Consumers (<80A) and Prepaid (SPO1)		16 335	25 210	46 324	8 116	13 779	10 738	5 064	77	14 082	22 986	13 184	-	-	175 895								
Sport: High Consumers (>80A) Maximum Demand (SPO2)		16 416	90 351	138 811	50 506	84 319	65 001	37 285	760	79 125	134 569	87 218	-	-	784 363								
Time of Use (Low Voltage<80Amp) TOL1		767 977	9 466 568	15 276 837	5 993 895	9 278 289	7 758 551	3 719 045	10 269	9 630 042	17 369 367	10 052 430	-	-	89 324 369								
Time of Use (Low Voltage<80Amp) TOL1 SSEG		32 852	386 902	641 568	207 880	378 191	220 272	143 486	9 662	347 697	467 706	430 987	-	-	3 267 314								
Time of Use (Medium Voltage) TOL2		596 045	14 027 673	23 450 962	15 320 091	23 009 235	17 960 536	9 522 251	8 971	24 839 728	42 947 941	27 475 538	-	-	199 156 970								
Time of Use (Medium Voltage) TOL2 SSEG		34 060	449 819	714 619	346 714	630 436	367 189	239 189	16 422	579 605	779 660	718 447	-	-	4 876 159								
Wheeling at low voltage (<400V) in c/kWh		-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Wheeling at medium voltage (>400V) in c/kWh		-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Availability		-	22 237 037	-	-	-	-	-	-	-	-	-	-	-	-								
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)		-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Total		36 340 103	129 130 764	172 395 901	51 911 583	87 678 228	68 237 362	35 444 263	547 533	81 775 193	139 617 900	90 284 446	-	-	893 353 264								

All the costs per tariff cost category are then adjusted, as shown in Table 54

STELLENBOSCH		U	QUANTITIES CHARGEABLE FOR ALL MONTHS OF THE YEAR				HIGH SEASON QUANTITIES				LOW SEASON QUANTITIES			
CONSUMPTION	N	U	Number of POD's	Highest MD in year	Σ MDs all hours / 12	ALL Energy	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy	Energy Peak	Energy Standard	Energy Off-Peak	Reactive energy
TARIFF CODE	U	U	POD's	kVA	kVA	kWh	kWh	kWh	kWh	kvarh	kWh	kWh	kWh	kvarh
Domestic: Life Line PP			10 701	10 215	97 610	33 359 458	1 860 956	4 201 119	3 896 237	751 976	4 078 102	9 326 204	9 996 841	-
Domestic: Regular PP 20 Amp			11 121	12 392	118 412	40 468 593	2 257 539	5 096 406	4 726 552	912 227	4 947 174	11 313 683	12 127 239	-
Domestic: Regular PP <600 kWh/m			-	-	-	-	-	-	-	-	-	-	-	-
Domestic: Regular PP >600 kWh/m			1 987	6 014	54 538	23 653 580	1 072 686	2 968 007	2 822 656	14	2 864 074	6 912 302	7 013 856	-
Domestic: Regular 60 Amp 1 & 3 ph			3 607	8 164	74 038	32 110 919	1 456 225	4 029 218	3 831 896	20	3 888 124	9 383 796	9 521 600	-
Domestic: Renewable Energy / (DOM5) SSEG with export			13	59	548	195 677	9 075	17 451	20 928	5 938	25 581	49 995	72 647	-
Commercial: Life Line 20 Amp PP			30	51	310	102 816	4 063	11 608	9 988	1 676	12 746	33 896	30 525	-
Commercial: Low 40 Amp 1 & 3 ph PP			8	52	320	106 210	4 197	11 991	10 316	1 731	13 167	35 005	31 533	-
Commercial: Regular PP 80 Amp 1 & 3 ph			717	5 778	35 368	11 732 617	463 633	1 324 631	1 139 756	191 206	1 454 512	3 866 809	3 483 275	-
Commercial: Credit meters 80 Amps 1 & 3 ph			536	5 289	32 378	10 740 564	424 431	1 212 627	1 043 384	175 039	1 331 526	3 539 851	3 188 746	-
Commercial: Regular PP 80 Amp 1 & 3 ph			-	-	-	-	-	-	-	-	-	-	-	-
Commercial: Renewable Energy / (COM5) SSEG			7	61	569	203 296	9 429	18 130	21 743	6 169	26 577	51 942	75 476	-
Agricultural: Regular 80Amp 3 phase			42	424	3 785	1 774 877	63 354	165 450	162 782	62 465	217 427	566 401	599 454	-
AGRICULTURAL: Renewable Energy (AGRI 1.1) own use & export			3	33	290	136 151	4 860	12 692	12 488	4 792	16 679	43 449	45 984	-
Large Power: Low Voltage > 80 Amp			185	6 075	55 294	23 892 434	943 457	2 604 254	2 298 270	26 742	3 004 698	7 862 546	7 179 209	-
Large Power: Low Voltage > 80 Amp SSEG			3	42	390	139 300	6 461	12 423	14 898	4 227	18 211	35 591	51 716	-
Industrial: Medium Voltage (IND2)			18	3 412	33 576	16 141 289	618 351	1 593 484	1 555 374	6 056	2 046 630	5 141 292	5 186 158	-
Industrial Medium Voltage (IND 2.1): SSEG			-	-	-	-	-	-	-	-	-	-	-	-
Municipal: Street and Traffic lights (MUN1)			15	971	10 836	3 197 371	39 783	166 691	653 239	182 843	95 877	361 231	1 880 549	-
Municipal: Low Voltage <80 Amp (MUN2)			50	336	2 054	881 511	26 931	76 944	66 205	11 107	84 488	224 611	202 333	-
Municipal: Low Voltage <80 Amp (MUN3)			21	2 278	23 474	12 160 593	450 973	1 222 262	1 421 332	22 767	1 320 249	3 529 790	4 215 988	-
NPA - Single Phase 20 Amp Prepaid (NPO1)			2	1	6	2 154	120	271	252	49	263	602	646	-
NPA - LV > 60 Amp PP SARS Approved (NPO2)			4	7	72	23 779	1 030	2 649	2 300	153	3 227	7 652	6 921	-
Sport: Low All Consumers (<80A) and Prepaid (SPO1)			14	17	171	56 437	2 444	6 288	5 460	362	7 658	18 161	16 426	-
Sport: High Consumers (>80A) Maximum Demand (SPO2)			4	105	101	335 035	15 544	39 559	41 776	3 590	54 720	110 502	112 935	-
Time of Use (Low Voltage>80Amp) TOU1			134	1 010	100 253	43 369 203	1 710 575	4 721 755	4 166 978	48 485	5 447 797	14 255 536	13 016 573	-
Time of Use (Low Voltage>80Amp) TOU2			450	450	450	134 255	450 171	183 135	183 135	20	383 765	580 192	580 192	-
Time of Use (Medium Voltage) TOU2			35	23 863	234 943	11 828 133	4 324 977	11 145 414	10 878 860	42 354	14 314 889	35 960 091	36 372 902	-
Time of Use (Medium Voltage) TOU2 SSEG			2	765	7 156	2 555 032	118 501	227 859	273 265	77 537	334 020	652 806	948 581	-
Wheeling at low voltage (<400V) in c/kWh			-	-	-	-	-	-	-	-	-	-	-	-
Wheeling at medium voltage (>400V) in c/kWh			-	-	-	-	-	-	-	-	-	-	-	-
Availability			6 282	15 076	-	-	-	-	-	-	-	-	-	-
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)														
			26 540	112 644	801 474	281 520 193	15 569 113	41 034 236	180 795	2 985 141	45 784 923	113 661 280	116 537 019	-

Table 53 to ensure that the target revenue is achieved.

Table 54

Basic adjust	Cap/MD djust	kWh adjust
9.09%	9.09%	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 55

- Table 56.

Table 55

TARGET REVENUE		-
Previously calculated revenue		877 225 107
Plus Income foregone 2021/2022		16 128 158
Plus additional streetlight revenue		
Total		893 353 264

The summary data is shown in

Table 56

STELLENBOSCH				
TOTAL COSTS	TOTAL	REFERENCE	OVERCHARGE	% Overcharge
TARIFF CODE	COST	TARIFF REVENUE	RAND	+% of Tariff
Domestic: Life Line PP	108 081 202	41 322 861	-66 758 341	-161.6%
Domestic: Regular PP 20 Amp	128 863 316	76 202 265	-52 661 051	-69.1%
Domestic: Regular PP <600 kWh/m	-	-	-	#DIV/0!
Domestic: Regular PP >600 kWh/m	62 862 872	61 532 045	-1 330 827	-2.2%
Domestic: Regular 60 Amp 1 & 3 ph	85 325 045	81 967 098	-3 357 947	-4.1%
Domestic: Renew able Energy (DOM5) SSEG with export	564 290	514 090	-50 200	-9.8%
Commercial: Life Line 20 Amp PP	353 196	302 319	-50 877	-16.8%
Commercial: Low 40 Amp 1 & 3 ph PP	336 936	272 869	-64 066	-23.5%
Commercial: Regular PP 80 Amp 1 & 3 ph	37 018 704	36 260 903	-757 801	-2.1%
Commercial: Credit meters 80 Amps 1 & 3 ph	33 576 289	30 664 191	-2 912 098	-9.5%
Commercial: Regular PP 80 Amp 1 & 3 ph	-	-	-	#DIV/0!
Commercial: Renew able Energy (COM5) SSEG	570 223	563 957	-6 266	-1.1%
Agricultural: Regular 80 Amp 3 phase	4 438 772	5 280 407	841 635	15.9%
AGRICULTURAL: Renew able Energy (AGRI 1.1) own use & export	342 917	403 781	60 864	15.1%
Large Power: Low Voltage > 80 Amp	49 601 959	83 870 311	34 268 353	40.9%
Large Power: Low Voltage > 80 Amp SSEG	310 682	693 172	382 490	55.2%
Industrial: Medium Voltage (IND2)	28 695 220	46 195 923	17 500 702	37.9%
Industrial Medium Voltage (IND 2.1): SSEG	-	-	-	0.0%
Municipal: Street and Traffic lights (MUN1)	8 131 016	9 375 971	1 244 955	13.3%
Municipal: Low Voltage <80 Amp (MUN2)	1 452 832	1 816 568	363 736	20.0%
Municipal: Low Voltage >80 Amp (MUN3)	22 920 918	25 797 909	2 876 991	11.2%
NPA : Single Phase 20 Amp Prepaid (NPO1)	9 475	6 335	-3 140	-49.6%
NPA : LV > 60 Amp PP SARS Approved (NPO2)	75 295	67 079	-8 216	-12.2%
Sport: Low All Consumers (<80A) and Prepaid (SPO1)	175 895	141 047	-34 848	-24.7%
Sport: High Consumers (>80A) Maximum Demand (SPO2)	784 363	593 760	-190 603	-32.1%
Time of Use (Low Voltage>80Amp) TOUT1	89 324 369	111 082 718	21 758 349	19.6%
Time of Use (Low Voltage>80Amp) TOUT1 SSEG	3 267 314	4 852 052	1 584 738	32.7%
Time of Use (Medium Voltage) TOUT2	199 156 970	225 863 319	26 706 349	11.8%
Time of Use (Medium Voltage) TOUT2 SSEG	4 876 159	7 274 304	2 398 146	33.0%
Wheeling at low voltage (<400V) in c/kWh	-	-	-	0.0%
Wheeling at medium voltage (>400V) in c/kWh	-	-	-	0.0%
Availability	22 237 037	24 269 495	2 032 459	8.4%
SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	-	-	-	-
Total:	893 353 264	877 225 107	-16 128 158	
	893 353 264	0.00%	-	

The results are illustrated below in **Figure 12** in % of cost and in **Figure 13** 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 12

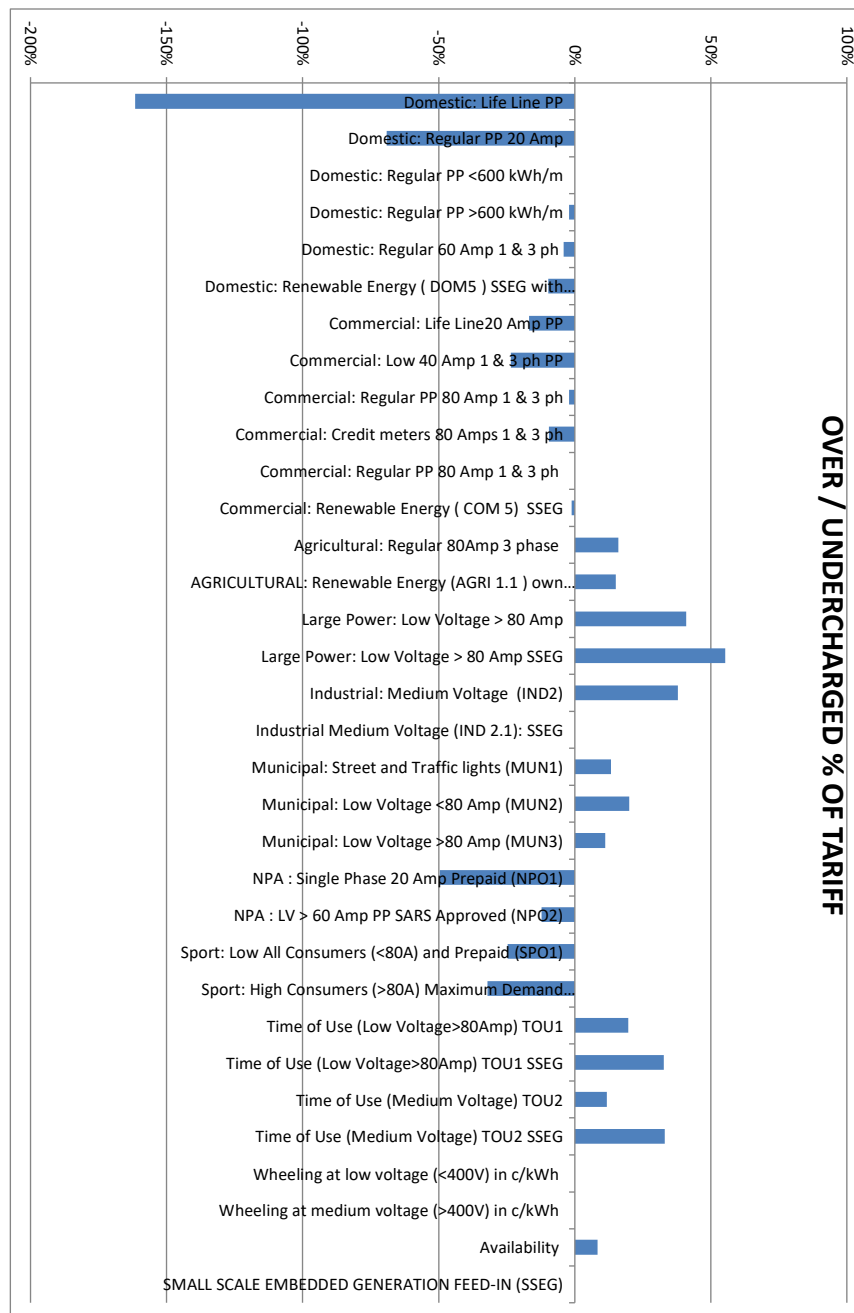
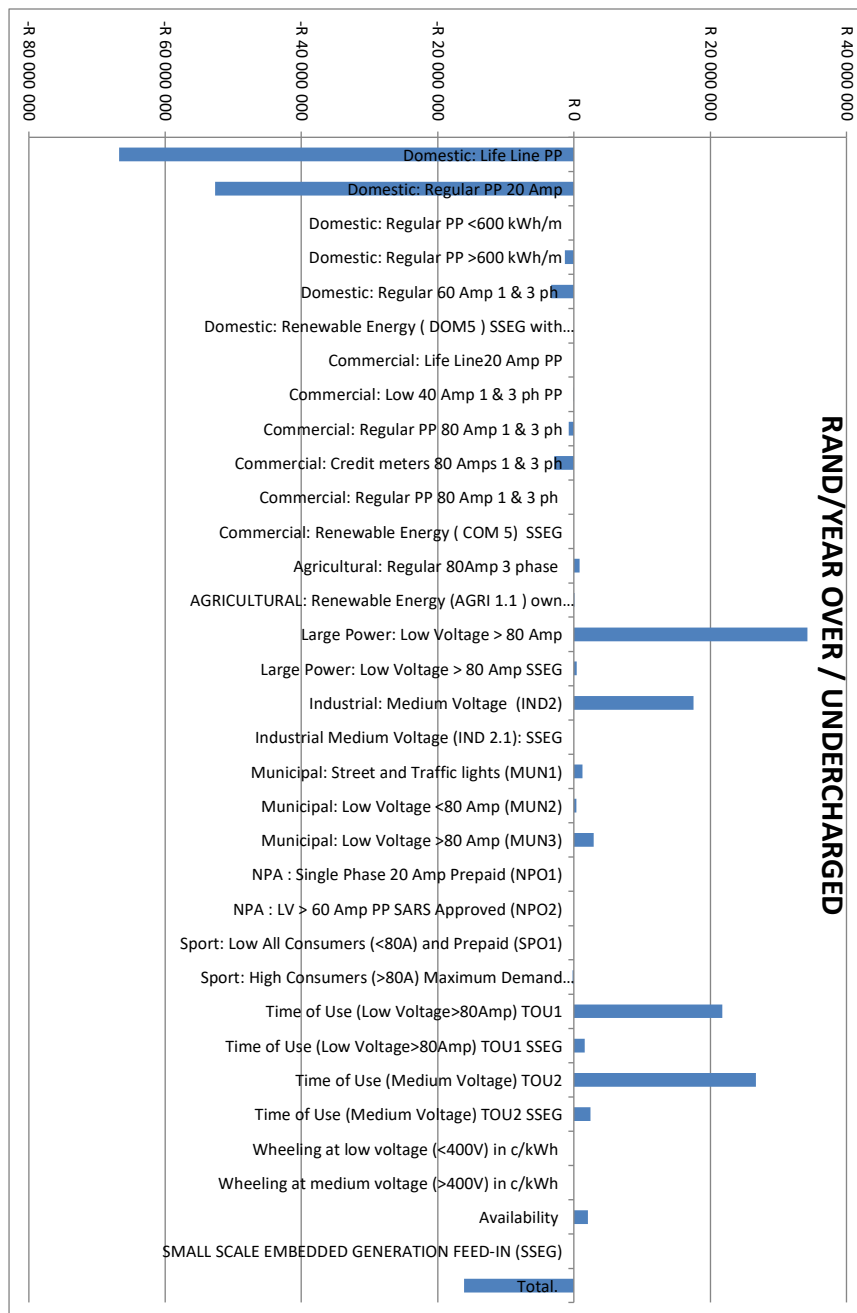


Figure 13



14. 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 57Table 57.

Table 57

STELLENBOSCH												
TARIFF SIMPLIFICATION		2021/2022 TARIFFS						SIMPLIFIED COSTS 2021/2022				0.0%
TARIFF CHARGES		Customer service	Access	MD (aLL hours)	ALL Energy	Block 2	Block 3	Block 4	Basic	Access	Demand	kWh All
Nr	TARIFF NAME	R/cust/m	R/kVA/m	R/kVA/m	R/ kWh	50.00	300.00	600.00	R/month	R/kVA	R/kVA	R/kWh
1	Domestic: Life Line PP	-	-	-	-	-	1.699	2.532	-	-	-	3.240
1	Domestic: Regular PP 20 Amp	-	-	-	-	1.360	1.750	2.460	-	-	-	3.184
1	Domestic: Regular PP <600 kWh/m	-	-	-	-	1.360	1.750	2.460	-	-	-	-
1	Domestic: Regular PP >600 kWh/m	186.20	-	-	-	1.358	1.742	2.457	1 093.98	-	-	1.555
1	Domestic: Regular 60 Amp 1 & 3 ph	229.69	-	-	-	1.358	1.742	2.457	817.70	-	-	1.555
1	Domestic: Renewable Energy (DOM5) SSEG with export	229.69	-	-	-	1.358	1.742	2.457	190.33	334.52	-	1.525
1	Commercial: Life Line20 Amp PP	-	-	-	2.940	-	-	-	-	-	-	3.435
1	Commercial: Low 40 Amp 1 & 3 ph PP	230.17	-	-	2.361	-	-	-	1 809.97	-	-	1.536
1	Commercial: Regular PP 80 Amp 1 & 3 ph	394.14	-	-	2.801	-	-	-	2 206.18	-	-	1.536
1	Commercial: Credit meters 80 Amps 1 & 3 ph	425.86	-	-	2.600	-	-	-	2 657.14	-	-	1.536
1	Commercial: Regular PP 80 Amp 1 & 3 ph	425.86	-	-	2.600	-	-	-	-	-	-	-
1	Commercial: Renewable Energy (DOM5) SSEG	425.86	-	-	2.600	-	-	-	190.33	334.516	-	1.525
1	Agricultural: Regular 80Amp 3 phase	467.03	-	-	2.842	-	-	-	3 528.15	-	-	1.497
1	AGRICULTURAL: Renewable Energy (AGRI 1.1) own use & export	467.03	-	-	2.842	-	-	-	342.00	324.962	-	1.497
1	Large Power: Low Voltage > 80 Amp	2 407.46	58.750	326.270	1.284	-	-	-	342.00	71.620	152.383	1.473
1	Large Power: Low Voltage > 80 Amp SSEG	2 407.46	58.750	326.270	1.284	-	-	-	342.00	71.620	152.383	1.468
1	Industrial: Medium Voltage (IND2)	4 564.69	58.750	323.860	1.267	-	-	-	1 419.15	48.987	99.858	1.427
1	Industrial Medium Voltage (IND 2.1): SSEG	4 564.69	57.820	323.860	1.267	-	-	-	-	-	-	-
1	Municipal: Street and Traffic lights (MUN1)	-	-	-	2.932	-	-	-	37.74	-	-	1.175
1	Municipal: Low Voltage <80 Amp (MUN2)	-	-	-	2.666	-	-	-	103.72	99.927	-	1.450
1	Municipal: Low Voltage >80 Amp (MUN3)	-	-	361.680	1.222	-	-	-	342.00	71.620	152.383	1.423
1	NPA : Single Phase 20 Amp Prepaid (NPO1)	-	-	-	2.940	-	-	-	-	-	-	4.398
1	NPA : LV > 60 Amp PP SARS Approved (NPO2)	-	-	-	2.821	-	-	-	175.33	348.791	-	1.560
1	Sport: Low All Consumers (<80A) and Prepaid (SPO1)	-	-	-	2.499	-	-	-	100.83	348.791	-	1.560
1	Sport: High Consumers (>80A) Maximum Demand (SPO2)	-	-	360.470	1.144	-	-	-	342.00	71.620	152.383	1.476
1	Time of Use (Low Voltage->80Amp) TOUT	4 600.48	62.370	62.370	-	-	-	-	476.12	71.620	152.383	1.473
1	Time of Use (Low Voltage->80Amp) TOUT SSEG	4 600.48	62.370	62.370	-	-	-	-	476.12	71.620	152.383	1.468
1	Time of Use (Medium Voltage) TOUT	8 708.10	63.390	60.280	-	-	-	-	1 419.15	48.987	99.858	1.427
1	Time of Use (Medium Voltage) TOUT SSEG	60.28	63.390	60.280	-	-	-	-	1 419.15	48.987	99.858	1.439
1	Wheeling at low voltage (<400V) in c/kWh	-	-	-	0.280	-	-	-	-	-	-	-
1	Wheeling at medium voltage (>400V) in c/kWh	-	-	-	0.243	-	-	-	-	-	-	-
1	Availability	321.97	-	-	-	-	-	-	295.00	-	-	-
1	SMALL SCALE EMBEDDED GENERATION FEED-IN (SSEG)	103.95	-	-	-	-	-	-	103.95	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-

15. SUBSIDY ANALYSIS

The extent of the cross-subsidy impact on other consumers is calculated in Table 58 below.

Table 58

SUBSIDY ANALYSIS							
Tariffs to be subsidised	Customers	Tot Cost	Current revenue	Shortfall	FBE	Subsidy	% SUBSID
Domestic: Life Line PP	10 701	108 081 202	41 322 861	66 758 341	16 128 158	50 630 183	123%
Domestic: Regular PP 20 Amp	11 121	128 863 316	76 202 265	52 661 051	-	52 661 051	69%
Domestic: Regular PP <600 kWh/m	-	-	-	-	-	-	#DIV/0!
Domestic: Regular PP >600 kWh/m	1 987	62 862 872	61 532 045	1 330 827	-	1 330 827	2%
Domestic: Regular 60 Amp 1 & 3 ph	3 607	85 325 045	81 967 098	3 357 947	-	3 357 947	4%
Domestic: Renewable Energy (DOM5) SSEG with export	13	564 290	514 090	50 200	-	50 200	10%
TOTAL		385 696 724	261 538 359	124 158 365	16 128 158	108 030 207	
Total revenue excluding subsidy customers		615 686 748					
Total subsidy as % of Base revenue						17.55%	

This subsidy % is of non-subsidised revenue. We can thus say that the current cross-subsidy to domestic consumers, but specifically low usage (poor) consumers is more than 17% of non-subsidised revenue. This is considered close to unsustainable and should be reduced in the proposed future prices.

16. ESKOM MARGINAL COSTS

Table 59 shows the calculation of the marginal Eskom purchase costs domestic and RDP consumers. The marginal costs do not refer to the average Eskom purchase price but the price of the domestic customers on

DOMESTIC ENERGY /MARGINAL ESKOM COST ANALYSIS

DOMESTIC ENERGY / MARGINAL ESKOM COST ANALYSIS												
MEGAFELX 2022/2023												
Eskom										0		
Transmission network charges [R/kVA/m]		R/kVA/m								12.42		
Distribution network charges												
Network capacity charge				R/kVA/m						24.18		
Network demand charge				R/kVA/m						45.84		
Urban low voltage subsidy charge [R/kVA]		R/kVA/m								-		
				</								

- The Megaflex charges are those applicable to Stellenbosch 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 more than 178 c/kWh in 2022/2023 values.
- The NERSA low benchmark does not even cover the marginal Eskom cost.
- If only the marginal vending costs is added it comes to more than 187 c/kWh.
- It is now clear that the first block domestic energy prices at 136 and 175 c/kWh does not even cover the marginal purchase costs and makes no contribution to the customer service and network costs. The perception that the revenue is made up in the more expensive block 3 and 4 is a myth as more and more consumers are using less than the size of the 2nd block.

17. KEY FINDINGS

- Poor customers are seriously subsidised. This is because of the lack of fixed charges, the low first block energy rates and FBE.
- All domestic categories are undercharged because of the lack of fixed charges, the low first block energy rates.
- All Commercial categories are generally also undercharged.
- Agricultural consumers seem to be overcharged but remember that the true rural costs could not be isolated and thus the possible higher costs could not be calculated.
- All Bulk consumers, TOU and non-TOU at LV and at Mv are all overcharged.
- Streetlight and municipal tariffs are lightly overcharged.

- Availability charges are slightly low.

18. PRICING IMPLICATION.

In view of the findings from the COS study the following recommendations are made in respect of Pricing and setting of tariffs:

- 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 20 Amps will continue to be charged on an IBT tariff with no fixed charges.
 - Free Basic Electricity (FBE) of 50 kWh/m off-set by equitable share but calculated based on the full cost not the first block price.
- Cross subsidisation of low usage domestic customers (poor but not indigent) customers could be done as follows:
 - Customers be limited to 20 Amps.
 - Retain IBT structure.
 - No FBE is granted.
- All small customers (domestic / business) > 20 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. (note: The Rand/kVA figures cannot be used for tariff calculates as these refer to the actual ADMDs. The full network costs should be divided by the installed capacities.)
 - 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 Stellenbosch 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 differentiated for:
 - small consumers (<100 kVA),
 - Bulk consumers at LV,
 - Bulk consumers at MV.
- Availability charges be slightly adjusted.

19. PRICING ISSUES RELATING TO WHEELING.

The current wheeling charges are shown in the Table 60 below.

Table 60

9. External Wheeling		
Customer received power at low voltage (<400V) in c/kWh	25,95	28,00
Customer received power at medium voltage (>400V) in c/kWh	22,48	24,26

A concern was raised that the municipality will lose revenue when this wheeling charge is applied. The following comments in this respect.

- The wheeling rate is not the big factor that will impact any revenue losses but the wheeling pricing policy.
 - The important principle supported is underpinned by the following principle: **The network costs are paid by the consumers and not by the wheelers.**
 - This is based on the principle that the costs are driven by the forward load, in other words that flowing to the consumers.
 - If additional maximum demand and access charges are going to be levied for the same networks, the maximum demand and access charges will have to be reduced to consumers.
 - It must also be noted that in most cases, all cases if wheeling contracts are managed correctly, the loads on the networks will be reduced at the higher voltages than that where the wheeler injects power.
 - This means that the losses on the higher voltage networks will also be reduced.
 - Furthermore the Eskom and Drakenstein supply maximum demand and access demands cannot be increased but will most probably decrease.
- The proposed wheeling pricing policy should thus state the following:
 - The consumer who receives the wheeled power (financially), the off-taker, must continue to pay the full tariff charges in respect of:
 - The basic charge to cover the basic consumer service costs such as service connection, metering, billing, etc.
 - An additional basic charge to cover any additional metering / admin costs.
 - The network charges: maximum demand and access (capacity) charges. These to be based on the consumers maximum monthly demand and the Access demand (highest of notified or highest maximum demand incurred since connection).
 - Energy charges for units provided by the municipality and not by the wheeler. (Shortfall).
 - The wheeler will pay the following charges:
 - The basic charge to cover the basic consumer service costs such as service connection, metering, billing, etc.
 - No access or maximum demand charges unless the demand on any of the networks are increased in any direction (normal flow or reverse flow.)

With this policy the municipality is protected against any revenue losses relating to customer services and networks. This will include part of the surplus made on electricity contained in these charges. The question thus remains what about the energy. The following should be noted in this respect:

- The potential loss to the municipality on energy only relates to the markup on energy.
- This is because instead of the municipality buying the power in bulk and selling it to the consumer it will be provided by the wheeler.
- The question thus is what the markup on energy is and what should it be. The following in respect to what it should be: The items which have merit as add on include the following:
 - The electricity surplus which raises many questions:
 - Is it the actual surplus as is currently made as calculated from a ringfenced cost of supply study?
 - The target surplus which must obviously be within the NERSA benchmark?
 - Cross subsidies to the poor which also raises many questions:
 - How should this cross-subsidy be calculated?
 - Should the rate change as the subsidy % change?
 - Should there be some cap on this level?
 - Should the cross subsidies not be done by way of the equitable share or other national grants?
 - **The network losses.** The following be noted in this respect:
 - The important point here is that the amount of energy injected into the system will be less than that reaching the consumer.

- Currently the markup is in the consumer energy bill which is obviously the smaller quantity after losses.
- In cases where injection is at the same voltage as off-take this impact would be minimal.
- In cases where injection is at a higher voltage as off-take the bill quantity will be less.
- If the wheeling charge is thus levied at the point of injection there would be a slight overcharge in respect of the losses of the particular agreement.

The actual markup on energy is different for every consumer category due to the recovery of network and customer services through the energy charge in some cases and where tariffs are not cost reflective. It is thus not really possible to calculate the current markup.

The next complication relates to whether the wheeling charge should be set as a % of sales or as a R/kWh. The following in respect:

- The current markups are mostly in % such as the surplus and cross subsidy to the poor.
- The typical markup on TOU energy charges is different in R/kWh and many cases in % values.
- The problem to charge the markup as a % of that it must be a % of energy sales. In the case of wheeling that would not be known as the price of energy is the subject of a private agreement between the wheeler and the off-taker.

An attempt will be made to evaluate the current wheeling charges by.

- The actual surplus made according to the COS study is 7.7%. The NERSA benchmark is between 10 and 20%.
- The cross subsidy to the poor is 17.55% at the moment. This should be reduced with the implementation of more cost reflective tariffs and limitation of poor consumer capacity.
- The average losses equals to 5.81%. This should however be excluded if the wheeling charge is levied on injected energy.
- The markup should be set as $(1+7.7\%)*(1+17.55\%) = 26.6\%$

The calculation of the actual markup is shown in the Table 61 below. It compares well with the theoretical calculated %.

Table 61

WHEELING CALCULATIONS		
Theoretical markup on selling volume		33.96%
BULK DETAILS	2021/2022	
Energy	Rand	kWh
Franschhoek	R 45 911 731	147 192 674
Cloetesville	R 58 265 658	151 146 736
Stellenbosch	254 086 227.00	59 924 206
FRG	19 736 191	18 163 100
RIVERSMEET	15 668 831	13 575 710
VICTOR VERSTEL	1 838 499	2 347 765
	395 507 137	392 350 191
R/kWh 201/2022	R 1.0080	8.61%
R/kWh 2022/2023	R 1.0948	
FROM COS STUDY: Markup on sales volume		
Energy charges	554948964.1	371520214
Energy price R/kWh	R 1.4937	
Energy markup R/kWh	R 0.3989	
As % of energy cost	36.4%	
% of energy revenue	26.7%	

The calculated wheeling charge based on the assumptions made here looks more than the current wheeling charges.

20. SMALL SCALE EMBEDDED GENERATION (SSEG) PRICING INPUTS

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 plus TOU energy charges. A new TOU tariff for small consumers, <100 kVA, should be developed. Any consumer can select this tariff, but all SSEG consumers must be on this tariff. It be subject to an application and payment for the supply and installation of a 4 wire, 4 quadrant TOU meter.

The SSEG Feed-in tariff, which caters for consumers who want to feed-in to the network, should be 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).
- The feed-in rate 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 if they do not wish to feed-in. This is problematic as the standard energy charges reflect a different load profile of a consumer with SSEG, especially if they are grid tied only (No batteries).

An analysis was done to determine the suitability of the 90% of Eskom TOU energy rates as feed-in rates and the impact of load shifting by SSEG consumers.

- The Tariff energy markup was shown to be about 26% or **40 c/kWh**.
- Savings in feed-in energy.
 - Losses = 5,8%
 - 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 R1.098/kWh) = 10.1 c/kWh
 - Total = $10.8 + 0.55 + 20\% \times 94 \text{ c/kWh} = \mathbf{30.15 \text{ c/kWh}}$

Thus 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 $40 + 30.15 = 60.15 \text{ c/kWh}$ of net revenue would be lost.

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.

Eskom is paying its consumers at 100% of its TOU energy rates and this is becoming the norm. For Stellenbosch to become less dependant on Eskom bulk supply it must maximise the amount of energy it can purchase from its own consumer surpluses.

Currently the industry standard is that the value of feed-in energy may not exceed the value of energy purchased by the consumer within a financial year. This is an MFMA requirement. It is well known that Cape Town obtained approval from National Treasury to purchase more surplus energy from consumers than the value they buy. The following in this respect:

- Care should be taken not to buy such energy at a price that exceed the opportunity cost of savings in Bulk purchase costs from Eskom and Drakenstein. (Cape town incentive price is close to that).
- A provision must be made that in cases where network problems are experienced such purchase amounts will be limited.
- The municipality must implement measures to start monitoring the harmonics characteristic of inverters now being installed.
- In time filters should be investigated to overcome the harmonic problems that could be created in areas with significant amount of surplus renewable energy feed-in.

21. CONCLUSIONS

This detailed Ringfencing and Cost of supply 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.

22. ANNEXURE

22.1. 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 62

DEMAND ALLOCATER METHODS COMPARED								
AVERAGE AND ACCESS METHOD								
Customer group demand responsibility ratio								
N2	D	L	A	B	C	E		
		An LF	P kWh/y	Tot kWh/y	P Ex MD	Σ Ex MD	Ex MD%	ENERGY RATIO
aMVatHV	0.0%	60.38%	-	301 761 505	-	18 519.495	#DIV/0!	0.0%
bLPU MV	39.5%	60.38%	131 895 003	301 761 505	6 133.774	18 519.495	36.7%	43.7%
cLPU LV	23.8%	60.38%	69 833 353	301 761 505	4 610.257	18 519.495	52.0%	23.1%
dMunicS	3.8%	60.38%	13 783 673	301 761 505	468.908	18 519.495	26.8%	4.6%
eAgricu	0.7%	60.38%	2 051 143	301 761 505	118.023	18 519.495	47.9%	0.7%
fCommer	11.9%	60.38%	24 345 241	301 761 505	3 279.933	18 519.495	115.7%	8.1%
gReside	20.3%	60.38%	59 853 092	301 761 505	3 908.599	18 519.495	51.5%	19.8%
TOTAL			301 761 505					
Customer group excess demand								
	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	%
aMVatHV	-	-	-	8 760.0	90%	-	-	0.14%
bLPU MV	6 133.77	16 729.45	131 895 003	8 760.0	90%	22 863.2	131 895 003	65.85%
cLPU LV	4 610.26	8 857.60	69 833 353	8 760.0	90%	13 467.9	69 833 353	59.19%
dMunicS	468.91	1 748.31	13 783 673	8 760.0	90%	2 217.2	13 783 673	70.97%
eAgricu	118.02	246.47	2 051 143	8 760.0	95%	364.5	2 051 143	64.24%
fCommer	3 279.93	2 835.85	24 345 241	8 760.0	98%	6 115.8	24 345 241	45.44%
gReside	3 908.60	7 591.72	59 853 092	8 760.0	90%	11 500.3	59 853 092	59.41%
Total	18 519.49	38 009.41	392 350 191	61 320.0		56 528.9	301 761 505	
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 Adjutment factor	
aMVatHV		0.0%	0.0%	0.0%	0.0%	0.1%	#DIV/0!	
bLPU MV		40.4%	39.5%	43.7%	33.0%	65.9%	90.4%	
cLPU LV		23.8%	23.8%	23.1%	19.1%	59.2%	103.0%	
dMunicS		3.9%	3.8%	4.6%	3.4%	71.0%	82.3%	
eAgricu		0.6%	0.7%	0.7%	0.4%	64.2%	97.5%	
fCommer		10.8%	11.9%	8.1%	10.2%	45.4%	147.4%	
gReside		20.3%	20.3%	19.8%	21.9%	59.4%	102.5%	
0		0.0%	0.0%	0.0%	0.0%	45.3%		
		100%	100%	100%	88%			

Table 62

DEMAND ALLOCATER METHODS COMPARED								
AVERAGE AND ACCESS METHOD								
Customer group demand responsibility ratio								
N2	D	L	A	B	C	E		
		An LF	P kWh/y	Tot kWh/y	P Ex MD	Σ Ex MD	Ex MD%	ENERGY RATIO
aMVatHV	0.0%	60.38%	-	301 761 505	-	18 519.495	#DIV/0!	0.0%
bLPU MV	39.5%	60.38%	131 895 003	301 761 505	6 133.774	18 519.495	36.7%	43.7%
cLPU LV	23.8%	60.38%	69 833 353	301 761 505	4 610.257	18 519.495	52.0%	23.1%
dMunicS	3.8%	60.38%	13 783 673	301 761 505	468.908	18 519.495	26.8%	4.6%
eAgricu	0.7%	60.38%	2 051 143	301 761 505	118.023	18 519.495	47.9%	0.7%
fCommer	11.9%	60.38%	24 345 241	301 761 505	3 279.933	18 519.495	115.7%	8.1%
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TOTAL			301 761 505					
Customer group excess demand								
	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	%
aMVatHV	-	-	-	8 760.0	90%	-	-	0.14%
bLPU MV	6 133.77	16 729.45	131 895 003	8 760.0	90%	22 863.2	131 895 003	65.85%
cLPU LV	4 610.26	8 857.60	69 833 353	8 760.0	90%	13 467.9	69 833 353	59.19%
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eAgricu	118.02	246.47	2 051 143	8 760.0	95%	364.5	2 051 143	64.24%
fCommer	3 279.93	2 835.85	24 345 241	8 760.0	98%	6 115.8	24 345 241	45.44%
gReside	3 908.60	7 591.72	59 853 092	8 760.0	90%	11 500.3	59 853 092	59.41%
Total	18 519.49	38 009.41	392 350 191	61 320.0		56 528.9	301 761 505	
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	
aMVatHV		0.0%	0.0%	0.0%	0.0%	0.1%	#DIV/0!	
bLPU MV		40.4%	39.5%	43.7%	33.0%	65.9%	90.4%	
cLPU LV		23.8%	23.8%	23.1%	19.1%	59.2%	103.0%	
dMunicS		3.9%	3.8%	4.6%	3.4%	71.0%	82.3%	
eAgricu		0.6%	0.7%	0.7%	0.4%	64.2%	97.5%	
fCommer		10.8%	11.9%	8.1%	10.2%	45.4%	147.4%	
gReside		20.3%	20.3%	19.8%	21.9%	59.4%	102.5%	
0		0.0%	0.0%	0.0%	0.0%	45.3%		
		100%	100%	100%	88%			

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.

22.2. 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, $W = V \times A$

22.3. 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		
